EL PASO ELECTRIC COMPANY

NEWMAN GENERATING STATION

APPLICATION FOR A PSD/NNSR AIR QUALITY PERMIT AMENDMENT

TCEQ CN600352819; TCEQ RN100211309

OCTOBER 2019

PREPARED FOR

El Paso Electric Company

PREPARED BY

SWCA Environmental Consultants

EL PASO ELECTRIC COMPANY
NEWMAN GENERATING STATION
APPLICATION FOR A PSD/NNSR AIR QUALITY PERMIT AMENDMENT

Prepared for

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SWCA Project No. 55480

October 2019

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1 INTRODUCTION

El Paso Electric Company (EPE) owns and operates an electric generating plant called the Newman Generating Station located at 4900 Stan Roberts Sr Avenue in El Paso, El Paso County, Texas. EPE has been assigned Texas Commission on Environmental Quality (TCEQ) Customer Number CN600352819. The Newman Generating Station has been assigned TCEQ Regulated Entity Number RN100211309 and Air Account No. EE-0029-T.

El Paso County is currently classified as being in attainment or unclassified with respect to the National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), ozone (O_3), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), and lead (Pb).[1] The City of El Paso in El Paso County is designated as a moderate nonattainment for particulate matter less than 10 microns in diameter (PM_{10}). The Newman Generating Station is located within this PM_{10} Nonattainment Area.

The Newman Generating Station is classified as an existing major source under the Prevention of Significant
Deterioration (PSD) and Nonattainment New Source Review (NNSR) programs. Existing emission sources located at the Newman Generating Station are currently authorized by PSD Permit No. PSDTX1090 and TCEQ NSR Permit No. 1467, TCEQ Standard Permit No. 114528, and TCEQ Voluntary Emission Reduction Permit No. 45606. Additionally, the site is a major source under the Title V Operating Permits Program and operates pursuant to Site Operating Permit (SOP) and Acid Rain Permit No. O80. The Newman Generating Station will be a major source of hazardous air pollutant (HAP) emissions.

With this application, EPE is proposing to modify the existing Newman Generating Station by constructing a new Mitsubishi 501G series natural gas 230 Megawatt (MW) simple cycle combustion turbine fired by pipeline quality natural gas along with ancillary equipment (the Project). The new unit will provide additional generating capacity at the Newman Generating Station to meet projections of future demand and will operate as a simple cycle unit. Ancillary equipment includes a diesel-fired firewater pump engine and a natural gas-fired line heater. The turbine will be equipped with dry low-NO_x burners, Selective Catalytic Reduction (SCR), and catalytic oxidation technology to control emissions from combustion. EPE is seeking to authorize the emissions associated with the Project by applying for a major modification to PSDTX1090 and NSR Permit 1467. An application for a significant revision to SOP and Acid Rain Permit No. O80 for the Project will be submitted under separate cover.

Air emission increases associated with the proposed Project will consist primarily of products of combustion from the gas-fired turbine. The construction of the new equipment qualifies as a major modification at an existing major source and is subject to Major New Source Review under the PSD and NNSR Programs. Based on the potential to emit (PTE) estimates provided in Section 3, the Project is subject to PSD review for emissions of NO_x, CO, VOC, PM, $PM_{2.5}$, and Greenhouse Gases (regulated as carbon dioxide equivalent [CO_2e]). NNSR review is required for emission increases of PM_{10}.

This document is intended to be a supplement to the TCEQ Form PI-1 General Application Workbook which is being submitted concurrently in **Appendix D**. This submittal has been prepared in accordance with 30 Texas Administrative Code (TAC) Chapter 116, Subchapter B, New Source Review Permits. To

[1] Per EPA's Green Book. Available online: https://www.epa.gov/green-book. Accessed September 12, 2019.

assist in the review of this submittal, the following list provides the individual section summary of the application:

- Section 2.0 of this application provides general project and site information including an area map and plot plans that show the approximate location of the project and the property lines.
- Section 3.0 provides a detailed description of the operations and a discussion of the emission sources associated at this proposed project and control devices proposed, including process flow diagrams. It also describes the methodology used for the emission calculations,
- Section 4.0 includes a discussion of applicable and potentially applicable state and federal regulations.
- Section 5.0 provides the PSD Best Available Control Technology (BACT) and NNSR Lowest Achievable Emission Rate (LAER) analysis.
- Section 6.0 includes a summary of the Air Quality Impacts Analysis. Please note that the air dispersion modeling protocol and modeling report for the project are submitted under separate cover.
- Section 7.0 provides a review of NNSR elements.
- **Appendix A** provides emission calculations.
- **Appendix B** contains equipment specifications for various units at the project.
- **Appendix C** contains BACT/LAER analysis support documents
- **Appendix D** includes a printout of the PI-1 General Application Workbook
- **Appendix E** provides the Texas Professional Engineer (P.E.) certification statement.

2 PROJECT DESCRIPTION

2.1 General Site Information

EPE plans to construct new equipment at the Newman Generating Station in El Paso County, Texas. The site address is 4900 Stan Roberts Sr. Avenue, El Paso, Texas 79934. The County of El Paso is currently classified as being in attainment or unclassified with respect to the NAAQS for CO, NO_2, SO_2, $PM_{2.5}$, Pb, and the 8-hour ozone standard.[2] The City of El Paso is a moderate nonattainment area for PM_{10}.

Table 1 provides the location and elevation of the Newman Generating Station.

Table 1. Site Location

County	Nearest City	Latitude	Longitude	Elevation
El Paso	El Paso	31.98342	-106.42824	4,056 feet

Figure 1 shows a current area map with a 3,000-foot radius from the property boundary which shows that there are no receptors within 3,000 feet of the project. The area map also includes a zoomed-out view to show the closest non-industrial receptors.

Figure 2 shows a plot plan including the proposed location of the Project equipment along with the currently authorized emission sources. EPE does not propose to modify these existing sources as part of the Project. For reference, **Table 2** lists these existing sources and includes the authorization information for these sources. [3]

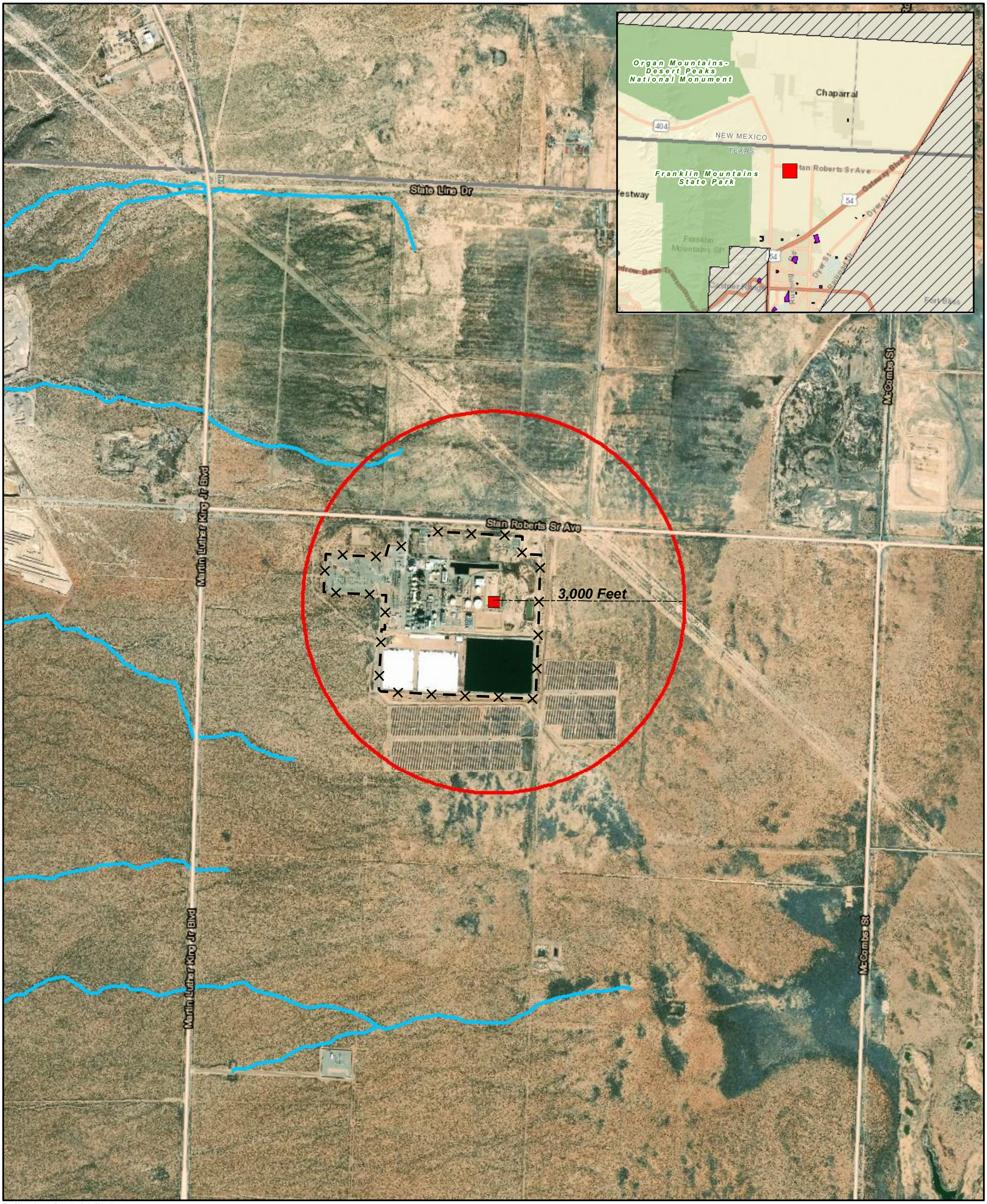
Table 2. Existing Emission Unit Authorizations

Unit ID	Emission Unit Name/Description	New Source Review Authorization
B1	Unit 1 Boiler	45606
B2	Unit 2 Boiler	45606
B3	Unit 3 Boiler	45606
B4CA	Unit 4, Combustion Turbine GT-1	1467,PSDTX1090
B4CB	Unit 5, Combustion Turbine GT-2	1467,PSDTX1090
B4DA	Unit 4, GT-1 Duct Burner and HRSG	1467,PSDTX1090
B4DB	Unit 4, GT-2 Duct Burner and HRSG	1467,PSDTX1090
CT-1467-4	Cooling Tower	1467,PSDTX1090
CT-1467-6	Cooling Tower	1467,PSDTX1090
CT-1	Cooling Tower	45606
CT-2	Cooling Tower	45606
CT-3	Cooling Tower	45606

[2] Per EPA's Green Book. Available online: https://www.epa.gov/green-book. Accessed September 12, 2019.

[3] Existing Emission Unit Authorization as presented in the New Source Review Authorization Reference by Emission Unit table in SOP No. 080 dated July 20, 2016.

Unit ID	Emission Unit Name/Description	New Source Review Authorization
DB-6A	Duct Burner 6A	1467,PSDTX1090
DB-6B	Duct Burner 6B	1467,PSDTX1090
DB-S4-1	Duct Burners Unit S4-1	114528
DB-S4-2	Duct Burners Unit S4-2	114528
FIRE	Firewater Pump Engine	1467,PSDTX1090
FUG	Piping Fugitives	1467,PSDTX1090
GEN	Emergency Generator Engine	1467,PSDTX1090
GT-6A	Combustion Turbine GT-6A	1467,PSDTX1090
GT-6B	Combustion Turbine GT-6B	1467,PSDTX1090
LO-1	Gas Turbine GT-6A Lube Oil Vent	1467,PSDTX1090
LO-2	Gas Turbine GT-6B Lube Oil Vent	1467,PSDTX1090
LO-3	Steam Turbine Lube Oil Vent	1467,PSDTX1090
OT-1	Fuel Storage Tank 1 (TK1)	45606
OT2	Fuel Storage Tank 2 (TK2)	45606
OT6	Residual Oil Tank (Old TK1)	45606
OTD-1	Diesel Storage Tank 1	1467,PSDTX1090
OTD-2	Diesel Storage Tank 2	1467,PSDTX1090
OTD-3	Diesel Storage Tank 3	1467,PSDTX1090
S1	Stack, Unit 1 Boiler	45606
S2	Stack, Unit 2 Boiler	45606
S3	Stack, Unit 3 Boiler	45606
S4-1	Stack, Unit 4, Combustion Turbine and HRSG, GT-1	1467,PSDTX1090
S4-2	Stack, Unit 4, Combustion Turbine and HRSG, GT-2	1467,PSDTX1090
UL-1	Tank Truck Unloading Station for Diesel Fuel	45606



SWCA ENVIRONMENTAL CONSULTANTS

EPE NEWMAN STATION UNIT 6 PERMITTING

AREA MAP
EL PASO COUNTY, TEXAS

- Site Location
- State Boundary
- Federal/State Land
- Stream
- Wetland
- Review Area
- Military Land - Fort Bliss
- Park/Recreational Area
- Facility Fence

1:24,000

Created By: AB
Project Number: 55480
Date: 8/21/2019
NAD 1983 StatePlane Texas Central FIPS 4203 Feet

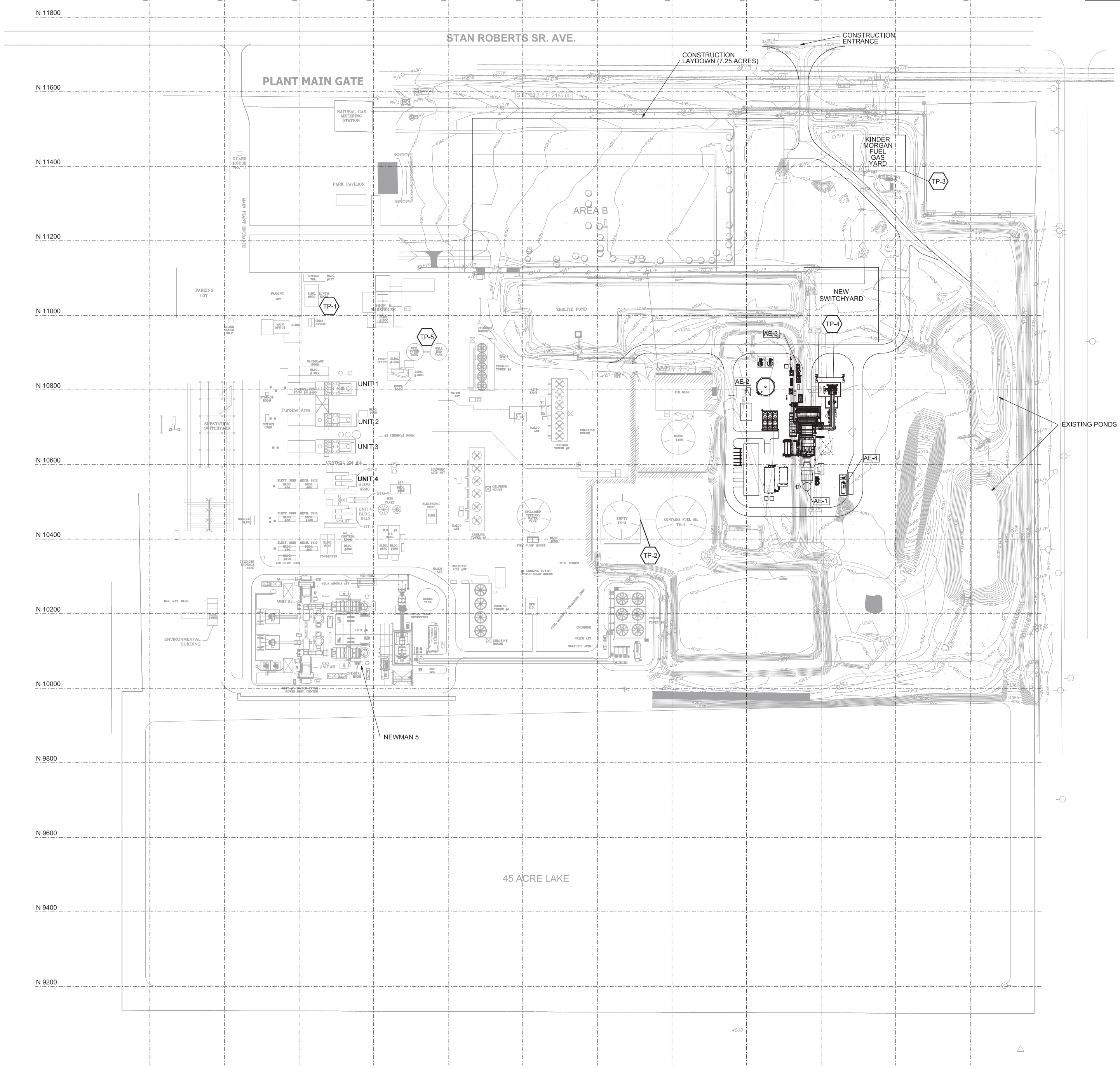
0 1,000 2,000 Feet
0 200 400 600 Meters

LEGEND

AIR EMISSION SOURCES	COORDINATES	
	EASTING	NORTHING
AE-1 - EXHAUST STACK UNIT 6	6562.02	10540.77
AE-2 - DIESEL FIRE PUMP	6404.31	10795.27
AE-3 - WATER BATH HEATER	6538.93	10844.00
AE-4 - AMMONIA TANK	6659.56	10537.34

INTERFACE TERMINAL POINT LIST

TP-1 - POTABLE WATER
TP-2 - DEMINERALIZED WATER
TP-3 - NATURAL GAS SUPPLY
TP-4 - TRANSMISSION LINE
TP-5 - WELL WATER/SERVICE WATER



PRELIMINARY
NOT FOR CONSTRUCTION

NORTH

100' 0' 100' 200' 300'
GRAPHIC SCALE
DRAWING SCALE
1" = 100'-0"

HOLD INFORMATION

NO.	DESCRIPTION

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR'S/INSTALLER'S PERSONNEL (OR THAT OF ITS SUB-CONTRACTOR(S)) PERFORMING THE WORK.

RELEASE INFORMATION

REV.	DATE	DESCRIPTION
A	04-02-2019	ISSUED FOR CLIENT COMMENTS
B	07-16-2019	ISSUED FOR INFORMATION
C	08-07-2019	ISSUED FOR INFORMATION
D	09-16-2019	ISSUED FOR INFORMATION

ISSUE PURPOSE: FOR INFORMATION
SPECIFICATION: ---
PROJECT NO.: 13856.010

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF TEXAS.

ENTER NAME
ENTER DATE

MY LICENSE RENEWAL DATE IS: ENTER DATE
PAGES OR SHEETS COVERED BY THIS SEAL:
THIS DOCUMENT ONLY.

FIRM REGISTRATION NUMBER F-2202

CAD FILE NAME: EPE-GA-M0001.DGN
PREPARED BY: JMZ
REVIEWED BY: RAM
APPROVED BY: ---

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The Electric Company
El Paso Electric

PROJECT

NEWMAN GENERATING STATION
NEWMAN 6 - GT5

EL PASO ELECTRIC

DRAWING TITLE

GENERAL ARRANGEMENT
SITE DEVELOPMENT PLAN

DRAWING NUMBER	REVISION
EPE-GA-M0001	D

SHEET 1

ZL11755\M1547\D:\El Paso\EPE-GA-M0001.dgn
Form SDC-0401-01-08, ANSI (Imperial) MicroStation Border - Size E - 34 x 44
Revision 10, Revision Date: 10-16-2009

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2.2 Proposed Project

2.2.1 Project Summary

The purpose of the proposed project is to provide additional generation capacity based on EPE forecasts for energy and demand needs for future operating years. EPE proposes to install a new Mitsubishi Model M501GAC Simple Cycle gas turbine rated 230 MW which will be fired by pipeline quality natural gas. The turbine will be used to provide new power generation capacity, especially during EPE's summer peak hours. The M501GAC model turbine was selected due to benefits such as efficiency, cycling capability without impacting maintenance intervals, ramping capability to follow load, sufficient turndown, and low mass emissions. The unit will be equipped with dry low-NO_x burners, a Hot SCR, and an oxidation catalyst to further reduce emission rates. Additional equipment associated with the project includes piping and components which will be a source of fugitive emissions and a natural gas fired line heater which will be used to ensure that natural gas fueling the turbine is at an acceptable temperature for combustion. An emergency use firewater pump will also be installed as part of this project for safety purposes. **Table 3** lists the new emission sources that will result from Project implementation. The proposed location for these sources is shown in **Figure 2** and a process flow diagram is shown in **Figure 3.**

Table 3. Proposed Project Emission Units

FIN*	EPN*	Emission Unit Name/Description
SC-7	SC-7	Unit 7 Simple Cycle Turbine
LH-1	LH-1	Line Heater
FIRE-2	FIRE-2	Firewater Pump Engine
FUG-7	FUG-7	Piping Fugitives

* FIN denotes the TCEQ Facility Identification Number. EPN denotes the TCEQ Emission Point Number.

2.2.2 Process Description

The following description pertains to the equipment constructed as part of the proposed Project. As previously noted, the existing equipment at the Newman Generating Station will not be modified as part of the project.

The natural gas fuel enters the facility from the natural gas supplier's pipeline and is routed through the line heater (FIN LH-1) to increase the fuel temperature (as necessary) before being routed to the turbine. Some of the natural gas is also used by the line heater as fuel during this process which results in combustion emissions (EPN LH-1). The natural gas-fired line heater is equipped with a low NO_x burner.

The simple cycle turbine (FIN SC-7) operates by drawing air into the unit which is compressed and fed into the combustion chamber at high pressure. In the combustion chamber, natural gas fuel is introduced into the stream and the mixture is combusted. The high temperature, high-pressure gas stream leaves the combustion chamber and expands through the turbine, rotating the turbines blades in order to continue drawing in air into the combustion chamber as well as to spin a generator to produce power. The exhaust gas stream is then vented through the turbine's exhaust stack (EPN SC-7). The turbine will be equipped with a dry low-NO_x burner will be used to reduce thermal NO_x formation. An SCR system will be used to reduce NO_x emissions in the exhaust gas stream via vaporization and injection of a 19% solution of aqueous ammonia to the exhaust stream prior to the catalyst bed. The exhaust gas stream also passes through an oxidation catalyst to reduce emissions of other products of incomplete combustion such as CO and VOC.

During times of startup and shut down of the unit, the exhaust gas stream may not be within the temperature range necessary for effective catalytic control or at too low a temperature for ammonia injection. During start up, the electric motor spins the main shaft until enough air is blowing through the combustion chamber, at which point, natural gas fuel starts flowing and ignition occurs. After ignition, the gas turbine will accelerate to synchronization speed, and upon synchronization, the turbine will begin increasing the load until it reaches the selected load. The M501GAC model turbine operating in simple cycle mode is able to go from ignition to base load within thirty-five minutes and is able to shut down completely from base load to flame out within twenty minutes. Emission rates for these startup and shutdown periods have been provided by Mitsubishi to allow quantification of these emissions.

The emergency-use fire water pump is powered by a diesel-fired engine (FIN FIRE-2) and will be operated for necessary maintenance and testing activities which will occur no more than one-hundred hours per year. The diesel engine emits products of combustion from its exhaust (EPN FIRE-2).

The natural gas piping, component, and instrumentation equipment leaks (FIN FUG-7) will result in small levels of VOC and GHG emissions. Similarly, leaks from a pressurized ammonia tank and the SCR system piping will result in small levels of emissions of ammonia from piping (FUG-7). Lubricating oil components, reservoirs, and lube oil vents associated with the Project are expected to have negligible emissions due to low vapor pressure. Leaks from the circuit breakers release Sulfur Hexafluoride (SF_6) – a compound with a very high global warming potential (FIN: FUG-7) compared to other GHGs.

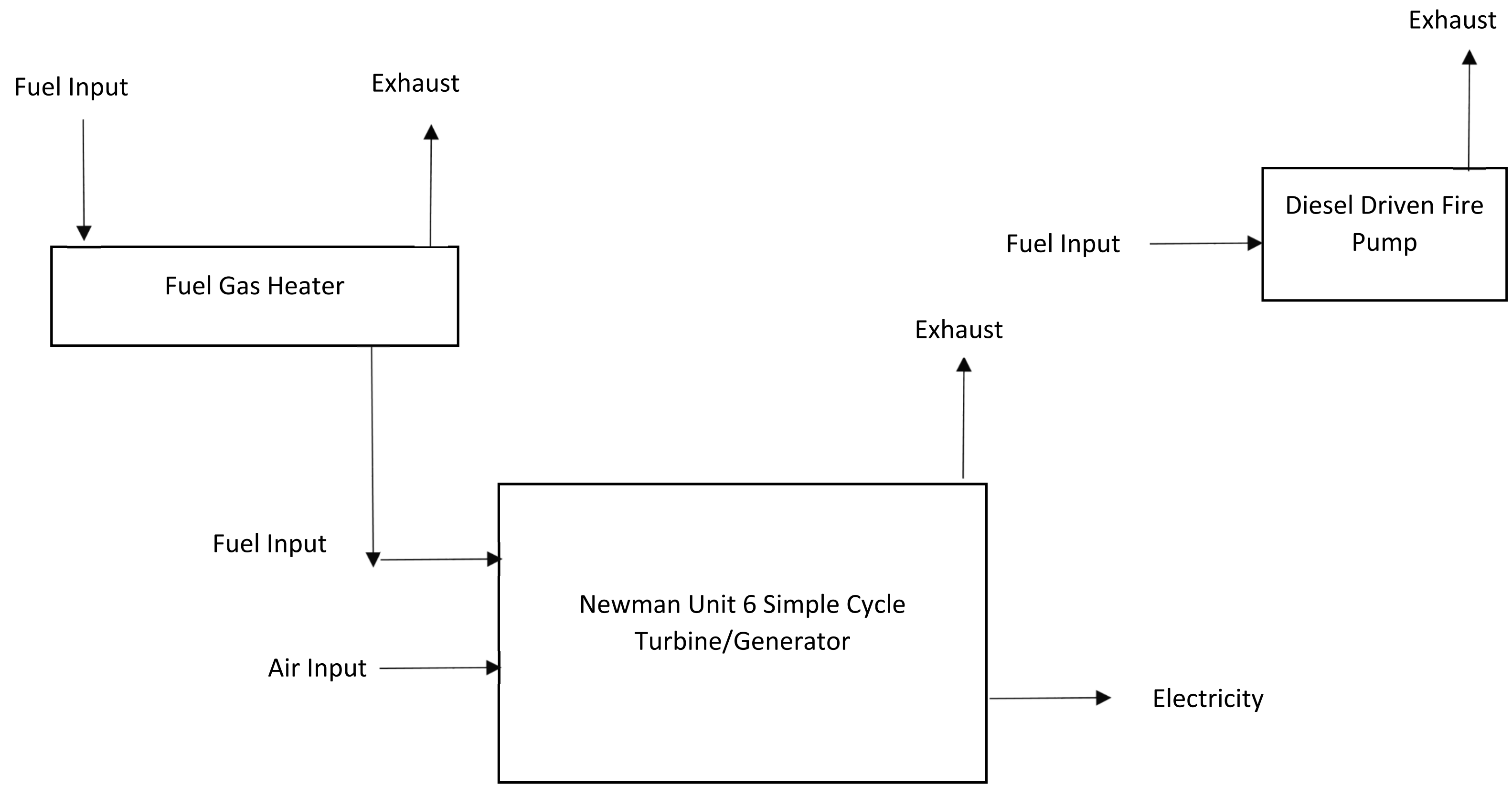

Figure 3 -Process Flow Diagram

Unit # 6 Newman Power Station
El Paso Electric Company
El Paso, Texas

3 PROJECT EMISSIONS

The PTE for regulated air pollutants is estimated as described in the sections below. Proposed emission units as part of the Project include both point and area emission sources. The emission calculation methodology varies by emission unit type. Section 3.1 includes comprehensive discussion of the methods used in determining emissions from each emission unit and associated EPN.

3.1 Emission Calculation Methodology

This section describes the methodologies and inputs used to calculate the Project PTE. Detailed calculations are included in **Appendix A.**

3.1.1 Simple Cycle Turbine

3.2.1.1 Maximum hourly emission rates during normal operations

The simple cycle turbine (FIN SC-7; EPN: SC7) emission rates during several different operating scenarios were provided by the manufacturer in **Appendix B** for most pollutants. Maximum hourly emission rates during normal operations were determined based on the worst-case emission rate operating conditions (Condition 19 in the in the manufacturer's data sheet). The manufacturer's data (Condition 19) also includes the power output, fuel flow, heat input, exhaust flow, and exhaust temperature, as presented in the emission calculations table. For compounds where emission rates were not directly provided by the manufacturer, which include $PM_{2.5}$ and HAP pollutants other than formaldehyde (CH_2O), and nitrous oxide (N_2O), reasonable approaches, as described below, that result in conservatively high representations of emission rates were used.

For PM species, the vendor's rate for PM_{10} emissions was used as a proxy for $PM_{2.5}$, meaning that it is assumed that all PM emissions are less than or equal to 2.5 micrometers in diameter. This approach therefore assumes $PM_{2.5}$ emissions are equivalent to both the PM_{10} and PM total and is the most conservative approach to assess particulate emission rates against their respective PSD significant emission rate (SER) thresholds.

HAP emissions during normal operations (other than CH_20 for which the emission rate is provided by the manufacturer) are conservatively based on uncontrolled emission factors from AP-42 Chapter 3.1, Table 3.1-3 – Emission Factors for Hazardous Air Pollutants from Natural Gas-Fired Stationary Gas Turbines. Note that the oxidation catalyst will control these pollutants in practice, so AP-42 uncontrolled emission rates can be understood to be an overestimate of these emission rates, in lieu of more specific emission rate guarantees of catalyst control.

N_2O emissions during normal operations were calculated based on the default emission factor in Table C-2 of 40 CFR Part 98 Subpart C for natural gas combustion.

3.2.1.2 Maximum hourly emission rates during Planned MSS activities

Additionally, planned maintenance, startup and shutdown (MSS) hourly maximum emission rates are calculated based on worst case operating conditions with respect to emission rates during these activities for NO_x, CO, VOC, CO_2, methane (CH_4), and N_2O. These values are based on the pounds per event emission rates during minimum ambient temperature startup conditions which were the highest short-term emission rates provided by the manufacturer of the turbine. PM, PM_{10}, $PM_{2.5}$, SO_2, NH_3, and H_2SO_4 mist emissions rates during startup and shutdown activities are calculated based on worst-case base load scenario emission rate for these compounds (Case 19 emission rates). This is a conservative representation of PTE during these during MSS activities since these pollutants will likely have lower emission rates during startup and shutdown events than the worst-case steady state operating condition. To estimate HAP emissions during start up and shut down, it is assumed that the emissions of HAP pollutants are uncontrolled throughout the startup period while the engine exhaust stack temperature increases to a point where the oxidation catalyst reaches the target temperature. To estimate HAP emission rates including CH_2O, uncontrolled emission factors from AP-42 Chapter 3.1, Table 3.1-3 were used.

3.2.1.3 Maximum annual emission rates

The total annual emission rates for the unit includes the steady state emissions estimated assuming 8,760 hours of operation, plus the contribution of the additional MSS event emissions (i.e., calculated by adding only the additional emissions from these MSS events above the steady state hourly rate to avoid double-counting emissions).

3.1.2 Firewater Pump Engine

The diesel-fueled firewater pump engine (FIN: FIRE-2; EPN FIRE-2) rating and rating-specific emission data were provided by the equipment manufacturer (see **Appendix B**). Emission rates for NO_x, CO, VOC, and PM from this manufacturer-provided data were used to calculate emission rates. The PM emission rate was conservatively assumed to represent emissions of PM, PM_{10}, and $PM_{2.5}$. SO_2 emissions were determined using a mass balance calculation assuming 15 parts per million (ppm) sulfur content of ultra-low sulfur diesel fuel. For the purposes of determining PTE, it is assumed that 100% of sulfur in the fuel stream is converted to SO_2. HAP emission rates were conservatively based on AP-42 Chapter 3, Section 3 – Gasoline and Diesel Industrial Engines Table 3.3.2 – Speciated Organic Compounds Emission Factors for Uncontrolled Diesel Engines. GHG emission factors for diesel fuel combustion for CO_2, CH4, and N_2O are based on Tables C-1 and C-2 of 40 CFR Part 98, Subpart C. Short term pounds per hour emission rates were calculated, then emissions in tons per year were determined based on 100 hours per year of operation during non-emergency scenarios.

3.1.3 Line Heater

The natural gas-fired line heater (FIN: LH-1; EPN LH-1) heat input rating and criteria pollutant emission rates were based on the manufacturer's provided data (see **Appendix B**). HAP emission rates were based on AP-42 Chapter 1, Section 4 – External Combustion Sources: Natural Gas Combustion Table 1.4-3 – Emission Factors for Speciated Organic Compounds from Natural Gas Combustion. GHG emission factors for natural gas combustion for CO_2, CH_4, and N_2O are based on Tables C-1 and C-2 of 40 CFR Part 98, Subpart C. Short term pounds per hour emission rates were calculated, then emissions in tons per year were determined based on a highly conservative assumption of 8,760 hours per year of operation since the heater is not expected to operate continuously.

3.1.4 Fugitive Emissions

Component counts of valves, pressure relief valves, connectors, flanges, open-ended lines and, pumps as well as the mass of SF_6 in the circuit breakers (for GHG Emissions) were used to calculate fugitive emissions associated with the project (FIN FUG-7; EPN FUG-7). A safety factor of 25% was applied to each estimated set of component counts. For each component and pollutant type, the most representative emission factors published by the appropriate state or federal agency were used as discussed in more detail below.

3.2.4.1 Natural Gas VOC and HAP Fugitives

Fuel gas service component emission factors from the US EPA Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017) were used to estimate fugitive emissions from natural gas equipment component leaks. The non-methane, non-ethane VOC weight percentage is divided by the total hydrocarbon weight percentages in the compositional analysis of the fuel gas stream to determine an adjusted weight percentage of VOC for use in the emission calculation because U.S. EPA's Protocol for Equipment Leak Emission Estimates are based on total organic compound (TOC) emission factors and do not consider the presence of inorganic compounds in a stream. HAP emissions are considered negligible based on the low VOC content.

In accordance with the New Source Review Division September 19, 1996 memorandum entitled "When should a compound be considered an air contaminant", compounds with vapor pressures lower than 0.01 mm Hg at temperatures below 40°C do not require emission calculations. The lubricating oils that will be used to operate the turbine will not have a vapor pressure that exceeds 0.01 mmHg at 40°C.

3.2.4.2 Ammonia Fugitives

Emissions of ammonia from leaks in the SCR system piping are estimated based on emission factors obtained from TCEQ's Addendum to RG-360A titled: Emission Factors for Equipment Leak Fugitive Components. Table 3 – Average Emission Factors – SOCMI includes emission factors for light liquids without ethylene, which are deemed the most representative emission factors for this source of fugitive equipment leaks. The calculation also takes into account that the concentration of aqueous ammonia which is nineteen percent by weight.

3.2.4.2 GHG Fugitives

GHG emissions of CO_2 and CH_4 result from natural gas fuel system component leaks. Emission factors for total gas are based on 40 CFR Part 98, Subpart W Table W-A – Default Whole Gas Emission Factors for Onshore Petroleum and Natural Gas Production, which is the most representative GHG emission factor set accounting for emissions from natural gas piping leaks. Based on the whole gas emission factors and the CO_2 and CH_4 content of the fuel, GHG emissions resulting from equipment leaks are calculated.

Additionally, circuit breakers are also recognized as a potential source of fugitive emissions of GHG due to the use of SF_6, which is an especially potent greenhouse gas. The estimated leak rate from circuit breakers is estimated to be 0.5% of the mass of SF_6 on an annual basis. This estimate is based on a study by Blackman et al. entitled: SF6 Leak Rates from High Voltage Circuit Breakers – EPA Investigates Potential Greenhouse Gas Emission Source.

3.2 Emission Summary

A summary of the emissions from the project is included in the Tables below. The emission rates listed in the tables below are compared against potentially applicable regulatory requirement thresholds. The applicable requirements are discussed in Section 4.0.

Table 4 lists project criteria air pollutant and GHG potential to emit versus the applicable PSD or NNSR (for PM_{10}) SER for a modification located at an existing major source.

Table 4. Criteria Pollutant and GHG Potential to Emit in Tons per Year

Emission Source	Type of Equipment	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	VOC	CO	H_2SO_4	CO2e
SC-7	SC-7	30.66	30.66	30.66	6.75	120.6	114.0	237.0	6.18	1,333,499
LH-1	LH-1	0.08	0.08	0.08	0.02	0.52	0.14	0.64	-	1,825
FIRE-2	FIRE-2	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	0.01	-	5.67
FUG-7	FUG-7	-	-	-	-	-	0.13	-	-	170
	Total Sitewide	30.74	30.74	30.74	6.76	121.1	114.3	237.7	6.18	1,335,500
	PSD/NNSR SER[1]	**25**	**15**	**10**	**40**	**40**	**40**	**100**	**7**	**75,000**
	Exceeds SER?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**No**	**Yes**

[1] From TCEQ (APDG 6240v11, Revised 10/18) Fact Sheet - PSD and Nonattainment Significant Emissions.

Table 5 shows the site-wide potential to emit of HAPS after implementation of the proposed Project.

Table 5. Summary of Total Site-wide HAP Emissions after Project Implementation

Emission Source	Tons per Year	HAP Major Source Threshold
Formaldehyde	10.81	10
Total HAP	30.61	25

Table 6 shows the emission rates of pollutants which require TCEQ Modeling and Effects Review Applicability (MERA) analysis. MERA Evaluation does not apply to chemical species that have a state air quality standard or NAAQS and certain activities have been pre-evaluated for impacts by the TCEQ[4].

Table 6. Summary of Potential to Emit in Tons per Year for Compounds Subject to MERA

Emission Source	Type of Equipment	NH_3
SC-7	SC-7	81.91
FUG-7	FUG-7	1.58
	Total Sitewide	83.49

[4] As specified in Appendix B of TCEQ's APDG 5874 (version 5, revised on March 2018) Modeling and Effects Review Applicability (MERA) Guidance document, emissions from combustion units fueled only by pipeline-quality natural gas and emissions of volatile organic compounds from emergency diesel engines have been reviewed for health effects and are not expected to cause adverse health effects.

4 AIR QUALITY REGULATORY REVIEW

The following section describes the potentially applicable federal and state air quality regulations as applicable to the Project. Section 4.1 contains a discussion of federal regulations including Major New Source Review requirements and potentially applicable New Source Performance Standards (NSPS) and National Emissions Standards for Hazardous Air Pollutants (NESHAP), and other federal regulations. Section 4.2 discusses the potentially applicable TCEQ air quality regulations.

4.1 Federal Regulations

4.1.1 Prevention of Significant Deterioration

The federal PSD rules are codified at 40 CFR 51, Subpart I, and 40 CFR §52.21 and are incorporated by reference into 30 TAC §116.160 with certain exceptions noted. The NSR/PSD rules define a major source as any source with the potential to emit 250 tpy or more of a criteria pollutant, with the exception of categorical sources, in which case the threshold is 100 tpy. The PSD program provides specific permit requirements for major sources and major modifications to existing major sources that are located in unclassified areas or areas classified as being in attainment of the NAAQS.

The Newman Generating Station is considered an existing major stationary source under 40 CFR Part 52.21(b)(1)(i) and is considered a PSD-named categorical source (i.e., Fossil Fuel-Fired Steam Electric Plants of more than 250 million Btu/hr heat input). Thus, fugitive emissions must be included when assessing modifications at the site.

Modifications to an existing PSD major source are considered major modifications if the project will result in a significant emission increase of a regulated NSR pollutant. Significant emission rates (SERs) are defined in 40 CFR §52.21(b)(23). Since the site is not located within 10 kilometers of a Class I area, 52.21(b)(23)(i) establishes the emission rates that would be considered to result in a significant emissions increase.

The following two-step process is followed to determine if PSD major review is needed for a project:

1. The project emission increase is determined by subtracting the baseline actual emission rate from the planned emission rate on a pollutant-by-pollutant basis. Project emission decreases can be included in this step.[5] If the emissions for a given pollutant from the new or modified emission sources equals or exceeds the PSD SER, then an applicability threshold test (netting) in step 2 is required.
2. In this step, a netting analysis is conducted which is a summation of the emission increases from the current project plus all creditable emission changes (both increases and decreases) within the contemporaneous period. If the result of the netting analysis equals or exceeds the PSD significant emission rate, then the modification is considered to be a major modification, and PSD review is required.

Only new emission units will be installed under the Project; no existing units will be modified or affected. Therefore, the emission increases associated with the Project have been determined based on comparing

[5] In a March 13, 2018, Memorandum entitled “Project Emissions Accounting Under the New Source Review Preconstruction Permitting Program,” EPA clarified that emission decreases associated with a project can be included under the “project emissions accounting” performed in Step 1.

the new facilities' PTEs to their baseline emission rate of zero for each pollutant.[6] No netting analysis is required.

The SER are listed in **Table 4** for the regulated NSR pollutants that will be emitted as a result of this Project and compared against the project PTE. The construction of the Project is considered a PSD major modification since the project PTE is above the SER with respect to several regulated NSR pollutants. Additionally, since the project results in an emission increase above the SER level for at least one regulated NSR pollutant, GHG pollutants are subject to the regulation and thus also subject to PSD review.

PSD review is required for the regulated NSR pollutants and GHGs (in the form of CO_2e) that exceed the significant emissions increase thresholds of 40 CFR Part 52 with the exception of PM_{10}. The Newman Generating Station is located in the city of El Paso, an area that has been designated moderate nonattainment for PM_{10}. Therefore, in accordance with 40 CFR Part 52 Section 52.21(i)(2), PM_{10} is not subject to PSD review. Based on project emission rates, NO_x, CO, PM, $PM_{2.5}$, VOC, and CO_2e are subject to PSD review. PSD review consists of a control technology analysis (see Section 5.1), an air quality analysis (see Section 6), and additional analysis of impacts on visibility, soils, vegetation, and growth in the area of the project (see Section 6.8).

4.1.2 Nonattainment New Source Review

The federal pre-construction review for a new or modified major source located in a nonattainment area is commonly referred to as Nonattainment New Source Review (NNSR) with rules codified in 40 CFR 51 and referenced in 30 TAC §116.150 – 116.151. NNSR applies on a pollutant-by-pollutant basis to new major sources or major modifications located at existing major sources of the pollutants that are classified as nonattainment for a criteria pollutant. Although major source and major modification thresholds are generally lower for NNSR than for the PSD program, the general approach to determining if a project results in a significant emission increases is the same as described in the previous section for PSD review.

The Newman Generating Station is located in an area which is considered to be in attainment or unclassified for CO, NO_2, SO_2, $PM_{2.5}$, Pb, and ozone. The city of El Paso and certain surrounding areas are currently classified as moderate nonattainment with respect to the NAAQS for PM_{10}.

As shown in **Table 4,** the Project is a major modification as defined in 40 CFR Part 51 since it has the potential to emit greater than the SER for PM_{10} listed in 40 CFR §51.165(a)(1)(x)(A) of 15 tons per year. Therefore, the project is subject to NNSR for PM_{10}. NNSR requires that the project applicant install equipment to ensure the lowest achievable control technology (LAER) from project sources, obtain emissions offsets, conduct a compliance history review, and provide an opportunity for public involvement. A review of these NNSR elements is provided in Section 8.

4.1.3 New Source Performance Standards

Section 111 of the Clean Air Act authorized the EPA to develop technology-based standards that apply to specific categories of stationary sources. These standards are referred to as New Source Performance Standards (NSPS) and are found in Title 40 CFR Part 60. NSPS applies to new, modified, and reconstructed affected facilities in specific source categories. Pursuant to 30 TAC §116.111(a)(2)(D), the TCEQ requires that a permit application demonstrate that emissions from a proposed project will meet the requirements of applicable NSPS. **Table 7** identifies the subparts of 40 CFR 60 that are applicable the Project.

[6] Per TCEQ (APDG 5881v7, Revised 10/18) *Major New Source Review – Applicability Determination.*

Table 7. 40 CFR Part 60 Applicable Subparts

Subpart	Subject	Applicability
A	General Provisions	Yes
IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Yes
KKKK	Standards of Performance for Stationary Combustion Turbines	Yes
TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	Yes

Subpart A contains general requirements for notification, testing, and reporting for the NSPS program. The subpart applies to each project that has an affected source as defined under another subpart. As the Project has units subject to one or more standards under 40 CFR 60 as discussed below, Subpart A applies to the Project.

Subpart IIII applies to owners and operators of stationary compression ignition (CI) internal combustion engines (ICEs). This regulation applies to the firewater pump engine (FIN: FIRE-2) which has a displacement of less than 30 liters per cylinder and therefore must comply with the emission standards listed in Table 4 of Subpart IIII for engines with a maximum engine power between 75 and 100 horsepower applicable to the model year of the engine. Based on the manufacturer's specifications provided, the firewater pump will meet these limitations.

Subpart KKKK applies to stationary combustion turbines with a heat input at peak load equal to or greater than 10 MMBtu per hour based on the higher heating value of the fuel which commenced construction, modification or reconstruction after February 18, 2005. Therefore, the simple cycle turbine (FIN: SC-7) is subject emission limits for NOx and SO_2 under Subpart KKKK. Per Table 1 to Subpart KKKK a NO_x emission standard of 25 ppm at 15 percent O_2 (or 1.2 lb/MWh of useful output) applies to a new turbine firing natural gas with a heat input at peak load of greater than 50 MMBtu/hr but less than or equal to 850 MMBtu/hr. Based on the manufacturer's specifications provided, the turbine will meet the NO_x emission standard. Per 40 CFR §60.4330(a), three options are available for SO_2 compliance: an exhaust emissions standard, a fuel standard, and a biogas standard. Based on the manufacturer's specifications provided and the very low sulfur content of the natural gas burned, EPE will select one of the first two options for compliance. EPE must also meet the applicable monitoring, reporting, performance testing, and general compliance requirements listed in Subpart KKKK.

Subpart TTTT applies to stationary combustion turbines that commence construction after January 8, 2014 that have a base load rating greater than 250 MMBtu per hour of fossil fuel and serve a generator or generators capable of selling greater than 25 MW of electricity to a utility power distribution system. Therefore, the simple cycle turbine (FIN: SC-7) is subject to the applicable emission limitations for CO_2. The proposed unit will meet the emission standard of 120 lb CO_2/MMBtu specified in Table 2 of Subpart TTTT which is applicable to newly constructed or reconstructed stationary combustion turbines that supply the design efficiency or fifty percent, whichever is less, times its potential electric output or less as net-electric sales on either a 12-operating month or a 3-year rolling average basis and combusts more than 90% natural gas on a heat input basis on a 12-operating month rolling average basis. The unit must also meet the applicable, monitoring and compliance demonstration procedures, notification, reporting, recordkeeping, and general compliance requirements listed in Subpart TTTT.

Table 8 identifies the subparts of 40 CFR 60 that are not applicable to the Project and provides a brief justification.

Table 8. 40 CFR Part 60 Subparts Not Applicable to the Project

Subpart	Subject	Reason for inapplicability
D/Da/Db/Dc	Standards of Performance for Various Types of Steam Generating Units.	No steam generating units are being installed as part of the project
Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for which Construction, Reconstruction, or Modification Commenced After July 23, 1984	No storage vessels with a capacity greater than or equal to 75 cubic meters that are used to store volatile organic liquids are being installed as part of the project.
GG	Standards of Performance for Stationary Gas Turbines	40 CFR Part 60 Subpart KKKK Section 60.4305(b) states that stationary combustion turbines regulated under Subpart KKKK are exempt from the requirements of 40 CFR Part 60, Subpart GG

4.1.4 National Emission Standards for Hazardous Air Pollutants

National Emission Standards for Hazardous Air Pollutants (NESHAPs) are stationary source standards for HAPs. The NESHAPs promulgated after the 1990 Clean Air Act Amendments are found in 40 CFR 63. These standards require application of technology-based emissions standards referred to as Maximum Achievable Control Technology (MACT). Because of this, these post-1990 NESHAPs are also referred to as MACT standards. Some MACT standards include requirements for area sources in addition to HAP major sources.

NESHAPs and MACTs are incorporated by reference into 30 TAC §113 with certain exceptions noted. Moreover, 30 TAC §116.111(a)(2)(E) – (F) requires that a permit application demonstrate that emissions from a proposed project will meet the requirements of applicable NESHAPs and MACT standards.

Applicable citations are listed in **Table 9**.

Table 9. 40 CFR Part 63 Applicable Subparts

Subpart	Subject	Applicability
A	General Provisions	Yes
YYYY	National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines	Yes
ZZZZ	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	Yes/Satisfied by NSPS IIII
DDDDD	National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters	Yes

Subpart A contains general requirements for notification, testing, and reporting for the MACT program. The subpart applies to each project that has an affected source as defined under another subpart. As the Project has units subject to one or more standards under 40 CFR 63 as discussed below, Subpart A applies to the Project.

Subpart YYYY applies to existing, new, or reconstructed stationary combustion turbines located at a major source of HAP emissions. Since the site will be a major source of HAP emissions, the new unit is an affected source under MACT YYYY and must be in compliance upon startup of the unit. However, there is currently a stay of requirements for new, lean premix gas-fired stationary combustion turbines and diffusion flame gas-fired stationary combustion turbines pursuant to §63.6095(d). Until the EPA takes final action to require compliance and publishes a document in the Federal Register, EPE must only comply with the initial notification requirements set forth in §63.6145. Once the stay of requirements is lifted, however, the new unit must comply with the applicable notification, testing, monitoring, recordkeeping, and reporting requirements in MACT YYYY and must comply with the operational and emission limitations therein. These requirements as currently promulgated include but are not limited to: limiting the concentration of formaldehyde to 91 ppbvd or less at 15% O_2, continuously monitoring the catalyst inlet temperature, conducting an initial and subsequent annual emission tests for formaldehyde, submitting semi-annual compliance reports according to the requirements of §63.6150, and complying with the general recordkeeping, reporting, monitoring, testing, and compliance requirements in Subpart A as specified in Table 7 of MACT YYYY.

Subpart ZZZZ applies to major and area sources of HAP that include stationary internal combustion engines. Because the generator engine will be a new compression ignition stationary reciprocating internal combustion engine rated less than 500 horsepower located at a major source of HAPs, the unit is required to meet the requirements of 40 CFR 60, Subpart IIII, in accordance with 40 CFR §63.6590(c)(7), and no other requirements under Subpart ZZZZ apply.

Subpart DDDD applies to major sources of HAP that industrial, commercial, and institutional boilers and process heaters. The new line heater would be subject to this regulation since it is a process heater located at a major source of HAPs. The unit is rated less than 5 MMBtu/hr and burns natural gas. Therefore, the unit must complete a tune-up every five years, must submit compliance reports in accordance with §63.7550 every five years, and must comply with the general requirements in Subpart A as specified in Table 10 of Subpart DDDDD.

Table 10 identifies the subparts of 40 CFR 63 that are not applicable to the Project and provides a brief justification.

Table 10. 40 CFR Part 63 Subparts Not Applicable to the Project

Subpart	Subject	Reason for inapplicability
UUUUU	National Emission Standards for Hazardous Air Pollutants: Coal-and Oil-Fired Electric Utility Steam Generating Units	The Proposed simple-cycle turbine is subject to the requirements of 40 CFR Part 63 Subpart YYYY and is not considered a coal- or oil-fired electric utility steam generating unit. For these reasons the new unit is exempt from the requirements of this Subpart.

4.1.5 Federal Operating Permitting Programs

40 CFR Part 71 requires that major sources obtain an operating permit consistent with permitting program requirements of Title V of the Clean Air Act (CAA). However, states may be delegated authority to implement and enforce an operating permit program where the program has been granted approval under 40 CFR Part 70. Texas has established state air quality permitting systems consistent with the requirements of Title V of the CAA and has delegation of authority to implement a State operating permit program. Thus, EPE will submit a significant revision application for Permit No. O80 to the TCEQ in accordance with the requirements of 30 TAC Chapter 122. EPE will also provide a copy of the application to the EPA in accordance with 40 CFR Part 70, §70.8.

4.1.6 Acid Rain Program

40 CFR Part 72 establishes operating permit program requirements for affected sources and affected units under the Acid Rain Program, pursuant to Title IV of the CAA. The purpose of this Part is to implement an SO_2 and NO_x air pollution control and emission reduction program. These requirements supplement the requirements under 40 CFR Part 70 and 71 for approving and implementing State operating permit programs for affected units under the Acid Rain Program. Part 72 allows for states to adopt and enforce the provisions of the Acid Rain Program and TCEQ has been granted this authority. The Project will include an affected unit under the Acid Rain Program, thus, EPE will address Acid Rain Program requirements for the simple cycle turbine (FIN: SC-7) in the SOP significant revision application to the TCEQ in accordance with the requirements of 30 TAC Chapter 122. EPE will also provide a copy of the application to the EPA for review.

4.1.7 Stratospheric Ozone Protection

40 CFR Part 82 establishes regulations to reduce emissions of substances that deplete the ozone layer. EPE will comply with potentially applicable requirements for any consumption, recycling, and importing of controlled substances, for motor vehicle servicing involving ozone-depleting substances, and for the operation and maintenance of applicable air conditioning units. Facility personnel do not perform air conditioning maintenance. However, EPE will be responsible for ensuring that their air conditioning maintenance is performed by vendors in compliance with 40 CFR Part 82.

4.1.8 Clean Air Interstate Rule

The Clean Air Interstate Rule addresses power plant pollution that drifts from one state to another through the implementation of a cap and trade system designed to reduce SO_2 and NO_x. TCEQ has adopted rules to implement the federal Clean Air Interstate rule via 30 TAC Chapter 101, Subchapter H and 30 TAC Chapter 122, Subchapter E. However, CAIR was replaced by the Cross-State Air Pollution Rule as of January 1, 2015 and is thus not applicable to the Project.

4.1.9 Cross-State Air Pollution Rule

The Cross-State Air Pollution Rule (CSAPR) Requires states in the eastern half of the U.S. to reduce power plant emissions that cross state lines and contribute to ground-level ozone and fine particle pollution in other states. A cap and trade system implemented via 40 CFR Part 97 has been established to reduce SO_2 and NO_x. Sources in Texas are not subject to CSAPR as of September 29, 2017, when EPA published a final rule which withdrew Texas from the SO_2 and Annual NO_x programs. Therefore, provisions of CSAPR are not be applicable to the Project.

4.1.10 Mandatory Greenhouse Gas Reporting

40 CFR Part 98 establishes GHG calculation, monitoring, and reporting requirements. The GHGs included in the reporting rule are CO_2, CH_4, N_2O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), SF_6, and other fluorinated gases.

Subpart A contains general requirements for EPA's Mandatory Greenhouse Gas Reporting program. The subpart applies to each site that has an affected source as defined under another Subpart. Sites with affected facilities subject to reporting under other Subparts of the Mandatory Reporting Rule must report if the sum of GHG emissions from all the affected facilities are greater than the reporting thresholds in 40 CFR §98.2(a)(1), 98.2(a)(2), or 98.2(a)(3).

Subpart C, General Stationary Fuel Combustion Sources, requires certain stationary fuel combustion sources that are not subject to reporting under Subpart D, to report their annual GHG emissions if the facility meets the applicability requirements of Subpart A.

Subpart D, Electricity Generation requires electricity generating units that are subject to the requirements of the Acid Rain Program and any other electricity generating units that are required to monitor and report CO_2 mass emissions in accordance with 40 CFR Part 75 to report annual GHG emissions if the facility meets the applicability requirements of Subpart A. EPE will comply with the requirements of this subpart.

4.2 State Regulations

4.2.1 Texas Administrative Code, Title 30

The TCEQ Air Quality Regulations are codified in 30 TAC Chapters 101 - 122. **Table 11** identifies regulations applicable to the Project described in this application.

Table 11. Applicable TCEQ Air Quality Regulations

Chapter, Subchapter, Division	Subject	Applicability	Compliance Explanation
Chapter 101, Subchapter A	General Rules	Yes	The Project operations at the site will comply with the general air quality rules that apply in Subchapter A.
Chapter 101, Subchapter F	Emissions Events and Scheduled Maintenance, Startup, and Shutdown Activities	Yes	The Project operations at the site will comply with the notification and reporting requirements associated with Emission Events and MSS activities.
Chapter 101, Subchapter H	Emissions Banking and Trading	Yes	The applicant seeks to obtain an NNSR permit by participating in the TCEQ Emission Banking and Trading Program to offset the Project emission increase for facilities to be authorized under the permit.
Chapter 111	Control of Air Pollution from Visible Emissions and Particulate Matter	Yes	The Project will not cause visible emissions from the stationary vents associated with the project in excess of the limitations specified in Rule §111.111(a)(1). The stationary combustion turbine and line heater will be fired by pipeline quality natural gas and the firewater pump engine will use low sulfur diesel as fuel. Compliance with the opacity limitations will be demonstrated using the appropriate method specified in Rule §111.111(a)(1)(F). Additionally, the precautions to achieve control of dust emissions from construction listed in Rule §111.145 will be applied since the site is located within the City of El Paso.
Chapter 112, Subchapter A	Control of Sulfur Dioxide	Yes	The Project will not cause emissions of SO_2 such that the net ground level concentration of SO_2 exceeds 0.4 parts per million by volume averaged over any 30-minute period. EPE has demonstrated compliance with the requirements of this Subchapter by conducting a TCEQ State Property Line Analysis.
Chapter 112, Subchapter B	Control of Hydrogen Sulfide	Yes	The Project will not cause emissions of H_2S such that the net ground level concentration of H_2S exceeds the standards specified in Rule §112.31 or 112.32. The Project emission sources fire pipeline quality natural gas and the firewater pump is fueled by low sulfur diesel. Therefore, the H_2S emissions are negligible.

Chapter, Subchapter, Division	Subject	Applicability	Compliance Explanation
Chapter 112, Subchapter C	Control of Sulfuric Acid	Yes	The Project will not cause emissions of sulfuric acid such that the net ground level concentration of sulfuric acid exceeds the standards specified in Rule 112.41(a). EPE has demonstrated compliance with the requirements of this Subchapter by conducting a TCEQ State Property Line Analysis.
Chapter 113, Subchapter C	National Emission Standards for Hazardous Air Pollutants for Source Categories (FCAA, §112, 40 CFR PART 63)	Yes	The Project will comply with the applicable Requirements of 40 CFR Part 63 (as specified in Table 9).
Chapter 116, Subchapter B, Division 1	New Source Review Permits, Permit Application	Yes	Prior to beginning work on the Project construction, EPE will obtain a permit as required under Rule §116.111 of this Title. Additionally, this application includes the seal of a Texas licensed professional Engineer since the capital cost of the project is above $2 million.
Chapter 116, Subchapter B, Division 4	New Source Review Permits, Fees	Yes	EPE as included payment of a fee determined based on the criteria in Rule §116.141 concurrent with submittal of the permit application for the Project.
Chapter 116 Subchapter B, Division 5	New Source Review Permits, Nonattainment New Source Review Permits	Yes	The Project is subject to Rule §116.151 which is applicable to new major modifications in nonattainment areas for pollutants other than ozone. The City of El Paso is a nonattainment area for PM_{10}. Since Project emission of PM_{10} are greater than the major modification levels in Table I of §116.12, the Project emission units will comply with the lowest achievable emission rates (LAER) for PM_{10}, will be incompliance with all applicable state and federal emission limits and standards, and will obtain offsets for PM_{10} as specified in §116.12 Table I. The application includes an analysis of alternative sites, sizes, production processes, and control techniques for the proposed sources and demonstrate that the benefits of the proposed location and source configuration significantly outweighs the environmental and social costs for the chosen location.
Chapter 116, Subchapter B, Division 6	New Source Review Permits, Prevention of Significant Deterioration Review	Yes	The Project is a major modification in an attainment or unclassifiable area for criteria pollutants except PM_{10}. The Project exceeds the major modification thresholds for NO_x, ozone (with respect to VOC and NO_x), CO, PM, and $PM_{2.5}$ and is subject to PSD review for those pollutants. Additionally, the Project is also a major modification with respect to GHG emissions expressed as CO_2e and is subject to PSD review for GHG emissions. Therefore, an impacts analysis will be conducted to verify that the Project will not cause or contribute to a violation of any NAAQS or cause or contribute to impacts on visibility, soils, vegetation, and growth in the area of the project. Additionally, the emission units to be constructed for the Project will be subject to BACT.
Chapter 116, Subchapter B, Division 7	New Source Review Permits, Emission Reductions: Offsets	Yes	The provisions of this division are potentially applicable insofar as they relate to New Major Source or Major Modifications in Nonattainment Areas Other than Ozone. This section establishes criteria for using emission reductions as offsets.
Chapter 116 Subchapter D	Permit Renewals	Yes	EPE will comply with the renewal applications submittal, public notification and comment procedures, renewal application fee requirements, and the timelines for submitting such documentation as applicable after issuance of the permit. The issued permit will be subject to review every ten years after the date of issuance.

Chapter, Subchapter, Division	Subject	Applicability	Compliance Explanation
Chapter 118	Control of Air Pollution Episodes	Yes	In the event that an air pollution episode is declared, EPE will comply with the requirements of the TCEQ.
Chapter 122	Federal Operating Permits Program	Yes	Owners and operators of a site that is a major source and a site with an affected unit as defined in 40 CFR Part 72 subject to the requirements of the Acid Rain Program are subject to the requirements of this chapter. EPE will meet the requirements of the federal operating permits program through revision of the currently effective Federal Operating Permit and Acid Rain Permit O80.

Sections of 30 TAC Chapters 101 - 122 that are not applicable are shown in **Table 12** with rationalization for determining negative applicability.

Table 12. TCEQ Air Quality Regulations Determined Inapplicable

Chapter , Subchapter, Division	Subject	Applicability	Negative Determination of Applicability
Chapter 101, Subchapter B	Failure to Attain Fee	No	The site is not subject to the requirements of this subchapter because the site is not located in the Houston-Galveston-Brazoria one-hour ozone nonattainment area.
Chapter 106	Permits by Rule	No	No permits by rule are being claimed for the Project.
Chapter 112, Subchapter D	Control of Total Reduced Sulfur	No	These emission limitations apply only to Kraft Pulp Mills.
Chapter 115, Subchapter B	General Volatile Organic Compound Sources	No	The Project will not include a storage tank storing VOC with a true vapor pressure greater than or equal to 1.5 psia and is therefore exempt from the requirements of Subchapter B, Division 1. Additionally, the project will not result in venting of VOCs from a process vent as specified in Subchapter B, Division 2. No other Divisions in Subchapter B are potentially applicable to the Project.
Chapter 115, Subchapter C	Volatile Organic Compound Transfer Operations	No	This Subchapter regulates Volatile organic compound transfer operations. The operations associated with the Project do not include VOC transfer operations.
Chapter 116, Subchapter B, Division 8	New Source Review Permits, Portable Facilities	No	No portable facilities are being installed as part of the Project.
Chapter 116, Subchapter C	Plant-Wide Applicability Limits	No	EPE is not seeking to obtain a Plant-Wide Applicability Limit.
Chapter 116, Subchapter E	Hazardous Air Pollutants: Regulations Governing Constructed or Reconstructed Major Sources	Yes	The provisions of this subchapter implement Federal Clean Air Act §112(g) and 40 CFR Part 63 Hazardous Air Pollutants: Regulations Governing Constructed or Reconstructed Major Sources, Subpart B, Requirements for Control Technology, as amended December 27, 1996. Since the site is a major source of Hazardous Air Pollutants, this Subchapter is applicable.
Chapter 117	Control of Air Pollution from Nitrogen Compounds	No	The Project is not located in an ozone nonattainment area. In addition, none of the requirements under this chapter for areas outside of ozone nonattainment areas are applicable to the Project.

5 AIR POLLUTION CONTROL EVALUATION

The TCEQ recently published an excel spreadsheet template labeled Form PI-1 General Application (formerly referred to as the NSR Application Workbook). Submittal of this template is required for various types of NSR Permit applications, including PSD and Nonattainment major modification projects. This template includes Tier I BACT requirements for each source type and pollutant, as applicable.

With respect to pollutants not subject to Major Source BACT or LAER analysis (H_2SO_4, SO_2, NH_3, and HAPs), the TCEQ uses a three-tiered approach to evaluate the BACT in NSR air permit applications. The evaluation begins at the first tier and progresses in sequence to the second and third tiers only if necessary.[7] Accordingly, EPE has completed the applicable section of the Form PI-1 General Application and proposes to accept the Tier I BACT requirements pre-populated in the TCEQ Form PI-1. For sources or pollutant types where BACT is not prescribed, additional notes in the PI-1 form spreadsheet justify the chosen BACT. A copy of the PI-1 General Application is included in **Appendix D** and includes a Table specifying chosen BACT for each source and pollutant.

Where PSD BACT review or LAER Analysis is required for specific pollutants, additional justification must be submitted as an attachment to the TCEQ Form PI-1 workbook to meet the more stringent requirements for Major Source Air Pollution Control Evaluations. As such, this application includes additional analysis with respect to PSD BACT and LAER in Section 5.1 and 5.2, respectively.

5.1 PSD BACT Review

Federal BACT review is required for pollutants emitted as a result of a major project where the emission rate is greater than the pollutant's SER specified in 40 CFR Part 52. Federal BACT standards require that the maximum degree of reduction is achieved from a proposed major stationary source; However, on a case-by-case basis, the analysis may account for energy, environmental, and economic impacts, and other costs. Thus, alternate methodologies to reduce emissions such as design, equipment, work practice, or operation standards may be used in lieu of emission limitations provided that these methods will achieve equivalent results in emission reduction and will not exceed any rates allowed by applicable Standards in 40 CFR Parts 60, 61, or 63.

The proposed Project will require Federal BACT review for CO, NO_X, PM, $PM_{2.5}$, Ozone (VOC and NO_x), and GHG emissions. With respect to criteria pollutant emissions, the BACT analysis has been conducted using the TCEQ's Three-Tiered approach. This approach to the analysis satisfies both the state and federal BACT analysis requirements when combined with a review of recently issued and approved permits and control technologies contained within EPA's RACT/BACT/LAER Clearinghouse (RBLC).[8] Examples of recently issued permit BACT and RBLC datasets exported from the EPA database are included in **Appendix C.** Each of the emission sources proposed have well established controls with documented and proven efficiency that have been accepted as BACT. This allows the use of Tier I of the TCEQ's Three-Tiered approach to be used to determine BACT for all proposed sources emitting criteria pollutants.

The BACT analysis with respect to GHG emissions[9] was conducted using the EPA's Top-Down methodology which includes the following steps: Identify all control technologies, eliminate technically infeasible options, ranking control technologies by effectiveness, evaluating the most effective controls,

[7] Per TCEQ (APDG 6110v2 01/2011) *Air Pollution Control*.

[8] Ibid.

[9] One exception to this is that EPE is using TCEQ's Tiered methodology to concurrently evaluate BACT for natural gas fugitive component leaks since the BACT control methodologies for VOC would have the effect of controlling GHG as well.

and selecting BACT. To conduct this analysis, EPE followed guidance issued by EPA in March 2011 entitled "PSD and Title V Permitting Guidance for Greenhouse Gases".

For each of the Project emission sources, the proposed emission reduction options are discussed below.

5.1.1 Simple Cycle Turbine

The simple cycle turbine unit (SC-7) will comply with BACT standards for the pollutants subject to PSD BACT review using the following emission reduction options:

- Selective Catalytic Reduction (SCR) and oxidation catalyst technology
- Dry Low-NOx burner
- Firing pipeline quality natural gas
- Ensuring good combustion practices during unit operation
- Keeping startup and shutdown duration to a minimum.

The following subsections provide a pollutant-by-pollutant review of BACT for normal operations. Note that the emission limits proposed as BACT for normal operations cannot necessarily be achieved during startup or shutdown. As BACT must be applied at all times and the proposed normal operation emission limit may not be achievable during other operating modes, a separate BACT analysis is followed for MSS emissions.

5.1.1.1 NO_x Emissions

TCEQ's Tier I BACT for simple cycle turbines is 5.0 to 9.0 ppmvd at 15% O_2 for NO_x, which may be achieved with a dry low NO_x burner, water/steam injection, limiting fuel consumption, and/or SCR technology.

Further analysis to determine BACT included a review of EPA's RBLC database and review of NSR permits issued by TCEQ. Review of these two information sources demonstrate that NO_x outlet concentrations of as low as 2.0 ppmvd at 15% O_2 have been achieved for gas turbines rated 20 MW and greater. However, very few simple cycle turbines permitted at this level were found, and these were required to meet LAER rather than BACT requirements for NO_x. Outlet concentrations as low as 2.5 ppmvd at 15% have been achieved by simple cycle turbines subject to PSD BACT review using a variety of control technologies, including SCR, water injection, and dry low-NO_x burners.

The simple-cycle turbine will be equipped with a dry low-NO_x burner which will reduce thermal NO_x formation by reducing the combustion zone temperatures. Additionally, EPE proposes the use of SCR technology for post-combustion control. SCR technology provides post-combustion control of NO_x emissions through the injection of NH_3 which reacts to chemically reduce NO_x to elemental N_2. These control technologies, along with firing solely pipeline quality natural gas will allow the unit to meet an emission rate of 2.5 ppmvd NO_x at 15% O_2 as proposed BACT during normal operations. This outlet concentration is below the range for TCEQ's Tier I BACT and at the low end of the ranges found in EPA's RBLC database and recently-issued TCEQ NSR Permits..

To ensure compliance, a Continuous Emissions Monitoring Systems (CEMS) will be installed to ensure optimal ammonia injection rates and verify that the unit is achieving the target emission reductions.

5.1.1.2 CO Emissions

TCEQ's Tier I BACT for simple cycle turbines is 9.0 to 25.0 ppmvd at 15% O_2 for CO which is typically achieved with good combustion practices, an oxidation catalyst, or a combination of both.

Upon review of the EPA's RBLC database, turbines operating in simple-cycle mode firing natural gas typically demonstrated a CO outlet concentration between 4 and 29 ppmvd at 15% O_2. Recently issued TCEQ NSR Permits had a similar range, though there were a few turbines operating in simple cycle mode that had a rating of 2.0 ppmvd CO at 15% O_2. Therefore, EPE's proposes to use good combustion practices in combination with post-combustion control of CO through installing an oxidation catalyst. Since the selected control technology and best management practices are widely considered the most stringent CO pollutant control mechanisms, no additional control technologies were evaluated for this pollutant. Implementing these control techniques allows the simple-cycle turbine to achieve a CO outlet concentration of 3.0 ppmvd at 15% O_2 as proposed BACT during normal operations. This outlet concentration is below the range for TCEQ's Tier I BACT and at the low end of the ranges found in EPA's RBLC database and recently issued TCEQ NSR Permits.

To ensure compliance, the unit will be operated in accordance with manufacturer's recommended specifications to ensure good combustion and the unit will be equipped with a CEMS to monitor CO emissions.

5.1.1.3 VOC Emissions

TCEQ's Tier I BACT for simple-cycle natural gas-fired turbines is 2.0 ppmvd at 15% O_2 achieved through good combustion practices.

Review of the EPA's RBLC database and recently issued NSR permits showed that best management practices and/or installation of a post-combustion control device are routinely accepted as BACT resulting in authorized outlet VOC concentrations for simple-cycle natural gas turbines between 1.4 and 5 ppmvd at 15% O_2. The simple cycle turbine will be equipped with an oxidation catalyst, will burn pipeline quality natural gas, and will be operated to ensure complete combustion. These management practices along with equipping an oxidation catalyst will ensure the unit meets an outlet concentration of 2.0 ppmvd at 15% O_2 as proposed BACT during normal operations. This outlet concentration is below the range for TCEQ's Tier I BACT and at the low end of the ranges found in EPA's RBLC database and recently issued TCEQ NSR Permits.

EPE will ensure compliance by fueling the unit solely with pipeline quality natural gas, monitoring fuel consumption, and operating in a manner conducive to good fuel combustion by following the manufacturer's related instructions.

5.1.1.4 PM/$PM_{2.5}$ Emissions

Since the source of emissions and emission control techniques for PM and $PM_{2.5}$ are identical for the simple-cycle turbine, the BACT analysis for these pollutants is being combined into one section. TCEQ Tier I BACT for simple cycle turbine PM emissions includes best management practices to ensure good fuel combustion and firing only pipeline quality natural gas. Pipeline-quality natural gas contains low ash and sulfur content and therefore generates a lower amount of PM/$PM_{2.5}$ emissions than generated by other fuels. Complete combustion to reduce particulate emissions from partially combusted carbon compounds also helps to reduce particulate matter emissions.

Review of the RBLC database and recently issued NSR permits verifies that exclusive use of pipeline quality natural gas along with good combustion practices represents BACT. EPE therefore proposes as

BACT for $PM/PM_{2.5}$ during normal operations to use solely pipeline-quality natural gas to fuel the proposed unit, operate the unit to ensure good combustion of fuel, and complete the required quarterly visible emission observations to ensure the unit is functioning properly and complying with opacity standards.

5.1.1.5 MSS Emissions

Increased emissions during MSS events in comparison to steady state emission rates are largely attributable to periods where add-on control device efficiency is limited. Operating conditions of the unit during these periods are sub-optimal for efficient emission reductions. Therefore, TCEQ Tier I BACT for turbine MSS activities includes minimizing the duration of MSS activities and operating the turbine in accordance with best management and good air pollution control practices. EPE proposes implementing the emission control recommendations of Tier I BACT.

Additionally, startup and shutdown emissions are impacted by unit-specific parameters and site-specific conditions such as elevation, temperature, humidity, and fuel quality. The turbine vendor provided EPE with site-specific data for the expected MSS emissions per event for the pollutants where reduced efficiency of control equipment during MSS is a consideration. These values are conservative in that they are based on worst-case ambient conditions. These values are used to inform the BACT analysis and compare against similar units.

Review of RBLC database and recently issued NSR permits show that operators typically either abide by a maximum hourly limit applicable during startups and shutdowns or limit the duration of startup and shutdown events in accordance with the manufacturer's information. In the case where a numeric limitation in emissions is specified, the basis of the limitation often varies and is difficult to assess in comparison with the limitations during start up and shut down of the Proposed unit. A brief discussion of the RBLC database MSS limitations, where specified[10], is included below.

For simple-cycle gas turbines, NO_x emission limitations that are quantified in the RBLC database are between 18.5 lb/hr for the lowest rated units up to at 86.38 lb/hr for higher rated units. Normalizing these emission rates based on the rated capacity of the simple-cycle turbines allows a basis for comparison since the amount of fuel combusted would be correlated with the turbines rated capacity and the fuel combustion rate will roughly correlate with exhaust flow. Thus, it can be expected that hourly emission rates during MSS will increase based on the rating of the unit. Based on the information in the RBLC database, the hourly emissions during MSS events are generally higher than the Proposed unit's emission rate during MSS activities with respect to NO_x once the rated capacity of the units are taken into consideration. **Appendix C** lists the Proposed unit's MSS emission rates in comparison to the RBLC MSS emission rates normalized for MMBtu/hr or MW ratings. Thus, EPE proposes minimizing the duration of events and operating the turbine in accordance with best management and good air pollution control practices as BACT.

The Proposed unit startup emission rates for CO, normalized over MMBtu/hr rating was lower than 7 out of 12 of the simple-cycle units where emission rate data from the RBLC database was able to be evaluated for this analysis. Additionally, the CO emission rate during shutdown events for the Proposed unit, was lower than 5 out of the 11 cases able to be evaluated from the RBLC database, though the shutdown emission rate data from the database was hard to assess as there were inconsistencies between what limitations were stated in the "Pollutant Compliance Notes" and the emission limits fields. Refer to **Appendix C** for more detail. Thus, EPE proposes minimizing the duration of events and operating the turbine in accordance with best management and good air pollution control practices as BACT.

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[10] Note that the data contained in the RBLC also demonstrates that in many cases simply limiting duration of startup and shutdown events is often accepted as BACT.

VOC emission rates during MSS activities were rarely represented in the RBLC database, and the basis of the few emission limitations found were difficult to assess. When MSS emissions for this contaminant were addressed, a majority of the units stated that the time in startup or shutdown would be limited. Due to the limited amount of data, BACT for VOC during MSS was not quantitatively assessed. However, EPE's proposed methods of limiting the duration of MSS events is consistent with BACT requirements accepted in the RBLC database and other NSR permits.

Comparison of the turbines MSS emission rates to other units in the RBLC database is valuable in the sense that it confirms that the unit is within the range of reasonable MSS emission rates. Ultimately though, these emissions are based on the turbines design and the duration of the startup and shutdown periods which may vary so this comparison is limited in value. The best control technique for MSS emissions is to limit the duration of these events and to operate the unit in accordance with best management practices.

For $PM/PM_{2.5}$, minimal data was available in the RBLC dataset for MSS emissions for this pollutant. However, based on the available data, the approach used to evaluate MSS NO_x and CO emissions of determining a normalized emission rate during MSS corrected based on the unit's rating was again used. Based on this approach the Proposed simple cycle unit emission rates would be on par or better than other units in the RBLC dataset in terms of emissions during MSS activities. Therefore, EPE proposes to meet BACT requirements by minimizing the duration of events and operating the turbine in accordance with best management and good air pollution control practices.

EPE will ensure that startup and shutdown duration for the simple-cycle unit is minimized in order to limit emissions from startup and shutdown events. Additionally, the simple-cycle turbine unit selected for the Project generally performs well relative to other units represented in the RBLC database in terms of criteria pollutant emissions during MSS events.

5.1.1.6 GHG Emissions

TCEQ has not specified a Tier 1 BACT for GHG emissions. Review of the RBLC database showed that BACT for simple cycle units are typically in the range of 118-120 lb/MMBtu for CO_2 and in the range of 1,300-1,700 lb/MWh. The emission rates for the proposed turbine are generally around 119 lb/MMBtu and the emission rate of CO_2 ranges from 1,150 – 1,200 lb/MWh at full load operation, which are both at the lower end of the ranges found in the RBLC database. In the RBLC database, the mechanisms to achieve BACT are primarily installing energy efficient units, operating and maintaining the unit in accordance with manufacturer's recommendations, good combustion practices, and using pipeline quality natural gas. Examples of NSR permits that have been recently issued generally require that turbines meet the CO_2 emission limitations specified in 40 CFR Part 60, Subpart TTTT. The proposed unit will comply with the CO_2 emission limitations of NSPS TTTT.

Since TCEQ has not established BACT for GHG emissions, an EPA top-down approach to evaluating BACT for GHG has been completed.

Step 1: Identify Control Options

- Energy Efficient Design
- Burning low-carbon intensity fuels
- Operation and Maintenance Procedures
- Good combustion Practices
- Carbon Capture and Storage
- Alternative Fuels
- Oxidation catalyst (to control CH_4)

Efficient design of equipment is one of the foremost techniques to ensure that reduction in GHG emissions. An efficiently designed unit has a high rate of electricity generation per unit of fuel burned. The efficiency of the simple-cycle unit is approximately 40%. Energy efficiency reduces CO_2, CH_4, and N_2O since less fuel is required to produce each unit of energy. Another option to increase energy efficiency would include combined heat and power generation.

Of the fossil fuels, natural gas is the lowest carbon intensity, meaning that per unit of fuel burned, less CO_2 emissions result when compared with other fossil fuels such as coal.

Operation and maintenance (O&M) procedures such as tuning and maintenance can increase the performance of a unit and reduce degradation of the unit efficiency over time.

Good combustion practices would limit emissions of CH_4 which has a higher global warming potential than CO_2, which is the product of complete CH_4 combustion. Good combustion of methane can be ensured by tuning the unit and ensuring adequate air fuel ratio, high combustion temperatures, and longer residence time.

Installing an oxidation catalyst can reduce total hydrocarbon emissions from a unit through catalytic oxidation and would also reduce uncombusted hydrocarbon emissions, including, to a certain degree, methane emissions.

Using an alternative fuel such as biomass fuel is considered an alternative to natural gas that may help reduce overall greenhouse gas emissions since it is a renewable fuel source and have a lower caloric value than traditional fossil fuels.

Carbon capture and storage is the process by which CO_2 is removed from exhaust gas streams and is captured and stored in a manner that will not allow the CO_2 to be emitted to the atmosphere. The most widely demonstrated technique involves an amine absorption process which involves flue gas compressions and refrigeration. The CO_2 vent gas stream resulting from this process is then injected into long-term storage in geologic formations via pipeline.

Step 2: Eliminate technically infeasible options

Of the above-mentioned control strategies, carbon capture and storage is, in this case, technically infeasible given the additional processing requirements for the flue gas stream and construction of a CO_2 pipeline injection system. Exhaust CO_2 concentrations from natural gas streams are low and the efficiency of capture of CO_2 would be low as well. The additional processing equipment would also require energy to run, which would have the effect of reducing the energy efficiency of the Project as a whole. The required timeframe to implement this control strategy would vastly exceed the desired timeframe for construction of the facility. Additionally, as there is not currently a CO_2 injection pipeline associated with the facility, this would need to be constructed and would create significant amounts of fugitive dust and off-road equipment exhaust emissions in an area that is already in nonattainment for PM_{10}. This option is therefore eliminated.

Combustion of biomass fuel is considered infeasible due to the infrastructure changes required to transport biomethane fuel to the site since there is not an existing nearby option and the additional PM_{10} emissions construction of the additional infrastructure would cause. Biomass fuel also has potential drawbacks when considering emissions of other criteria pollutants. Given that the unit will be located in a PM_{10} nonattainment area it is desirable that fuel combustion be as efficient and clean as possible. Biogas initially contain impurities unless routed through a processing facility. In short, biomass fuel combustion would not be a feasible option unless biogas is processed and routed to the same natural gas pipeline already serving the plant (which is not under EPE's control). This option is therefore eliminated.

Step 3: Rank remaining control technologies

1. Eliminate unnecessary GHG emissions

Ensuring efficient design and operation is the best method to reduce GHG emissions. Purchasing and properly maintaining a unit to achieve maximum power generation per unit of fuel reduces unnecessary fuel combustion and associated products of combustion including GHG. Also, using low-carbon intensity natural gas is an effective way of limiting the emissions of CO_2 per MMBtu. Natural gas is the lowest carbon intensity fossil fuel.

2. Post-combustion control

Oxidation catalyst will reduce methane emissions by converting the methane to CO_2 which has a lower global warming potential.

3. Tuning unit operation to reduce GHG emissions

Increasing the temperature, residence time, and oxygen content of the combustion chamber may reduce emissions of CH_4, However, this type of environment would lead to an increase in NO_x emission rates and the incremental decrease of CH_4 emissions which will be combusted fairly efficiently already would not be worth the increase in NO_x emissions that would result. Note also that the CH_4 emissions after accounting for the global warming potential are a small contributor (<0.01%) to the overall CO_2e emissions from the turbine

4. Combined Heat and Power Generation

While this method can reduce GHG emissions by supplying necessary heat to the overall facility, this is not a feasible solution in this instance as a primary purpose of the proposed unit is to produce supplemental power during peak demand. Combined cycle units have very long startup cycles, whereas a simple cycle unit like the one proposed can start up in less than one hour. Therefore, though combined heat and power generation is an energy efficient way to produce power, in this case it would defeat the purpose of the Project.

5. Eliminate the SCR

N_2O emissions are another greenhouse gas that may be emitted as an intermediary product of combustion. SCR catalyst systems can, under certain conditions, increase N_2O emissions due to partial oxidation of ammonia. However, the SCR system also drastically reduces NO_x emissions so the reduction in the trace amounts of N_2O is not particularly desirable given the additional NO_x emissions that would result. Additionally, NO_x emissions may also ultimately be converted to N_2O through chemical reactions once emitted, so any incremental decrease in N_2O through removal of the SCR could be offset by conversion of additional NO_x emissions to N_2O. Note also that the N_2O emissions after accounting for the global warming potential are a very small contributor (<0.01%) to the overall CO_2e emissions.

Step 4: Evaluate most effective controls and document results

The best approach to limit GHG emissions is to ensure efficient performance of the unit via purchasing a unit with efficient design (e.g. good power generation efficiency), properly maintain the unit. Ensuring good combustion efficiency of the fuel to limit higher global warming potential gas emissions is also important. However, it is important to balance the combustion zone characteristics to also maximize reductions in other criteria pollutant emissions. The efficiency of the proposed unit can also be maintained through operational and maintenance procedures to minimize any degradation in unit efficiency.

The unit will also be equipped with an oxidation catalyst mainly because an oxidation catalyst was chosen as an effective post-combustion control of CO and VOC emissions. The oxidation catalyst will have the co-benefit of reducing uncombusted methane emissions.

Step 5: Select BACT

EPE proposes a multi-tiered approach to eliminate unnecessary GHG emissions which includes purchasing and properly maintaining a unit that is inherently efficient at achieving the intended purpose and fires low-carbon intensity natural gas. EPE will also install an oxidation catalyst to reduce hydrocarbon emissions, including methane. This proposed BACT is consistent with results found in the RBLC database and recently issued NSR permits covering GHG emissions.

5.1.2 Firewater Pump Engine

The firewater pump engine will be operated only during emergency events and required maintenance and readiness checks. Therefore, when evaluating BACT requirements, the limited operating time of the unit should be taken into consideration. The proposed firewater pump unit is powered by a diesel engine. Emissions from diesel fuel combustion will be limited in the following ways:

- Using only ultra-low sulfur diesel fuel
- Selecting a unit from engine family that is EPA certified to applicable model year standards specified in NSPS regulations and adhering to manufacturer's maintenance recommendations.
- Limit the hours of operation during non-emergency events to maintenance and readiness checks and install a non-resettable hour meter to verify compliance.

To further analyze potential BACT, data in the RBLC database for Process Type 17.21[11] and recently issued permits were reviewed. TCEQ Tier 1 BACT for emergency use diesel engines for NO_x, CO, VOC, and PM is specified below:

TCEQ Tier 1 BACT for NO_x emissions from emergency use diesel engines include meeting the requirements of 40 CFR Part 60 Subpart IIII, firing ultra-low sulfur diesel, having a non-resettable hour meter and limit the hours of operation to 100 hours per year for non-emergency operation. Additionally, no visible emissions shall leave the property and visible emissions should not be present exceeding 30 seconds in duration in any six-minute period. For each of these pollutants the unit will meet TCEQ's Tier 1 BACT. The following subsections expand the BACT Analysis discussion to include the information in the EPA's RBLC database and recently issued permits. EPE is not proposing to permit MSS emissions separately from normal emissions for the firewater pump and has thus not included discussion of MSS BACT for this unit.

5.1.2.1 NO_x Emissions

For NO_x emissions, the most common control methodologies implemented for similar diesel-fired units in EPA's RBLC database and recently issued NSR permits are purchasing a certified engine and adhering to vendor specified maintenance procedures, complying with NSPS IIII, firing ultra-low sulfur diesel fuel, adhering to good combustion practices, and limiting hours of operation (for emergency generators and firewater pumps). The lowest emission rates of NO_x for the units in the RBLC database on a grams per horsepower-hour (g/hp-hr) basis is 2.6. The unit to be installed for the Project has an emission rate that is slightly below this emission rate. Since the emission reduction strategies proposed are capable of meeting

[11] Small Internal Combustion Engines < 500 hp firing fuel Oil (including diesel).

a low NO_x emission rate and use similar control techniques to other units shown in the RBLC database, this is proposed as BACT for NOx emissions from the firewater pump.

5.1.2.2 CO Emissions

The control method descriptions in the RBLC database and recently issued NSR permits for CO emissions are the same as for NO_x. The range of CO emission rates represented in the RBLC dataset for units less than 500 horsepower is 0.447 g/hp-hr to 3.7 g/hp-hr. The CO emission rating for the Proposed unit provided by the manufacturer is 0.6 g/hp-hr. Therefore, since the emission rate is on the low end of rates represented in the RBLC database and the planned control techniques are in line with the other sources listed therein, EPE proposes that the emission reduction strategies proposed for the firewater pump be accepted as BACT for CO emissions from the firewater pump.

5.1.2.3 VOC Emissions

The control method descriptions in the RBLC database and recently issued NSR permits for VOC emissions are the same as for NO_x and CO. The vendor data provided shows only total hydrocarbon emissions rather than a specific VOC emission factor. However, even using the conservative assumption that total hydrocarbon emissions are equal to VOC emissions, the g/hp-hr emission rate is in the lower portion of the range of VOC emission rates represented in the RBLC dataset for units less than 500 horsepower. Therefore, EPE proposes that the emission reduction strategies proposed for the firewater pump be accepted as BACT for VOC emissions from the firewater pump.

5.1.2.4 PM/$PM_{2.5}$ Emissions

For diesel fired internal combustion engines rated at 500 hp or less, control methods selected as BACT in the RBLC database for particulate emissions are the use of ultra-low sulfur diesel fuel, good combustion practices, and emission certification. The PM emission rating for the Proposed unit provided by the manufacturer is 0.16 g/hp-hr, which is on the low end of rates represented in the RBLC database The Proposed unit is in the range of emission rates accepted as BACT and as such, proposed emission control strategies should be considered BACT for PM/$PM_{2.5}$ emissions from the firewater pump.

5.1.2.5 GHG Emissions

TCEQ has not specified a Tier 1 BACT for GHG emissions. Review of the RBLC database and recently issued NSR permits showed that for small, diesel-fired emergency use units, typical control methods for GHG emissions include purchasing an efficient unit, good combustion practices and proper operation and maintenance. Additionally, annual operating limitations are typically implemented as well to eliminate unnecessary emissions except during times of maintenance and testing.

The proposed unit is a 99-horsepower diesel-fired engine which drives an emergency-use firewater pump. The unit will be limited to no more than 100 hours of operation per year during non-emergency maintenance and testing activities. Compliance with the operating limitations will be achieved by tracking unit runtime. Additionally, manufacturer's recommended maintenance will be completed to ensure the unit operates efficiently.

Since TCEQ has not established BACT for GHG emissions, an EPA top-down approach to evaluating BACT for GHG has been completed.

Step 1: Identify Control Options

- Energy Efficient Design
- Operation and Maintenance Procedures

- Good combustion Practices
- Carbon Capture and Storage
- Alternative Fuels
- Limit operating hours
- Oxidation catalyst (to control CH_4)

The proposed unit will be a newer model unit and will be maintained and operated in accordance with manufacturer's recommendations. Purchasing a modern, more fuel-efficient engine reduces GHG emissions due to increased fuel efficiency.

O&M Procedures ensure that performance of the unit does not degrade as rapidly over time. Similarly, operating a unit in accordance with good combustion practices to ensure that fuel is being efficiently combusted is important to realize maximum potential energy efficiency.

Carbon capture and storage: See discussion in Section 5.1.1.6. for the simple-cycle turbine.

An alternative, more carbon-neutral option for fuel would be the use of biodiesel.

Limiting operating hours to minimum required to ensure unit readiness is the most effective way to reduce GHG emissions.

Oxidation catalyst controls are somewhat effective at controlling methane emissions. However, newer diesel-fired units typically have low total hydrocarbon emissions due to more efficient combustion. Additionally, flow through hydrocarbon emissions from diesel units are not a large source of methane given that the diesel fuel is made up mostly of heavier hydrocarbons.

Step 2: Eliminate technically infeasible options

Carbon capture and storage is an emerging technology. However, there has yet to be a focus on implementing this type of technology to small, diesel fired units and as discussed in Section 5.1.1.6, this has been determined to be technically infeasible for the turbine unit and is also infeasible for the firewater pump engine for the same reasons.

Step 3: Rank remaining control technologies

1. Eliminate unnecessary GHG emissions

Ensuring efficient design and operation is the best method to reduce GHG emissions. Purchasing and properly maintaining a unit and ensuring efficient combustion improves the unit efficiency and reduces unnecessary fuel combustion. Reducing emissions by limiting hours of operation only as necessary for maintenance and readiness testing is also an effective way to limit emissions.

2. Post-combustion control

Oxidation catalyst will reduce methane emissions by converting the methane to CO_2 which has a lower global warming potential. However, the unit has inherently low methane emissions and is already certified to the model year standards required by NSPS IIII in lieu of post-combustion control technology.

3. Alternative Fuels

Biodiesel is a renewable and less carbon intensive fuel than conventional diesel. However, cellulosic biofuel conversion technologies are still being developed and the fuel quality is at times varies depending on the supplier. Biodiesel can diminish engine performance, clog filters and injectors and reduce reliability if the fuel quality is not up to par. Additionally, though biodiesel is generally considered cleaner burning than regular diesel, increased NO_x emissions have been observed.

Step 4: Evaluate most effective controls

The best approach to limit GHG emissions is to ensure efficient performance of the unit via purchasing a unit with efficient design, properly maintain the unit, and ensure good combustion efficiency of the fuel to limit higher global warming potential gas emissions.

Step 5: Select BACT

EPE proposes a multi-tiered approach to eliminate unnecessary GHG emissions which includes purchasing an efficient unit and ensuring proper maintenance and good fuel combustion practices. EPE will also limit hours of operation to no more than 100 hours per year during non-emergency events. This proposed BACT is consistent with results found in the RBLC database and recently issued NSR permits covering GHG emissions from emergency engines.

5.1.3 Line Heater

The in-line fuel gas heater (FIN: LH-1) will comply with BACT standards for the pollutants subject to PSD BACT review using the following emission reduction options:

- Low-NO_x burner
- Firing pipeline quality natural gas
- Ensuring good combustion practices during unit operation

With respect to review of the RBLC database, this analysis is limited to heaters and boilers less than 100 MMBtu/hr. For certain pollutants where adequate data for more similar sources were available from the Process Type 13.310 RBLC database search[12], larger units and dissimilar process units were removed from consideration so that the line heater could be compared with similar process units which better facilitates like-kind comparisons. Similarly, the scope of review of recently issued NSR Permits was limited to similar sized and similar types of units. EPE is not proposing to permit MSS emissions separately from normal emissions for the line heater and has thus not included discussion of MSS BACT for this unit.

5.1.3.1 NO_x Emissions

TCEQ Tier 1 BACT for NO_x emissions from heaters rated less than 40 MMBtu/hr include the use of burners with the best NO_x performance given the burner configuration and gaseous fuel used. The heater has a nominal rating of 3.9 MMBtu/hr and is pipeline-quality natural gas-fired.

When filtering the RBLC database list to include natural gas-fired process heaters, the RBLC lists a range of 0.01 lb/MMBtu – 0.14 lb/MMBtu NO_x emission rates for all heaters rated less than 100 MMBtu/hr. The control methods listed in the RBLC database for heaters include low-NO_x and ultra-low-NO_x burners, flue-gas recirculation, and good combustion practices.

However, within the 10 MMBtu/hr rating or less range for heaters, the minimum emission rate accepted as BACT is 0.025 lb/MMBtu, roughly equivalent to the rating of the proposed unit. For heaters less than 10 MMBtu/hr, BACT ranges from 0.025 – 0.1 lb/MMBtu. Additionally, for process heaters rated less

[12] This process type, Natural Gas-fired Commercial or Industrial Sized Boilers and Furnaces less than or Equal to 100 MMBtu/hr, is the most relevant process type included in the RBLC database for this analysis.

than 10 MMBtu/hr, the most stringent control technology (besides good combustion practices and firing only natural gas) included use of a low-NO_x burner. There are several reasons why lower-rated process heaters are not regularly implementing more stringent controls. For a unit with a low firing rate, flue-gas recirculation becomes less practical. Given that the volume of flue gas is relatively low compared with a larger combustion unit, this method of emission reduction is more effective (from both an emission control and cost perspective) for units burning larger quantities of fuel and having higher exhaust flow rates. Ultra-low NO_x burners are not represented as a control technology for units less than 10 MMBtu/hr for similar reasons, and even for larger units low-NO_x burners combined with good design and fuel combustion practices are routinely accepted as BACT. Furthermore, after reviewing emission rates on a pound per hour basis, the proposed line-heater has an emission rate for NO_x that is lower than all similar units rated 100 MMBtu/hr or less within the RBLC database.

Based on the burner rating and configuration of the unit, EPE's proposes using a low-NO_x burner, combusting only pipeline quality natural gas and ensuring good combustion practices be recognized as BACT for NOx emissions from the line heater.

5.1.3.2 CO Emissions

TCEQ Tier 1 BACT for CO emissions from heaters rated less than 40 MMBtu/hr is 50 ppmvd corrected to 3% O_2.

Review of the RBLC database for process heaters rated less than 100 MMBtu/hr, lists CO emission rates between 50 and 100 ppmvd at 3% O_2 for all units less than 100 MMBtu/hr. Units rated 10 MMBtu/hr or less in the RBLC database achieved a CO outlet concentration of 100 ppmvd at 3% O_2. Though the most stringent form of control technology would include an oxidation catalyst, the emission reduction would be minor since overall emissions of CO from the unit are less than 0.5 tons per year. Therefore, equipping the unit with an oxidation catalyst is not economically reasonable as is evidenced by a multitude of recently issued TCEQ and other state-issued NSR permits for small process heaters and reboilers rated less than 10 MMBtu/hr. The review of both the RBLC database and other recently issued permits confirms that for small process heaters, good combustion practices are routinely accepted as BACT for CO emissions.

Based on the line heater's equipment specifications provided by the manufacturer, the unit will meet the TCEQ's Tier I BACT standard and also has an hourly emission rate is 0.145 pounds per hour, which is on the low end of the hourly emission rates represented in the RBLC database. EPE will ensure that the line heater will limit CO emissions by operating the unit in accordance with good combustion practices to ensure complete combustion. Therefore, based on the unit specifications and consideration of RBLC data and recently issued NSR Permits, best management practices and firing pipeline quality natural gas is proposed as BACT for CO emissions from the line heater.

5.1.3.3 VOC Emissions

TCEQ Tier 1 BACT for VOC emissions from heaters rated less than 40 MMBtu/hr is considered to be met if the combustion unit fires solely pipeline quality natural gas and is operated in a consistent manner with good combustion practices. The line heater will fire only pipeline-quality natural gas and will be operated in conformance with good combustion practices to ensure complete combustion of VOC.

Review of the RBLC database and previous TCEQ and other recent State-issued NSR permits show that acceptance of good combustion practices and/or firing only pipeline quality natural gas have consistently been accepted as BACT for most heaters and boilers. Oxidation catalysts are listed in the RBLC database, but these are typically installed on larger boiler units and this control technology is not demonstrated in RBLC data or recently issued NSR permits to be required as BACT for small process heating equipment.

Additionally, flue gas recirculation is available as a control mechanism for VOC emissions from boilers, but this technique would not be feasible for the proposed unit. The VOC emission rates in the RBLC database range between 0.003 lb/MMBtu to 0.054 lb/MMBtu. The proposed heater will achieve an emission rate of 0.008 lb VOC/MMBtu on a heat input basis and total annual and hourly emissions are fairly small due to the units 3.9 MMBtu/hr rating. Thus, EPE proposes that TCEQ Tier 1 BACT requirements be considered BACT for VOC emissions from this equipment.

5.1.3.4 PM/$PM_{2.5}$ Emissions

TCEQ Tier 1 BACT for PM emission reductions from heaters less than 40 MMBtu/hr is to limit opacity to 5%. The proposed will be fired by pipeline quality natural gas and the exhaust stream is not expected to exceed 5% opacity.

Review of the RBLC database for similar units shows that good combustion practices, limiting the fuel to natural gas with a low sulfur content such as pipeline quality natural gas are routinely accepted as BACT for external combustion units rated 10 MMBtu/hr or less. Additionally, the proposed emission rate from the line heater is 0.005 lb/MMBtu, which is lower than other external combustion units rated less than 10 MMBtu/hr in the RBLC database. Therefore, EPE proposes good combustion practices and firing pipeline quality natural gas be accepted as BACT for PM/$PM_{2.5}$ emissions from the line heater.

5.1.3.5 GHG Emissions

TCEQ has not specified a Tier 1 BACT for GHG emissions. Review of the RBLC database showed that there is minimal data available for similar sized (< 10 MMBtu) external combustion units. However, RBLC data shows that emission rates permitted for natural gas-fired heaters were between 117 lb/MMBtu and 119 lb/MMBtu for CO_2 and were 0.0022 lb/MMBtu for CH_4 and 0.0002 lb/MMBtu for N_2O. These rates correspond to the default emission rates for natural gas combustion in 40 CFR Part 98, Subpart C Tables C-1 and C-2. The line heater Project emission rates were calculated on this basis as well. The BACT accepted in the RBLC for heaters is typically good operating practices and using natural gas as fuel. This has also been accepted as BACT for small process heaters in numerous TCEQ and other state-issued NSR permits.

The proposed unit is a forced draft line heater which will ensure that incoming fuel to the simple-cycle turbine unit will be at optimal conditions for efficient combustion. The line heater burns natural gas to heat a coil which imparts heat to a bath of water/glycol solution which in turn imparts heat to incoming fuel gas to the turbine. The unit has six passes[13] and has an 80% heat transfer efficiency. The unit is considered a fire-tube style boiler.

Since TCEQ has not established BACT for GHG emissions, an EPA top-down approach to evaluating BACT for GHG has been completed. Emerging technologies to limit emission rates of greenhouse gases are discussed in EPA's white paper "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from Industrial, Commercial, and Institutional Boilers" and other methods and technologies have also been demonstrated in practice. However, not all control measures listed within the document are applicable to the type of unit being installed and some of the strategies to reduce emissions are more applicable for operators considering retrofitting older units that were not designed as energy efficiently as newer units.

Step 1: Identify Control Options

[13] Hot combustion gases travel across the boiler heat-exchange surfaces several times. Each time this occurs is called a pass. More modern designs of fire-tube boilers typically have larger number of passes than older boilers to increase heat transfer efficiency.

- Energy Efficient Design
- Operation and Maintenance Procedures
- Good combustion Practices
- Carbon Capture and Storage
- Alternative Fuels
- Oxidation catalyst (to control CH_4)

Efficient design of equipment is an effective mechanism to ensure reduction in GHG emissions. An efficiently designed unit would have a high rate of heat transfer efficiency. Other than designing a unit to combust natural gas which is the least carbon intensive fossil fuel, some design considerations are discussed below:

- Higher numbers of passes increase the opportunity for firetubes to impart heat to the water bath medium and thereby increases heat transfer efficiency.
- For a water bath-style heater, ensuring proper insulation to reduce heat loss from the water bath through the shell is an important consideration

O&M procedures such as tuning and maintenance can increase the performance of a unit and reduce degradation of the unit efficiency over time. O&M Procedures ensure that ductwork leaks or air infiltration caused by negative pressure differences between hot combustion gases and ambient air does not reduce combustion efficiency of a boiler and cause heat transfer efficiency loss due to imparting heat to the infiltrating air instead of the water bath media as intended. Signs of air infiltration may include high oxygen levels measured in exhaust gas. Additionally, boiler gas-side heat transfer surfaces are exposed to high gas temperatures and products of combustion and which may eventually lead to the formation of soot and deposits of uncombusted carbon. This leads to reduction in surface area for efficient heat transfer. For pipeline-quality gas fired boilers, this is unlikely to be a major problem in the absence of boiler malfunction, so O&M procedures are likely to be sufficient to mitigate this issue.

Good combustion practices include burner tuning and ensuring adequate air fuel ratio to achieve efficient combustion. Efficient combustion reduces flow-through methane emissions and the formation of intermediary products like N_2O.

Installing an oxidation catalyst can reduce total hydrocarbon emissions from a unit through catalytic oxidation and would reduce uncombusted hydrocarbon emissions, including, to a certain degree, methane emissions.

Using an alternative fuel such as biomass fuel is considered an alternative to natural gas that may help reduce overall greenhouse gas emissions since it is a renewable fuel source and have a lower caloric value than traditional fossil fuels.

Carbon capture and storage is the process by which flue gas is processed to capture CO_2 emissions which is then pressurized and sent into long-term geologic storage through via pipeline.

Step 2: Eliminate technically infeasible options

Carbon capture and storage and GHG reducing alternative fuels are considered technically infeasible. See Section 5.1.1.6. for the simple cycle turbine.

Step 3: Rank remaining control technologies

1. Eliminate unnecessary GHG emissions

Ensuring efficient design and operation through purchasing and properly maintaining a unit to ensure maximum heat transfer and minimizing heat loss from the transfer medium also reduces unnecessary fuel combustion. Additionally, natural gas has a relatively low carbon intensity in relation to other fossil fuels like coal and oil.

2. Post-combustion control

Oxidation catalyst will reduce methane emissions by converting the methane to CO_2 which has a lower global warming potential. However, efficient fuel combustion is a better mechanism to achieve this goal, especially considering that CH_4 emissions are a small contributor (<0.01%) of the total CO_2e emissions.

Step 4: Evaluate most effective controls and document results

The best approach to limit GHG emissions is to ensure efficient performance of the unit via purchasing a unit with efficient design (e.g. good heat transfer efficiency), properly maintain the unit, and ensure good combustion efficiency of the fuel to limit higher global warming potential gas emissions. The efficiency of the proposed unit is 80% and with proper maintenance and good combustion procedures, potential degradation in the unit's heat transfer efficiency can be minimized.

Given the relatively small amount of methane emissions (less than 0.05 tons per year), oxidation catalyst is not considered economically reasonable due to the cost to install the unit and the engineering challenges to ensure flue-gas temperature is within optimal range (which might have the consequence of reducing the heat transfer efficiency of the unit).

Step 5: Select BACT

EPE proposes a multi-tiered approach to eliminate unnecessary GHG emissions which includes purchasing and properly maintaining a unit that is inherently efficient at achieving the intended purpose. This proposed BACT is consistent with results found in the RBLC database and recently issued NSR permits covering GHG emissions from similar-sized heaters.

5.1.4 Fugitive Emissions

The sources of fugitive emissions from the Project include natural gas component leaks of both VOC and GHG compounds, ammonia injection component leaks, and SF_6 leaks from circuit breakers. Since NH_3 does not require PSD review, BACT for this source is addressed in the TCEQ Form PI-1 General Application workbook and is not discussed herein. Since BACT for the natural gas component leaks differ from the circuit breaker system SF_6 leaks, these two sources are discussed below in separate subsections.

5.1.4.1 Natural gas piping leaks

Both VOC and GHG emissions are subject to PSD review for this project and the natural gas piping leaks have the potential to emit both of these pollutants. However, BACT control methodologies for both VOC and GHG are the same. As such, EPE proposes using the TCEQ's three-tier approach to evaluate BACT for this source. Though technically BACT control for GHG emissions are not addressed directly by TCEQ, BACT for VOC with respect to fugitive components are addressed and reduction in GHG emissions, primarily methane, is a co-benefit of implementing BACT to control VOC.

TCEQ's Tier 1 BACT requirements for fugitive piping and equipment leaks of VOC (and by extension, GHG) is as follows:

1. Uncontrolled VOC emissions less than 10 tons per year require no control
2. Uncontrolled VOC emissions greater than 10 tons per year and less than 25 tons per year require implementation of a 28M Leak Detection and Repair (LDAR) Program.
3. Uncontrolled VOC emissions greater than 25 tons per year require implementation of a 28VHP LDAR Program.

Project natural gas fugitive emissions are expected to be well below 1 ton per year of VOC. Therefore, implementation of Tier 1 BACT would not require implementation of an LDAR program. However, the RBLC database search for SIC code 4911 (Electric Services) shows that in order to control GHG emissions from natural gas fugitive emission sources, operators regularly implement Audio, Visual, and Olfactory (AVO) programs. In the RBLC database, implementation of weekly AVO inspection are regularly adopted as BACT for CO_2e emission reductions. Therefore, since this emission reduction option is the best available control for GHG emissions, it follows that this is also an effective control for VOC emissions from natural gas pipeline leaks. Further, an AVO approach is also recommended as BACT by the TCEQ for lower emitting natural gas leak sources in other industries.[14] Thus, EPE proposes that weekly AVO inspections be accepted as BACT to reduce VOC and GHG emissions from natural gas component leaks. Leaks detected through AVO inspection will be documented and repaired as soon as practicable.

5.1.4.2 Circuit Breaker SF_6 leaks

TCEQ has not specified a Tier 1 BACT for GHG emissions from circuit breaker leaks. Thus, EPA's top-down approach was used to address BACT for circuit breaker SF_6 leaks along with a review of the RBLC dataset for SIC Code 4911 and a review of recently issued TCEQ and other state NSR permits. RBLC database BACT involves enclosed insulation systems equipped with low pressure alarm to alert operators of any leaks or the purchase of units with certified leak rates of less than 0.5% per year. Various NSR permit applications include enclosed systems with leak detection alarms, and O&M or LDAR programs.

Step 1: Identify Control Options

- Enclosed System with leak detection
- Alternative insulating substances
- Implementing an LDAR Program

The most likely causes of SF_6 emissions from circuit breakers and gas-insulated switchboards in use at a power generation facility result from gasket deterioration due to aging effects. These aging effects include hardening of gaskets which can reduce effectiveness of the seal, chemical attack on gaskets from partially decomposed SF_6 compounds which are formed during to arcing due to current interruptions, and corrosion of equipment seals from the external environment. In recent years manufacturers of circuit breakers and gas-insulated switchboards have vastly improved leak rates stemming from these issues by improving the design of the units. This has the effect of reducing the necessary maintenance activities such as changing seals and gaskets. These activities often lead to escape of SF_6 despite efforts to recycle the gas, and if these maintenance procedures can be avoided it reduces this risk. Additionally, modern circuit breakers and gas-insulated switchboard equipment are generally equipped with a pressure alarm to alert operators of potential leaks.

[14] See for example Table 9 of the TCEQ Non-rule Standard Permit Oil and Gas Handling and Production Facilities (Effective November 8, 2012).

Historically, dielectric oil or compressed air circuit breakers have been used, however, these are vastly inferior to SF_6 insulated units and are undesirable from a fire-safety standpoint. There has not yet been technically feasible alternative to SF_6 that has been fully vetted and performs comparably.[15]

Implementing an LDAR program to check for SF_6 leaks is an approach that may limit SF_6 leaks if properly implemented and staff are properly trained to repair leaks (or an experienced third-party contractor is available to perform this service).

Step 2: Eliminate technically infeasible options

Of the above-mentioned control strategies, it is technically infeasible to use an alternative to SF_6 which would perform comparably. Additional research and development will still be necessary to make a heretofore untested insulating gas or gas mixture viable. Though it is technically feasible to use dielectric oil or compressed air it is not desirable based on the drawbacks, the safety concern, and the performance of the equipment being compromised.

Step 3: Rank remaining control technologies

1. Enclosed system with leak detection

In the case of leak reduction, engineering controls and superior design are much superior to relying on process management controls such as leak detection and repair due to the high level of expertise required to successfully perform maintenance while minimizing leaks. Purchasing a modern unit is the most effective way to minimize GHG emissions from circuit breakers and switchboards.

2. LDAR Program

Though an LDAR program can be effective in detecting and repairing leaks, this would be a less effective measure than installation of equipment that is gas tight and has a pressure sensor and alarm capabilities. This is because the pressure sensor and alarm operates continuously to detect leaks whereas a leak check via an LDAR program would only occur periodically.

Step 4: Evaluate most effective controls and document results

Over time, design improvements have drastically reduced SF_6 leaks from circuit breakers and gas-insulated switchboards. Additionally, a pressure sensor and alarm system should effectively alert staff to potential leaks such that the issue is addressed. Purchasing a newer, well-functioning unit with monitoring capabilities to assess unit operation and maintenance needs is much preferred to implementing a periodic maintenance program because it is desirable to avoid unnecessary SF_6 handling. Even with the best training and administrative controls, there is an increased chance of emissions occurring from these sources during maintenance activities.

Step 5: Select BACT

EPE proposes that purchasing new SF_6-insulated technology equipped with pressure monitoring systems and alarms be considered BACT for this source. This proposed BACT is consistent with results found in the RBLC database and recently issued NSR permits covering GHG emissions from circuit breakers.

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[15] Conclusions of NIST Technical Note 1425 – Gases for Electrical Insulation and Arc Interruption: Possible Present and Future alternatives to Pure SF_6. Available online at: https://nvlpubs.nist.gov/nistpubs/Legacy/TN/nbstechnicalnote1425.pdf

5.2 NNSR LAER Analysis

Major Projects located in a nonattainment area for a pollutant require NNSR Review for that pollutant if emission rates are greater than the SER specified in 40 CFR Part 51. LAER requires that emission limitations for the nonattainment pollutant are the most stringent emission limitation (contained in TCEQs SIP) for a class or source category unless this limitation is demonstrated to be not achievable or the most stringent emission limitation that is achieved in practice by a class or source category. Regardless, the LAER emission rates may not be in excess of allowable rates under applicable NSPS or NESHAP standards.

For EPE's proposed Project, NNSR review is required for PM_{10}. Emissions of PM_{10} result from natural gas fuel combustion in the line heater and simple-cycle turbine and diesel fuel combustion in the firewater pump engine. For these units, a LAER Analysis for PM_{10} emissions is provided below.

5.2.1 Simple Cycle Turbine

Emission control techniques for PM and $PM_{2.5}$ for the simple-cycle turbine were discussed in section 5.1.1 with respect to BACT. As discussed, the most important factor determining particulate matter emission rates from combustion units are impurities in the fuel such as ash and sulfur. Therefore, firing pipeline-quality natural gas inherently generates less PM_{10} emissions than would be generated by other fuels. Complete combustion to reduce particulate emissions from partially combusted carbon compounds also helps to reduce particulate matter emissions.

RBLC database and recently issued NSR permits show that exclusive use of pipeline quality natural gas along with good combustion practices represents the most stringent control option for simple cycle turbine units with respect to PM_{10} emissions. The Proposed Mitsubishi Model M501 GAC unit's worst-case emission rate for PM_{10} is 0.00275 lb/MMBtu, which is lower than all but three of the emission rates found in the RBLC dataset. This reflects the combination of the efficient, modern design of the unit and the use of pipeline quality natural gas fuel to achieve the lowest emission rate possible. EPE proposes to use solely pipeline-quality natural gas to fuel the proposed unit, operate the unit to ensure good combustion of fuel, and complete the required quarterly visible emission observations to ensure the unit is functioning properly and complying with opacity standards. These emission limitation strategies for PM_{10} result in the lowest achievable emission rates for the unit and should be considered to meet the requirements for achieving the LAER.

As previously discussed in Section 5.1.1.5 with respect to turbine MSS BACT, PM_{10} emissions from the unit would be on par or better performing than other simple cycle units in the RBLC database in terms of MSS PM_{10} emission rates. Thus, EPE proposes to meet LAER requirements by minimizing the duration of events and operating the turbine in accordance with best management and good air pollution control practices.

5.2.2 Firewater Pump Engine

For diesel fired internal combustion engines rated at 500 hp or less, control methods selected as BACT or LAER in the RBLC database for particulate emissions are the use of ultra-low sulfur diesel fuel, good combustion practices, and emission certification. The proposed firewater pump engine rating is below 100 hp. In order to establish a like-kind comparison of achievable emission rates for this type of unit, RBLC data was evaluated for other units that are 150 hp or below and fueled by ultra-low sulfur diesel fuel. Based on this analysis, the proposed unit outperforms other similarly rated units in the RBLC database. Because the unit is inherently designed to reduce particulate emissions, is certified to comply with NSPS standards based on its model year rating by the EPA, and will burn solely ultra-low sulfur diesel, EPE proposes that this unit achieves the LAER for PM_{10} emissions.

5.2.3 Line Heater

Review of the RBLC database for similar units shows that good combustion practices, limiting the fuel to natural gas with a low sulfur content such as pipeline quality natural gas are the best way to achieve low rates of particulate matter emissions for external combustion units rated 10 MMBtu/hr or less. Additionally, the proposed emission rate from the line heater is 0.005 lb/MMBtu, which is lower than other external combustion units rated less than 10 MMBtu/hr in the RBLC database. Therefore, EPE proposes that good combustion practices and firing pipeline quality natural gas be recognized as the mechanism to achieve the LAER for PM_{10} emissions.

6 AIR QUALITY IMPACTS ANALYSIS

An air quality analysis is being conducted for pollutants subject to both major source and minor source review. For the purpose of conducting the NAAQS Preliminary Impact Determinations, only one "worst-case" scenario was modeled for each pollutant and averaging time with scaling factors applied only as appropriate based on the Standard. A modeling protocol is being submitted under separate cover. Once the methodologies therein are approved, the modeling report will be submitted under separate cover. Table 13 lists the evaluations conducted for the Air Quality Impacts Analysis for pollutants subject to Minor NSR and PSD review:

Table 13. NSR Air Quality Analysis

Pollutant Evaluated	PSD/Minor NSR Evaluation	Type of Analysis
SO_2	Minor	Minor NAAQS Preliminary Impact Determination, State Property Line Analysis
H_2SO_4	Minor	State Property Line Analysis
NH_3	Minor	Health Effects Analysis
NO_x	PSD	PSD NAAQS Preliminary Impact Determination
CO	PSD	PSD NAAQS Preliminary Impact Determination
$PM_{2.5}$	PSD	PSD NAAQS Preliminary Impact Determination
Secondary Formation of $PM_{2.5}$	PSD	Tier 1 (MERP) demonstration
O_3	PSD	Tier 1 (MERP) demonstration
N/A	PSD	Additional Impacts Evaluation

*Note that a Class I Area Analysis was not conducted since the site is not located within 100 kilometers of a Class I Area.

In addition, since the Project is a major modification of an existing source, an analysis of the project's impacts to growth (with respect to residential, industrial, commercial, and/or other growth) in the area, visibility, and soils and vegetation will be included in the modeling report.

7 NONATTAINMENT NEW SOURCE REVIEW

The Project is located in a moderate Nonattainment area for PM_{10} and is required to comply with the requirements of Nonattainment New Source Review, pursuant to 30 TAC §116.151(c). For NNSR the Project emissions of PM_{10} will meet the LAER (Discussed in section 5.2). Additionally, TCEQ requires that the operator must purchase offsets, that all major stationary sources owned or operated by the applicant in the state be in compliance or on a schedule for compliance with all applicable state and federal emission limits and standards, and that an Alternative Site Analysis be conducted. These requirements are discussed in the following subsections.

7.1.1 Offsets

EPE will purchase offsets at a rate of 1 ton of PM_{10} for every ton of the proposed Project increases of PM_{10}. which will ensure that there is no net increase in PM_{10} emissions in the region. Offsets will be enforceable by permit condition language.

7.1.2 Alternative Site Analysis

Co-location of the Project at the existing Newman Generating Station has several advantages over constructing a new site including proximity to natural gas mainlines, existing water supply, and existing power transmission infrastructure. This proximity to existing infrastructure will minimize construction disturbance. EPE's two other power stations in the vicinity (Copper Station and Montana Power Station) are also located in the El Paso Nonattainment Area.

Additional power generation after the project is completed will be a social benefit and allow EPE to better serve the electricity needs of the regional area. Thus, the proposed location of the Project significantly outweighs the environmental and social costs of that location.

7.1.3 Compliance History Review

With the exception of deviations reported in the Title V Permit Compliance Certification Submittals, EPE maintains compliance with applicable air quality rules, regulations, and permit requirements. EPE has a company Compliance Classification of "satisfactory" with a Rating of 0.53. Newman Generating Station has a Compliance History Classification of "High" and a rating of 0. Other stations owned and operated by EPE in Texas include Montana Power Station and Copper Station which have Compliance History Ratings of 1.22 (Satisfactory) and 0 (High), respectively[16].

[16] Compliance History Ratings and Classifications are available online at: https://www2.tceq.texas.gov/oce/ch/index.cfm#gotcn. Accessed September 18, 2019.

Appendix A. Emission Calculations

El Paso Electric
Newman Station
Emission Calculations

Table 1 - Vendor Data
EPN: SC-7A

Commercial Data
El Paso Electric
El Paso, TX
Mitsubishi Hitachi Power Systems Americas Inc.

Input Information	
Gas Turbine Type	**M501GAC**
Configuration and Arrangement	**GT Only 1x0 with Hot SCR**
Scope	**GT Only**
Fuel Type	**Natural Gas**
Fuel Heating Value (HHV - Btu/lb)	**22732**
Fuel Heating Value (LHV - Btu/lb)	**20501**

Case#	**Unit**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**
Ambient Dry Bulb Temperature °F	°F	105	105	105	105	105	70	70	70	70	70	35	35	35	35	26	26	26	26	-10	-10	-10	-10
Barometric Pressure	psia	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693
Relative Humidity	%	13	13	13	13	13	50	50	50	50	50	67	67	67	67	23.2	23.2	23.2	23.2	60	60	60	60
Inlet conditioning	Evap Cooler	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Gas Turbine Performance																							
GT Load	%	Base	Base	80%	60%	55%	Base	Base	80%	60%	50%	Base	80%	60%	50%	Base	80%	60%	50%	Base	80%	60%	50%
GT Heat Input	MMBTU/h - HHV	2,298	2,060	1,736	1,440	1,366	2,373	2,303	1,887	1,552	1,392	2,507	2,033	1,654	1,487	2,535	2,064	1,675	1,509	2,519	2,261	1,793	1,609
Gross GT Power Output	kW	232,800	204,200	165,400	124,100	113,700	241,800	233,900	187,100	140,300	116,900	258,400	207,500	155,600	129,700	262,600	212,200	159,200	132,600	257,600	230,900	173,200	144,300
Gross GT Power Output	Megawatt	232.8	204.2	165.4	124.1	113.7	241.8	233.9	187.1	140.3	116.9	258.4	207.5	155.6	129.7	262.6	212.2	159.2	132.6	257.6	230.9	173.2	144.3
Gross GT Heat Rate	Btu/kWh - HHV	9,870	10,087	10,490	11,600	12,007	9,812	9,845	10,083	11,057	11,907	9,701	9,794	10,626	11,464	9,653	9,725	10,518	11,377	9,779	9,791	10,352	11,151
MHPS GT Auxiliary Loads	Kw	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Net GT Power Output	Kw	228,800	200,200	161,400	120,100	109,700	237,800	229,900	183,100	136,300	112,900	254,400	203,500	151,600	125,700	258,600	208,200	155,200	128,600	253,600	226,900	169,200	140,300
Net GT Heat Rate	Btu/kWh-HHV	10,043	10,288	10,750	11,987	12,444	9,977	10,016	10,303	11,382	12,329	9,853	9,986	10,906	11,829	9,802	9,912	10,789	11,731	9,933	9,964	10,597	11,469
Stack Emissions																							
Nox (abated)	ppmvd 15%O2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Nox (abated)	lb/Mmbtu - HHV	0.00998	0.00997	0.00996	0.00995	0.00995	0.00997	0.00997	0.00997	0.00996	0.00997	0.00997	0.00997	0.00995	0.00997	0.00998	0.00997	0.00995	0.00997	0.00998	0.00997	0.00996	0.00996
CO (abated)	ppmvd 15%O2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO (abated)	lb/Mmbtu - HHV	0.00729	0.00728	0.00728	0.00727	0.00727	0.00728	0.00728	0.00728	0.00728	0.00728	0.00728	0.00729	0.00727	0.00728	0.00729	0.00728	0.00727	0.00728	0.00729	0.00728	0.00727	0.00728
VOC (abated)	ppmvd 15%O2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
VOC (abated)	lb/Mmbtu - HHV	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278
Particulates PM10 Total	lb/h	6.4	6	5.1	4.2	4	6.6	6.5	5.4	4.4	4	7	5.8	4.7	4.2	7.1	5.9	4.7	4.3	7	6.5	5	4.5
Particulates PM10 Total	lb/Mmbtu - HHV	0.00279	0.00289	0.00294	0.00291	0.00295	0.00279	0.00281	0.00287	0.00283	0.00288	0.00279	0.00285	0.00281	0.00283	0.00279	0.00285	0.00281	0.00282	0.00275	0.00284	0.00279	0.00279
Ammonia Slip	ppmvd 15%O2	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Ammonia Slip	lb/Mmbtu - HHV	0.00739	0.00738	0.00737	0.00737	0.00737	0.00738	0.00738	0.00738	0.00737	0.00738	0.00738	0.00738	0.00737	0.00738	0.00739	0.00738	0.00737	0.00738	0.00739	0.00738	0.00737	0.00737
CO2	lb/h	274,300	245,900	207,100	171,900	163,000	283,200	274,900	225,200	185,200	166,200	299,300	242,600	197,400	177,500	302,600	246,400	199,900	180,100	300,700	269,900	214,100	192,100
CO2	lb/Mwhgross	1,178	1,204	1,252	1,385	1,433	1,171	1,175	1,204	1,320	1,422	1,158	1,169	1,269	1,369	1,152	1,161	1,256	1,358	1,167	1,169	1,236	1,331

El Paso Electric
Newman Station
Emission Calculations

Table 2 - Combustion Turbine (Simple Cycle) Emissions
EPN: SC-7

(Maximum Base Load Condition)			
Parameter	***Value***	***Units***	***Case [1]***
Power Output	2,576	MW	19
Fuel Flow	111.3	klb/hr	19
GT Heat Input	2,519	MMBtu/hr	19
Exhaust Flow	6,462	klb/hr	19
Exhaust Temperature	825.0	°F	19
Startups/Shutdowns	365.0	events/yr	-
Annual Hours of Operation	8,760	hr/yr	-

Pollutant	**Base load Emissions Summary - Single Turbine**				**MSS Emissions Summary - Single Turbine**			**Total Annual Emission Rate**
	Emission Factor			**Annual Emissions**	**Startup emissions[1]**	**Shutdown emissions[2]**	**SU/SD Emissions**	
	ppmvd at 15% O_2	***lb/MMBtu***	***lb/hr***	***tpy***	***lb/event***	***lb/event***	***tpy***	***tpy***
NO_x	2.5	0.00998	25.2	110.38	48.00	31.00	14.42	120.58
CO	3.0	0.00729	18.4	80.59	548.00	326.00	159.51	237.02
VOC	2.0	0.00278	7.0	30.66	310.00	153.00	84.50	113.99
$PM/PM_{10}/PM_{2.5}$	-	0.00275	7.0	30.66	4.08	2.33	1.17	30.66
SO_2	0.20	-	1.54	6.75	0.90	0.51	0.26	6.75
NH_3[3]	5.0	0.00739	18.7	81.91	10.91	6.23	3.13	81.91
H_2SO_4 Mist	0.10	-	1.41	6.18	0.82	0.47	0.24	6.18
HAP Pollutant	***uncontrolled lb/MMBtu [4]***	***ppmvd at 15% O_2***	***lb/hr***	***tpy***	***lb/event***	***lb/event***	***tpy***	***tpy [5]***
Formaldehyde [5]	7.1E-04	0.09	0.60	2.63	1.04	0.60	0.30	2.83
1,3-Butadiene	4.3E-07	-	1.1E-03	0.00	6.3E-04	3.6E-04	0.00	0.00
Acetaldehyde	4.0E-05	-	1.0E-01	0.44	5.9E-02	3.4E-02	0.02	0.44
Acrolein	6.4E-06	-	1.6E-02	0.07	9.4E-03	5.4E-03	0.00	0.07
Benzene	1.2E-05	-	3.0E-02	0.13	1.8E-02	1.0E-02	0.01	0.13
Ethylbenzene	3.2E-05	-	8.1E-02	0.35	4.7E-02	2.7E-02	0.01	0.35
Naphthalene	1.3E-06	-	3.3E-03	0.01	1.9E-03	1.1E-03	0.00	0.01
PAH	2.2E-06	-	5.5E-03	0.02	3.2E-03	1.8E-03	0.00	0.02
Propylene Oxide	2.9E-05	-	7.3E-02	0.32	4.3E-02	2.4E-02	0.01	0.32
Toluene	1.3E-04	-	3.3E-01	1.43	1.9E-01	1.1E-01	0.05	1.43
Xylenes	6.4E-05	-	1.6E-01	0.71	9.4E-02	5.4E-02	0.03	0.71
TOTAL HAP	***-***	***-***	***1.40***	***6.13***	***1.51***	***0.86***	***0.43***	***6.33***

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Table 2 - Combustion Turbine (Simple Cycle) Emissions
EPN: SC-7

(Maximum Base Load Condition)			
Parameter	*Value*	*Units*	*Case* [1]
Power Output	2,576	MW	19
Fuel Flow	111.3	klb/hr	19
GT Heat Input	2,519	MMBtu/hr	19
Exhaust Flow	6,462	klb/hr	19
Exhaust Temperature	825.0	°F	19
Startups/Shutdowns	365.0	events/yr	-
Annual Hours of Operation	8,760	hr/yr	-

Pollutant	Base load Emissions Summary - Single Turbine				MSS Emissions Summary - Single Turbine			Total Annual Emission Rate
	Emission Factor			Annual Emissions	Startup emissions[1]	Shutdown emissions[2]	SU/SD Emissions	
GHG Pollutant	*ppmvd at 15% O_2*		*lb/hr*	*tpy*	*lb/event*	*lb/event*	*tpy*	*tpy*
CO_2	-		300,700	1,317,066	75,600	51,700	23,232	1,317,066
CH_4	5		17.6	77.09	1657.00	1365.00	552	625.66
N_2O [6]	-	0.0002	0.56	2.43	1.06	0.68	0.32	2.66
TOTAL GHG (in CO_2e) [7]	-		***301,305***	***1,319,718***	-	-	***37,115***	***1,333,499***

[1] NOx, CO, and VOC startup emission rates based on vendor provided emission rate at minimum ambient temperature during startup (ignition to base load). Startup emissions in lb/event for PM/PM10/PM2.5, SO2, NH3, H2SO4 Mist is based on the hourly emission rate at worst case base load conditions adjusted based on timing to get from ignition to base load. The emissions from startup to base load at operating conditions -10°F and relative humidity 53% represent the highest hourly emission rate from the source (Case 19).

[2] NOx, CO, and VOC shutdown emission rates based on vendor provided emission rate at minimum ambient temperature during shutdown (base load to flame out).Shutdown emissions in lb/event for PM/PM10/PM2.5, SO2, NH3, H2SO4 Mist is based on the hourly emission rate at worst case base load conditions on timing to get from (base load to flame out.

[3] Ammonia injection will occur during times when the inlet temperature to the SCR is within operating range for ammonia injection, so it is a highly conservative assumption to account for ammonia slip emissions occur during startup and shutdown times.

[4] Uncontrolled HAP emission rates are based on AP-42 Table 3.1-3. Emission Factors for Hazardous Air Pollutants from Natural Gas-Fired Stationary Gas Turbines. These are conservatively used to estimate emissions where a specific vendor-provided emission factor is not provided.

[5] The turbine unit is authroized for 8760 hours per year. However, start up and shut down emissions are also authroized to occur. In order to avoid double counting emissions for the total annual emissions, the time in start up and shut down mode is accounted for and subtracted from the normal hours of operation to get the maximum annual emissions. This is a conservatively high estimate of emissions since it assumes the maximum permitted number os startup and shutdown events occur.

[4] Formaldehyde emissions from the vendor data. Emissions during startup/shutdown operations are based on uncontrolled AP-42 emission factors. Other HAP emissions are based on uncontrolled AP-42 emission factors to provide a basis for representation of potential emissions of HAPs. However, these values are conservatively high.

[6] N_2O emission rate based on the default emission factor in Table C-2 of 40 CFR Part 98 Subpart C for natural gas combustion. Startup and Shutdown event N_2O emissions are estimated based on the startup emissions of NO_X in relation to steady-state emissions of NO_X.

[6] Source is subject to PSD permitting for its GHG emissions only when emissions of one or more non-GHGs are above major source thresholds.

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Table 3 - Emergency Diesel Firewater Pump Engine Emissions
(EPN: FIRE-2)

Parameter	*Value*	*Units*	*Value*	*Units*
Power Output [1]	99	hp		
Estimated Heat Input [2]	0.7	MMBtu/hr		
Annual Hours of Operation (Total)	100	hrs/yr		
Weight % of sulfur [3]	0.0015	%		
Fuel flow (volumetric basis) [4]	5	gallons per hour	0.08	gpm
Density of fuel [5]	876	kg/m^3	7.31	lb/gal
Fuel flow (mass basis)	36.45	lb/hr		

Criteria Pollutant	Emission Factor				Potential Emissions	
	g/hp-hr	*lb/hp-hr*	*kg/MMBtu*	*lb/MMBtu*	*lb/hr* [10]	*tpy* [11]
NO_x [1]	2.53	5.58E-03	-	-	0.55	0.028
CO [1]	0.60	1.32E-03	-	-	0.13	0.007
VOC [1]	0.24	5.29E-04	-	-	0.05	0.003
$PM/PM_{10}/PM_{2.5}$ [1]	0.16	3.53E-04	-	-	0.03	0.002
SO_2 [6]	-	-	-	-	1.09E-03	5.46E-05
GHG Pollutant [7]	*g/hp-hr*	*lb/hp-hr*	*kg/MMBtu*	*lb/MMBtu*	*lb/hr* [10]	*tpy* [11]
CO_2	-	-	73.96	-	113.02	5.65
CH_4	-	-	3.00E-03	-	4.58E-03	2.29E-04
N_2O	-	-	6.00E-04	-	9.17E-04	4.58E-05
CO_2e [8]	-	-	-	-	*113.40*	*5.67*
HAP Pollutant [9]	*g/hp-hr*	*lb/hp-hr*	*kg/MMBtu*	*lb/MMBtu*	*lb/hr* [10]	*tpy* [11]
1,3-Butadiene	-	-	-	3.91E-05	2.71E-05	1.35E-06
Acetaldehyde	-	-	-	7.67E-04	5.32E-04	2.66E-05
Acrolein	-	-	-	9.25E-05	6.41E-05	3.21E-06
Benzene	-	-	-	9.33E-04	6.47E-04	3.23E-05
Formaldehyde	-	-	-	1.18E-03	8.18E-04	4.09E-05
Naphthalene	-	-	-	8.48E-05	5.88E-05	2.94E-06
Toluene	-	-	-	4.09E-04	2.83E-04	1.42E-05
Xylenes	-	-	-	2.85E-04	1.98E-04	9.88E-06
TOTAL HAP					***2.63E-03***	***1.31E-04***

[1] Engine emission data provided by John Deere. VOC emission factor is conservatively represented as the TOC emission factor provided by manufacturer since the VOC emission rates are not specified. Particulate matter is assumed to equal PM_{10} and $PM_{2.5}$.

[2] Heat input calculated assuming a brake-specific fuel capacity of 7,000 Btu/hp-hr (Average brake-specific fuel consumption from AP-42 Table 3.3-1, footnote a), and calculated by the following equation:

$$Estimated\ Heat\ Input\ \left(\frac{MMBtu}{hr}\right) = \frac{Avg\ Brake\ Specific\ Fuel\ Consumption\ \left({}^{Btu}/_{hp*hr}\right) * Max\ Power\ Output\ (hp)}{1{,}000{,}000\ {}^{Btu}/_{MMBtu}}$$

[3] Sulfur weight percent based on the proposed sulfur content of ultra low sulfur diesel (ULSD) fuel (15 ppm).

[4] The Fuel flow is estimated based on a fuel energy content of 139,000 Btu/gal for diesel fuel.

[5] ASTM D 396 defines No. 2 Fuel Oil (i.e., Diesel Fuel) as having a maximum density of 876 kg/m^3.

[6] SO_2 emission rate is calculated by assuming all sulfur in the fuel stream is converted to SO_2, and is calculated as:

$$SO_2\ Emission\ Rate\ \left(\frac{lb}{hr}\right) = Fuel\ Flow\ \left(\frac{lb}{hr}\right) \times \frac{0.0015\ lb\ Sulfur\ in\ fuel}{100\ lb\ fuel} \times \frac{64.06\ lb\ SO_2}{32.06\ lb\ S}$$

[7] CO_2 emission factor obtained from 40 CFR 98 Subpart C, Table C-1 for diesel (Distillate Fuel Oil No. 2).
CH_4 and N_2O emission factors from 40 CFR 98, Subpart C, Table C-2 for diesel.

[8] Global warming potentials obtained from Table A-1 to Subpart 98 - Global Warming Potentials
Equation A-1 $CO_2e = \sum GHGi \times GWPi$
Where:
CO_2e = Carbon dioxide equivalent (tons/year)
GHGi = Mass emissions of each GHG (tons/year)
GWPi = Global warming potential for each GHG (1 for CO_2, 25 for CH_4, 298 for N_2O)

[9] HAP emission factors from AP-42 Chapter 3 Section 3 – Gasoline and Diesel Industrial Engines Table 3.3-2 - Speciated Organic Compounds Emission Factors for Uncontrolled Diesel Engines, dated October 1996.

[10] Hourly Potential Emissions (lb/hr) = Power Output (hp) x Emission Factor (lb/hp-hr)
or Hourly Potential Emissions (lb/hr) = Estimated Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu)
or Hourly Potential Emissions (lb/hr) = Estimated Heat Input (MMBtu/hr) x Emission Factor (kg/MMBtu) x (2.205 lb/kg)

[11] Annual Potential Emissions (tpy) = Hourly Potential Emissions (lb/hr) x Annual Hours of Operation (hr/yr) / 2000 (lb/ton);

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Table 4 - Forced Draft Line Heater Emissions
(EPN: LH-1)

Parameter	*Value*	*Units*
Estimated Heat Input [1]	3.9	MMBtu/hr
Annual Hours of Operation (Total)	8,760	hrs/yr

Criteria Pollutant	Emission Factor			Potential Emissions	
	lb/MMscf	*lb/MMBtu*	*kg/MMBtu*	*lb/hr* [5]	*tpy* [6]
NO_x [1]	-	0.030	-	0.118	0.515
CO [1]	-	0.037	-	0.145	0.635
VOC [1]	-	0.008	-	0.031	0.137
$PM/PM_{10}/PM_{2.5}$ [1]	-	0.005	-	0.019	0.082
SO_2 [1]	-	0.001	-	0.004	0.017
GHG Pollutant [2]	*lb/MMscf*	*lb/MMBtu*	*kg/MMBtu*	*lb/hr* [5]	*tpy* [6]
CO_2	-	-	53.06	458.72	1822.72
CH_4	-	-	1.00E-03	0.01	0.03
N_2O	-	-	1.00E-04	0.00	0.00
CO_2e [3]	-	-	-	*459.20*	*1824.61*
HAP Pollutant [4]	*lb/MMscf*	*lb/MMBtu*	*kg/MMBtu*	*lb/hr* [5]	*tpy* [6]
2-Methylnaphthalene	2.40E-05	2.35E-08	-	9.23E-08	4.04E-07
3-Methylchloranthrene	1.80E-06	1.76E-09	-	6.92E-09	3.03E-08
7,12-Dimethylbenz(a)anthracene	1.60E-05	1.57E-08	-	6.15E-08	2.69E-07
Acenaphthene	1.80E-06	1.76E-09	-	6.92E-09	3.03E-08
Acenaphthylene	1.80E-06	1.76E-09	-	6.92E-09	3.03E-08
Anthracene	2.40E-06	2.35E-09	-	9.23E-09	4.04E-08
Benz(a)anthracene	1.80E-06	1.76E-09	-	6.92E-09	3.03E-08
Benzene	2.10E-03	2.06E-06	-	8.07E-06	3.54E-05
Benzo(a)pyrene	1.20E-06	1.18E-09	-	4.61E-09	2.02E-08
Benzo(b)fluoranthene	1.80E-06	1.76E-09	-	6.92E-09	3.03E-08
Benzo(g,h,i)perylene	1.20E-06	1.18E-09	-	4.61E-09	2.02E-08
Benzo(k)fluoranthene	1.80E-06	1.76E-09	-	6.92E-09	3.03E-08
Chrysene	1.80E-06	1.76E-09	-	6.92E-09	3.03E-08
Dibenzo(a,h)anthracene	1.20E-06	1.18E-09	-	4.61E-09	2.02E-08
Dichlorobenzene	1.20E-03	1.18E-06	-	4.61E-06	2.02E-05
Fluoranthene	3.00E-06	2.94E-09	-	1.15E-08	5.05E-08
Fluorene	2.80E-06	2.75E-09	-	1.08E-08	4.71E-08
Formaldehyde	7.50E-02	7.35E-05	-	2.88E-04	1.26E-03
n-Hexane	1.80E+00	1.76E-03	-	6.92E-03	3.03E-02
Indeno(1,2,3-cd)pyrene	1.80E-06	1.76E-09	-	6.92E-09	3.03E-08
Naphthalene	6.10E-04	5.98E-07	-	2.34E-06	1.03E-05
Phenanathrene	1.70E-05	1.67E-08	-	6.53E-08	2.86E-07
Pyrene	5.00E-06	4.90E-09	-	1.92E-08	8.42E-08
Toluene	3.40E-03	3.33E-06	-	1.31E-05	5.72E-05
TOTAL HAP				***7.24E-03***	***3.17E-02***

[1] Heater Emission Data provided by equipment provider. Unit is equipped with a Low NOx Burner.

[2] CO_2 emission factor obtained from 40 CFR 98 Subpart C, Table C-1 for natural gas.
CH_4 and N_2O emission factors from 40 CFR 98, Subpart C, Table C-2 for natural gas.

[3] Global warming potentials obtained from Table A-1 to Subpart 98 - Global Warming Potentials
Equation A-1 $CO_2e = \sum GHGi \times GWPi$
Where:
CO_2e = Carbon dioxide equivalent (tons/year)
GHGi = Mass emissions of each GHG (tons/year)
GWPi = Global warming potential for each GHG (1 for CO_2, 25 for CH_4, 298 for N_2O)

[4] HAP emission factors from AP-42 Chapter 1 Section 4 – External Combustion Sources: Natural Gas Combustion Table 1.4-3 - Emission Factors for Speciated Organic Compounds from Natural Gas Combustion, dated July 1998.

[5] Hourly Potential Emissions (lb/hr) = Estimated Heat Input (MMBtu/hr) x Emission Factor (lb/MMBtu)
or Hourly Potential Emissions (lb/hr) = Estimated Heat Input (MMBtu/hr) x Emission Factor (kg/MMBtu) x (2.205 lb/kg)
or Hourly Potential Emissions (lb/hr) = Estimated Heat Input (MMBtu/hr) x AP-42 Emission Factor (lb/MMscf) / 1,020 Btu/scf

[6] Annual Potential Emissions (tpy) = Hourly Potential Emissions (lb/hr) x Annual Hours of Operation (hr/yr) / 2000 (lb/ton);

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Table 5a - Natural Gas GHG Fugitive Emissions (EPN: FUG-7)

Assumptions

Parameter	*Value*	*Units*
CH_4 Content of Natural Gas [1]	92.053%	vol%
CO_2 content of Natural Gas [1]	0.1950%	vol%
Density of CH_4	0.04	lb/scf
Density of CO_2	0.12	lb/scf
GWP for CH_4 [2]	25	
GWP for CO_2 [2]	1	
GWP for SF_6	22800	
Annual Hours of Operation	8,760	(hr/yr)

Equipment Type	Total Gas Emission Factor [3]	CH_4 Emission Factor	CO_2 Emission Factor	Component Count [4]	Fugitive CH_4 Emissions [5]		Fugitive CO_2 Emissions [6]		Total Fugitive CO_2e Emissions [7]	
	(scf/hr/source)	lb/hr/source	lb/hr/source		lb/hr	tpy	lb/hr	tpy	*lb/hr*	*tpy*
Connector	0.017	0.001	0.000	0	0.00	0.00	0.00	0.00	0.00	0.00
Flanges	0.121	0.005	0.000	170	0.80	3.51	0.00	0.02	20.04	87.79
Open-ended lines	0.031	0.001	0.000	53	0.06	0.28	0.00	0.00	1.60	7.01
Sampling Connections	0.121	0.005	0.000	3	0.01	0.06	0.00	0.00	0.35	1.55
Pump seals	0.325	0.013	0.000	2	0.03	0.11	0.00	0.00	0.63	2.77
Pressure Relief Valve	0.193	0.008	0.000	4	0.03	0.13	0.00	0.00	0.75	3.29
Valves	0.121	0.005	0.000	124	0.58	2.56	0.00	0.01	14.62	64.03
Total	**-**			**-**	**1.52**	**6.66**	**0.01**	**3.9E-02**	**38.00**	**166.45**

[1] Fuel quality specifications provided by EPE

[2] Global warming potentials are based on 40 CFR Part 98, Table A-1.

[3] All emission factors except pump seals obtained from 40 CFR part 98 subpart W, Table W-1A - Default Whole Gas Emission Factors for Onshore Petroleum and Natural Gas Production. The emission factor for Valves was used for Flanges and Sampling Connections. The pump seal emission factor is obtained from EPA's Protocol for Equipment Leak Emission Estimates, Table 2-4, EPA-454/R-95-017, November 1995, but is adjusted to represent a total gas emission factor by multiplying the factor by a ratio of the facility total gas weight percent to VOC weight percent since the EPA emission factor represents only non-methane, non-ethane hydrocarbon emissions.

[4] Component count estimates for piping in both aqueous ammonia and natural gas service were estimated based on the component counts for a similar facility.

[5] Total component counts include a 25% safety factor.

[6] Volumetric emissions of GHG are derived from the equation in 40 CFR part 98 subpart W Equation W-1: Volume GHG scf/hr = Count x EF (Total Gas scf/hr/source) x GHG Concentration (vol%)
Mass GHG (lb/hr) = scf/hr GHG * density of GHG lb/scf (converted from kg/scf values in 40 CFR Part 98 paragraph 98.233(v))
Mass GHG (ton/yr) = GHG lb/hr * hr/yr / 2000 lb/ton.

[7] Global warming potentials obtained from Table A-1 to Subpart 98 - Global Warming Potentials
Equation A-1 $CO_2e = \sum GHGi \times GWPi$
Where:
CO_2e = Carbon dioxide equivalent (tons/year)
GHGi = Mass emissions of each GHG (tons/year)
GWPi = Global warming potential for each GHG

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Table 5b - Electric Equipment Insulated with SF6 GHG Fugitive Emissions (EPN: FUG-7)

Breaker Type	Quantity [1]	SF_6 Capacity [2]		Fugitive SF_6 Emissions [3]	Fugitive SF_6 Emissions [3]		Fugitive CO_2e Emissions [4]	
		each	total					
		lb	*lb*	*lb/yr*	lb/hr	tpy	*lb/hr*	*tpy*
Generator	2	30.87	61.73	0.30865	0.00	0.00	0.80	3.52
Total	2	-	61.73	0.30865	0.00	0.00	0.80	3.52

[1] Calculations assume 2 generator switches for the Project.

[2] Generator circuit breakers contain approx 14 kg (30.87 lb) of SF_6 gas each.

[3] Circuit breaker fugitive emissions based on 0.5% annual leak rate as cited in J. Blackman, M. Averyt, and Z. Taylor, "SF_6 Leak Rates from High Voltage Circuit Breakers – EPA Investigates Potential Greenhouse Gas Emission Source," available at: http://www.epa.gov/electricpower-sf6/documents/leakrates_circuitbreakers.pdf.

[4] Global warming potentials obtained from Table A-1 to Subpart 98 - Global Warming Potentials
Equation A-1 $CO_2e = \sum GHGi \times GWPi$
Where:
CO_2e = Carbon dioxide equivalent (tons/year)
GHGi = Mass emissions of each GHG (tons/year)
GWPi = Global warming potential for each GHG (22,800 for SF_6)

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Table 6a - Fugitive Ammonia Emissions (EPN: FUG-7)

Ammonia (NH_3) Fugitive Emissions (EPN: FUG-7)				
Equipment Type	Emission Factor [1] (lb/hr/source)	Total Estimated Component Count [3]	Fugitive NH_3 Emissions [4] (lb/hr)	Fugitive NH_3 Emissions [4] (tpy)
Compressors	0.5027	0	0.00E+00	0.00E+00
Flanges/Connectors	0.0005	73	6.94E-03	3.04E-02
Open-ended lines	0.0040	0	0.00E+00	0.00E+00
Pumps	0.0386	0	0.00E+00	0.00E+00
Relief Valve	0.2293	7	3.05E-01	1.34E+00
Sampling Connections	0.0330	0	0.00E+00	0.00E+00
Valves	0.0035	75	4.99E-02	2.18E-01
Total			**0.36**	**1.58**

[1] Emission factors obtained from TCEQ's *Emission Factors for Equipment Leak Fugitive Components* , Addendum to RG-360A dated January 2008, Table 3 - Average Emission Factors - SOCMI (Light liquid Factors for SOCMI Without Ethylene were used).

[2] Component count estimates for piping in both aqueous ammonia and natural gas service were estimated based on the component counts for a similar facility.

[3] Total component counts include a 25% safety factor.

[4] Continuous operating for 8,760 hours and a 19% NH_3 content of the aqueous ammonia.

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Table 6b - Fugitive Natural Gas Emissions (EPN: FUG-7)

Natural Gas Fugitive Emissions (EPN: FUG-7)				
Equipment Type	**Emission Factor [1,2]**	**Total Estimated Component Count [3]**	**Fugitive VOC Emissions [4]**	
	(lb/hr/source)		***(lb/hr)***	***(tpy)***
Connector	4.40E-04	0	0.00E+00	0.00E+00
Flanges	8.60E-04	170	2.48E-03	1.09E-02
Open-ended lines	4.41E-03	53	3.97E-03	1.74E-02
Others [5]	1.94E-02	7	2.31E-03	1.01E-02
Pump seals	5.29E-03	2	1.80E-04	7.87E-04
Valves	9.92E-03	124	2.09E-02	9.15E-02
Total			**0.030**	**0.13**

[1] Emission factors obtained from EPA's Protocol for Equipment Leak Emission Estimates, Table 2-4, EPA-454/R-95-017, November 1995.

[2] These factors are for total organic compound emission rates (including non-VOC's such as methane and ethane) and apply to light crude, heavy crude, gas plant, gas production, and off-shore facilities. Since the emission factors are based on total organic compound (TOC) emission rates. To determine VOC emissions, the fuel gas VOC content is divided by TOC content to get a weight percent VOC of TOC. This value is used to convert the TOC emission factor to VOC emissions.

[3] Total component counts include a 25% safety factor.

[4] Based on continuous operating for 8,760 hours. Emission rates for HAPs are considered negligible due to the low overall VOC emissions and the use of pipeline quality natural gas.

[5] The "other" equipment type was derived from compressors, diaphragms, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves, and vents. This "other" equipment type should be applied for any equipment type other than connectors, flanges, open-ended line, pumps, or valves.

El Paso Electric
Newman Station
Emission Calculations

Table 7 - Fuel Gas Composition

Compositional Analysis			Normalized Fuel Gas Composition [1]		
Species	**Formula**	**MW**	**Mol Fraction**	**Weight %**	**Molecular Weight Contribution**
Hydrogen sulfide	H2S	34.8	0.00000	0.000	0.0
Oxygen	O2	32	0.00000	0.000	0.0
Nitrogen	N2	28.01	2.24200	3.642	62.8
Carbon dioxide	CO2	44.01	0.19500	0.498	8.6
Methane	C1	16.04	92.05300	85.643	1476.5
Ethane	C2	30.07	4.92500	8.590	148.1
Propane	C3	44.1	0.47500	1.215	20.9
iso-Butane	iC4	58.12	0.02000	0.067	1.2
n-Butane	nC4	58.12	0.03600	0.121	2.1
iso-Pentane	iC5	71.99	0.00600	0.025	0.4
n-Pentane	nC5	71.99	0.04400	0.184	3.2
Hexanes	C6	84	0.00300	0.015	0.3
Total:			**100.00**	**100.000**	**1724.1**
		TOC	97.56200	95.85975	
		VOC	0.58400	1.62719	
		VOC/TOC[1]	**0.59859**	**1.69747**	

[1] Used to determine VOC emissions from natural gas fugitive emissions. The EPA Table 204 emission factors are expressed as kg/hr/source of total organic compounds.

El Paso Electric
Newman Station
Emission Calculations

Table 8 - Emission Summary

Emission Source (EPN)	CO		NO_X		PM		PM_{10}		$PM_{2.5}$		SO_2		VOC		H_2SO_4 Mist		NH_3	
	(lb/hr)	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*
SC-7 (Normal Operations)	18.40	237.02	25.20	120.58	7.00	30.66	7.00	30.66	7.00	30.66	1.54	6.75	7.00	113.99	1.41	6.18	18.70	81.91
SC-7 (MSS Operations)	555.67		58.50		7.00		7.00		7.00		1.54		312.92		1.41		18.70	
FIRE-2	0.13	0.01	0.55	0.03	0.03	1.7E-03	0.03	1.7E-03	0.03	1.7E-03	1.1E-03	5.5E-05	0.05	2.6E-03	-	-	-	-
LH-1	0.15	0.635	0.12	0.52	0.02	8.2E-02	0.02	8.2E-02	0.02	8.2E-02	3.9E-03	1.7E-02	0.031	0.14	-	-	-	-
FUG-7	-	-	-	-	-	-	-	-	-	-	-	-	0.03	0.13	-	-	0.36	1.58
Total [1]	***555.94***	***237.66***	***59.17***	***121.12***	***7.05***	***30.74***	***7.05***	***30.74***	***7.05***	***30.74***	***1.55***	***6.76***	***313.03***	***114.26***	***1.41***	***6.18***	***19.06***	***83.49***

[1] Total short term emission rates reflect maximum hourly emission rates including MSS hourly emission rates. Emission rates during normal operations are lower for certain pollutants.

El Paso Electric
Newman Station
Emission Calculations

Table 9 - HAP Emission Summary

Emission Source	1,3 Butadiene		Acetaldehyde		Acrolein		Benzene		Ethylbenzene		Formaldehyde		Naphthalene		PAH		Propylene Oxide		Toluene		Xylenes		Total HAP [1]	
	(lb/hr)	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*					*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*
SC-7 (Normal Operations)	1.1E-03	4.7E-03	0.10	0.44	0.02	0.07	0.03	0.13	0.08	0.35	0.60	2.83	3.3E-03	0.01	0.01	0.02	0.07	0.32	0.33	1.43	0.16	0.71	1.40	6.33
SC-7 (MSS Operations)	1.1E-03		0.10		0.02		0.03		0.08		1.29		3.3E-03		0.01		0.07		0.33		0.16		2.09	
FIRE-2	2.7E-05	1.4E-06	5.3E-04	2.7E-05	6.4E-05	3.2E-06	6.5E-04	3.2E-05	-	-	8.2E-04	4.1E-05	5.9E-05	2.9E-06	-	-	-	-	2.8E-04	1.4E-05	2.0E-04	9.9E-06	2.6E-03	1.3E-04
LH-1	-	-	-	-	-	-	8.1E-06	3.5E-05	-	-	2.9E-04	1.3E-03	2.3E-06	1.0E-05	-	-	-	-	1.3E-05	5.7E-05	-	-	0.01	3.2E-02
Total [2]	***1.1E-03***	***4.7E-03***	***0.10***	***0.44***	***0.02***	***0.07***	***0.03***	***0.13***	***0.08***	***0.35***	***1.29***	***2.83***	***3.3E-03***	***1.4E-02***	***0.01***	***0.02***	***0.07***	***0.32***	***0.33***	***1.43***	***0.16***	***0.71***	***2.10***	***6.36***

[1] Individual HAP species with emissions less than 1.0E-5 tons per year from all sources are not included individually in this table but these emisisons are added into the Total HAP column.

[2] Total short term emission rates reflect maximum hourly emission rates including MSS hourly emission rates. Emission rates during normal operations are lower for certain pollutants.

El Paso Electric
Newman Station
Emission Calculations

Table 10 - GHG Emission Summary

Emission Source (EPN)	CO_2		CH_4		N_2O		SF_6		CO_2e		
	(lb/hr)	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*	*(lb/hr)*	*(tpy)*	*(MT/yr)*
SC-7 (Normal Operations)	300,700	1,317,066	18	626	0.56	2.66	-	-	301,305	1,333,499	1,209,731
SC-7 (MSS Operations)	252,167		1664		1.29		-		294,159		
FIRE-2	113.02	5.65	4.6E-03	2.3E-04	9.2E-04	4.6E-05	-	-	113.40	5.67	5.14
LH-1	458.72	1822.72	8.6E-03	3.4E-02	8.6E-04	3.4E-03	-	-	459.20	1824.61	1655.26
FUG-7	0.01	0.04	1.52	6.66	-	-	3.5E-05	1.5E-04	38.81	169.97	154.19
Total [1]	***301,272***	***1,318,894***	***1,666***	***632***	***1.3E+00***	***2.7E+00***	***3.5E-05***	***1.5E-04***	***301,917***	***1,335,500***	***1,211,545***

[1] Total short term emission rates reflect maximum hourly emission rates including MSS hourly emission rates. Emission rates are higher or lower for certain GHGs depending on whether the unit is in normal operating mode or during a startup/shutdown activity.

El Paso Electric
Newman Station
Emission Calculations

Table 11 - PSD/NNSR Applicability Summary

Major Project Located at Existing Major Source

Pollutant	Facility Emissions	Significant Emission Rate	Is the Pollutant above SER? [1]
	(tpy)	*(tpy)*	*(Yes/No)*
CO	237.66	100	Yes
NO_X	121.12	40	Yes
PM	30.74	25	Yes
PM_{10}	30.74	15	Yes
$PM_{2.5}$	30.74	10	Yes
SO_2	6.76	40	No
VOC	114.26	40	Yes
H_2SO_4 Mist	6.18	7	No
	MT/yr	*MT/yr*	*(Yes/No)*
CO_2e	1,211,545	75,000	Yes

[1] From TCEQ (APDG 6240v11, Revised 10/18) Fact Sheet - PSD and Nonattainment Significant Emissions

Table 12 - Major Source HAP thresholds

Newman Generating Station Major Source Status with Respect to NESHAP

Pollutant	Site-wide Emissions	Major Source Threshold	Will the site become a major source of HAPs?
	(tpy)	*(tpy)*	*(Yes/No)*
Formaldehyde	10.81	10	Yes
Total HAP	30.61	25	Yes

Appendix B. Manufacturer’s Specifications

Rating Specific Emissions Data

Nameplate Rating Information

Clarke Model	**JU4H-UFADJ2**
Power Rating (BHP/kW)	**99/74**
Certified Speed (RPM)	**2350**

Refer to **Rating Data** section on page 2 for emissions output values

Rating Specific Emissions Data - John Deere Power Systems

Rating Data

Rating	4045HF280E	
Certified Power(kW)	74	
Rated Speed	2350	
Vehicle Model Number	OEM (Fire Pump)	
Units	g/kW-hr	g/hp-hr
NOx	3.39	2.53
HC	0.32	0.24
NOx + HC	N/A	N/A
Pm	0.21	0.16
CO	0.9	0.6

Certificate Data

Engine Model Year	2019
EPA Family Name	KJDXL04.5141
EPA JD Name	350HAM
EPA Certificate Number	KJDXL04.5141-009
CARB Executive Order	
Parent of Family	4045HFG81
Units	g/kW-hr
NOx	4.18
HC	0.24
NOx + HC	N/A
Pm	0.22
CO	0.6

* The emission data listed is measured from a laboratory test engine according to the test procedures of 40 CFR 89 or 40 CFR 1039, as applicable. The test engine is intended to represent nominal production hardware, and we do not guarantee that every production engine will have identical test results. The family parent data represents multiple ratings and this data may have been collected at a different engine speed and load. Emission results may vary due to engine manufacturing tolerances, engine operating conditions, fuels used, or other conditions beyond our control.

Emissions Results by Rating run on Feb-18-2019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2018 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: **Deere & Company** (U.S. Manufacturer or Importer) **Certificate Number: JJDXL04.5141-007**	**Effective Date:** 07/06/2017 **Expiration Date:** 12/31/2018	**Byron J. Bunker, Division Director** **Compliance Division**	**Issue Date:** 07/06/2017 **Revision Date:** N/A

Model Year: 2018
Manufacturer Type: Original Engine Manufacturer
Engine Family: JJDXL04.5141

Mobile/Stationary Indicator: Stationary
Emissions Power Category: 56<=kW<75
Fuel Type: Diesel
After Treatment Devices: No After Treatment Devices Installed
Non-after Treatment Devices: Smoke Puff Limiter, Engine Design Modification, Non-standard Non-After Treatment Device Installed

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Part 60, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

HEATER SPECIFICATION SHEET

Forced Draft Line Heater

CUSTOMER		DATE	
ADDRESS		CUSTOMER REFERENCE	
CITY/STATE/ZIP		CUSTOMER PROJECT NO.	
LOCATION		QUOTATION ITEM NUMBER	
STATION		OPERATING DATA	1290 psig 40°F / 1284 psig 80°F
ENGINEER			
PURCHASING AGENT			

BASIC HEATER DATA				REMARKS	
DIAMETER (inches)	72	BATH MEDIA VOLUME (Gal)	4,020	ETHYLENE GLYCOL	50/50
LENGTH (ft)	36' - 0"	HEATER WEIGHT (DRY lbs)	22,900	HORIZONTAL	-
WIDTH (ft)	8' - 0"	HEATER WEIGHT (WET lbs)	59,183		
HEIGHT (ft) (Shipping / Top of Stack)	9' - 0" / 13' - 0"	POWER INPUT	480 VAC / 60 hz / 3 PH		
NOMINAL RATING (MMBtu/hr)	3.9208				

PROCESS CONDITIONS		INLET	OUTLET	REMARKS	
				Forced Draft Burner	
TYPE OF FLUID		Natural Gas	Natural Gas	Blower Motor (HP)	7.5
TOTAL FLUID ENTERING	SCFH	2,873,748	2,873,748	Sparging System	NO
VAPOR	lb/hr	135,000	135,000	Sparging System Motor (HF	NA
LIQUID	lb/hr	------	------	Safety include:	
STEAM	lb/hr	------	------	Low Water Level	
NON-CONDENSABLE	lb/hr	------	------	High Water Temp	
FLUID VAPORIZED OR COND	lb/hr	------	------	Pilot Flame Failure	
LIQUID DENSITY	lbs/ft3	------	------	Controls Include:	
LIQUID VISCOSITY	cP	------	------	Water Temp Control	
LIQUID SPECIFIC HEAT	Btu/lb-F	------	------	Nat Gas Disch Temp Control	
LIQUID THERMAL COND	Btu/hr-ft-F	------	------		
VAPOR MOLECULAR WT	lbs/lbs Mol	17.780	------		
VAPOR DENSITY	lbs/ft3	5.6311	4.8105	Fluid Specific Gravity	0.615
VAPOR VISCOSITY	cP	0.0137	0.0138	After Regulation (psig)	655
VAPOR SPECIFIC HEAT	Btu/lb-F	0.7709	0.6919	After Regulation (F)	44
VAPOR THERMAL COND	Btu/hr-ft-F	2.37E-02	2.39E-02	MINIMUM SUPPLY PRESSURE (MSP)	
TEMPERATURE (IN/OUT)	F	40	80	Outlet Temp at MSP (F)	80
OPERATING PRESSURE	psig	1290	1284	Min Supply Press (psig)	1100
VELOCITY	ft/sec	------	34	VEL @ Min Oper Press (ft/sec)	41.0
PRESSURE DROP (ALLOW/EST)	psid	10	6	Press Drop at MPS (psid)	8
FOULING RESISTANCE	hr-ft2-f/Btu	------	------		

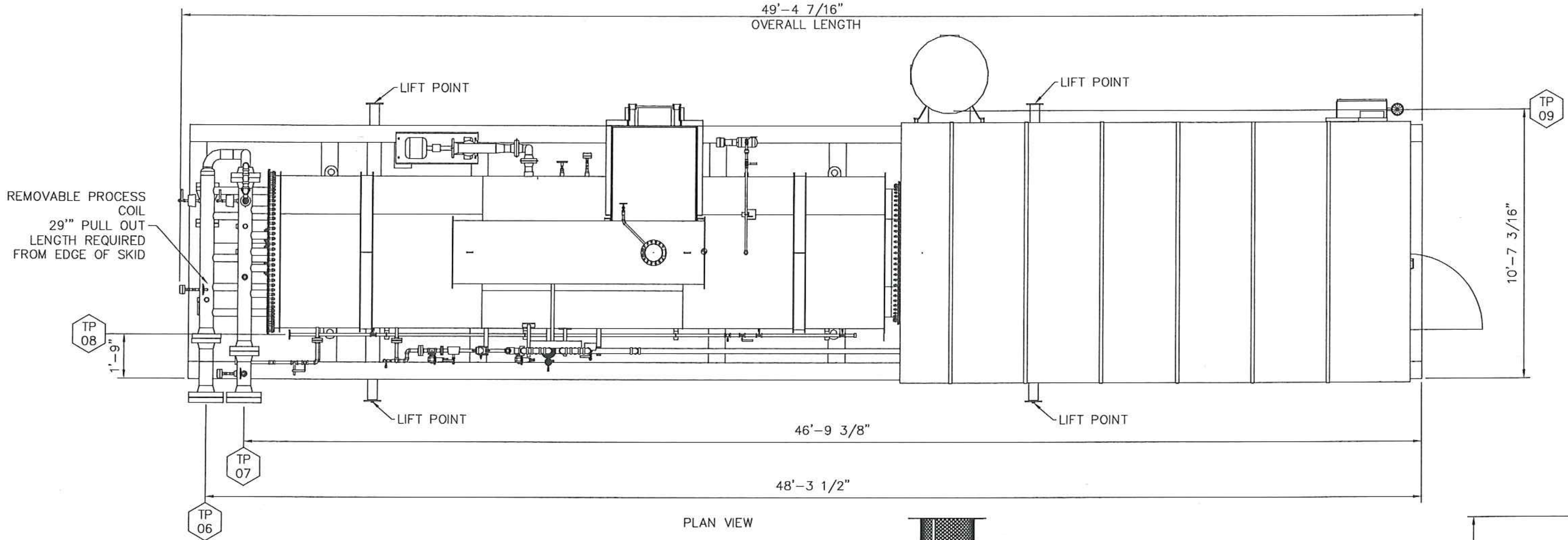
THERMAL DATA			REMARKS		
HEAT TRANSFERRED	Btu/hr	3,920,765	Operating Bath Temperature	180.0	F
BURNER'S HEAT RELEASE (LHV)	Btu/hr	4,900,956	Minimum Ambient Tempeature	-41.5	F
TRANSFER RATE (FOULED/CLEAN)	Btu/hr-ft2-F	62.39	Maximum Ambient Temperature	109	F
TEMPERATURE DIFF (LMTD)		119			

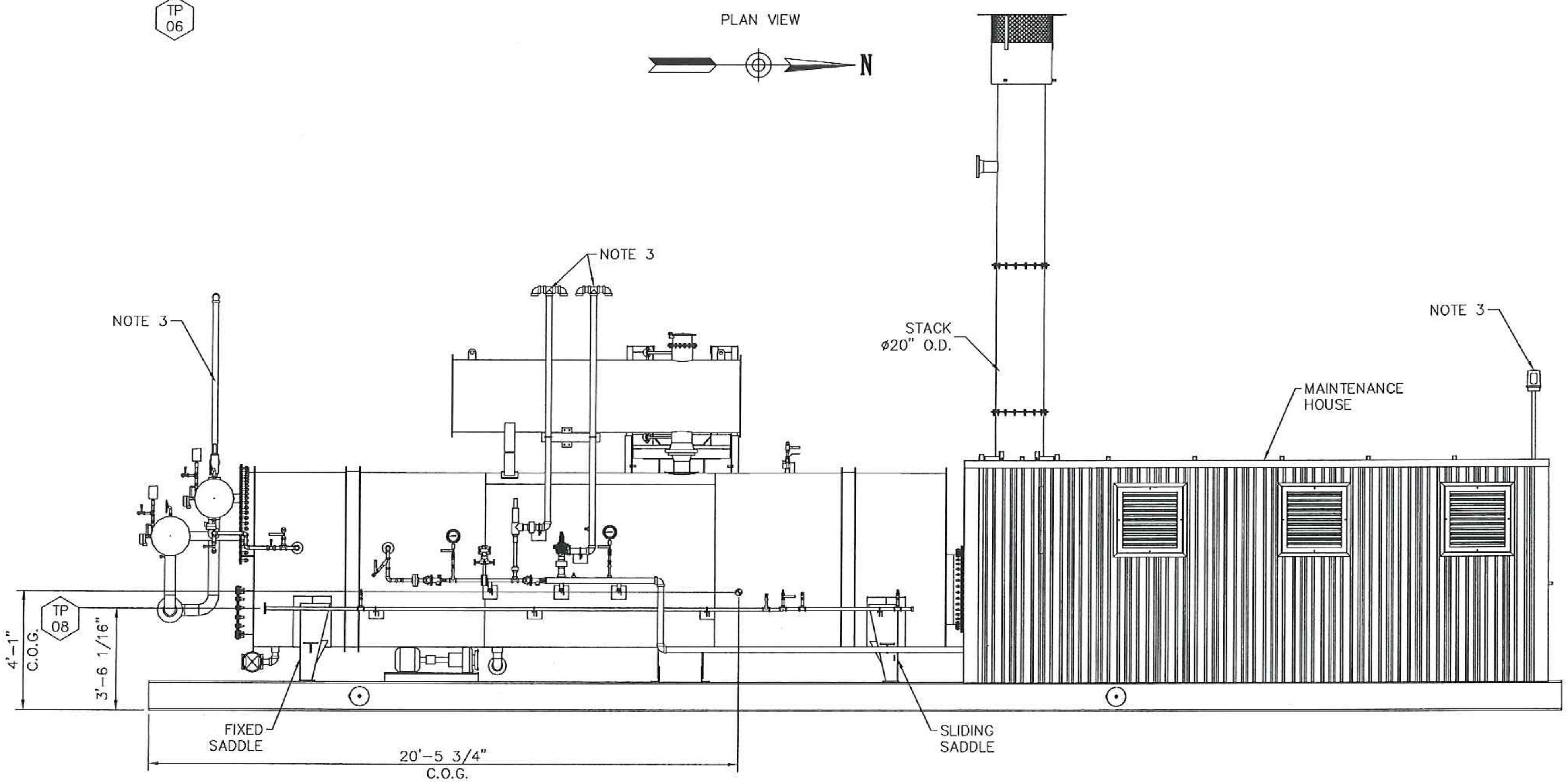
PROCESS COIL						
MAWP	psig	1435	Fabrication Code	ASME Section VIII Div 1		
TEST PRESSURE	psig	2153	Radiographic (Percentage)	100%		
DESIGN TEMPERATURE	F	-20F to 250F	National Board Stamped	Yes		
NUMBER OF PASS / PATH		6	Coil Material	SA-106 Grade C Smls		
NUMBER OF PATHS		5	Coil Hydrotest Note:	1.5 x MAWP for 4 hours Charted		
TOTAL NUMBER OF TUBES		30	Shell Pressure Test:	5 psig for 1 hour		
STRAIGHT TUBE LENGTH	ft	668	Inlet	6 inch ANSI 900# RF	6.625	
TYPE		Serpentine	Outlet	6 inch ANSI 900# RF	6.625	
REMOVABLE		Yes	Inlet Header thk		0.432	in
HEAT FLUX	Btu/hr-ft2	6,450	Inlet Header Velocity		45	ft/sec
TUBE SIZE	inches OD	3.5	Outlet Header thk		0.432	in
TUBE WALL THICKNESS	inches	0.3	Outlet Header Velocity		52	ft/sec
CORROSION ALLOWANCE	inches	1/16	Surface Area Actual		612	ft2

HEATER DATA			REMARKS		
DESIGN CODE		ASME CSD-1	Composition		
SHELL DIAMETER	inches	72	carbon dioxide	0.823%	
SHELL LENGTH	ft	24	nitrogen	1.298%	
SHELL (THICK)	inches	1/4	methane	89.604%	
FIRETUBE DIAMETER	inches OD	24 / 3	ethane	7.499%	
NUMBER OF FIRETUBES		1 / 19	propane	0.541%	
EACH FIRE / RETURN TUBE LENGTH	ft	21.75 / 21.75	butane	0.032%	
FIRE TUBE MATERIAL/THICKNESS	inches	0.25 / 0.12	isobutane	0.024%	
FIRE TUBE HEAT DENSITY	Btu/hr-in2	11,293	pentane	0.004%	
FIRE TUBE FLUX RATE	Btu/hr-ft2	8,505	isopentane	0.005%	
REMOVABLE		No	hexane	0.171%	
STACK DIAMETER	inches	1 / 20			
STACK VELOCITY	ft/sec	15.83			
STACK HEIGHT (ACT / OF GRADE)	ft	13	Emission	Low NOx Burner	lb/MMBTU
STACK MATERIAL		SS304	NOx	25 PPM	0.03
WALL THICKNESS		Gauge 10 (0.1406") Thick	CO	50 PPM	0.037
EXPANSION TANK DIAMETER	inches	24	SOx	1 PPM	0.001
EXPANSION TANK LENGTH	ft	11	Hydrocarbon/VOC	20 PPM	0.008
EXPANSION TANK MATERIAL		CS	PM	NA	0.0048
WALL THICKNESS	inches	1/4			
PERCENT OF NET SHELL VOL	%	6			

TERMINAL POINT	DESCRIPTION	CONNECTION
TP06	FUEL GAS INLET	8" RFWN, 600 #
TP07	FUEL GAS OUTLET	8" RFWN, 600 #
TP08	INSTRUMENT AIR	1" RFSW, 150 #
TP09	STACK DRAIN	1/2"NPT, 2000 #

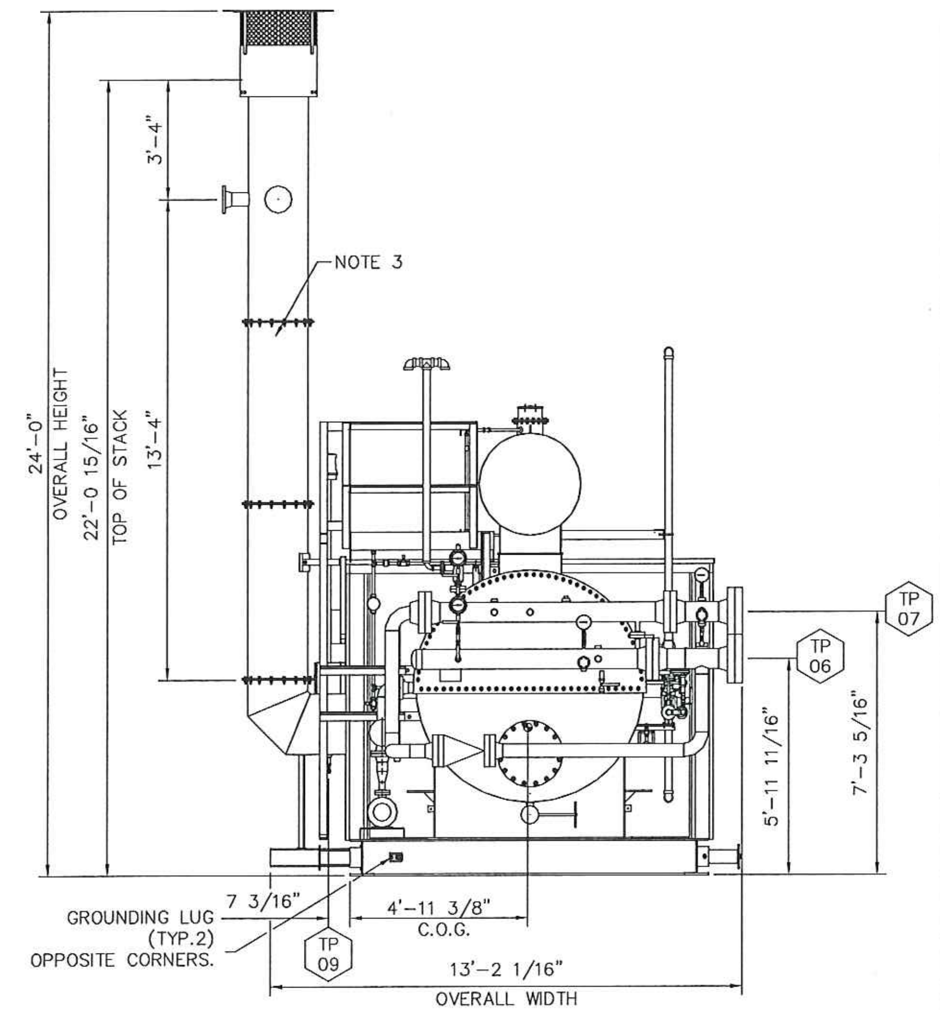
NOTE:
1.) STACK ESTIMATED WEIGHT 1,100 LBS.
2.) HEATER ESTIMATED DRY WEIGHT 55,000 LBS. OPERATING WEIGHT 105,700 LBS.
3.) SHIP LOOSE & FIELD ASSEMBLED, DUE TO SHIPPING HEIGHT & WIDTH RESTRICTIONS.
4.) INSULATION TO BE PROVIDED BY AETHER DBS. HEATER STACK TO BE INSULATED UP TO 8 FEET FROM GRADE
5.) 1 1/2" MINERAL WOOL INSULATION FOR ENTIRE FUEL GAS TRAIN TO BE PROVIDED BY OTHERS ON SITE.





ELEVATION VIEW LOOKING WEST

GENERAL ARRANGEMENT



ELEVATION VIEW LOOKING NORTH

6/24/2019 10:01 AM
F:\EEL_DEPARTMENTS\400 ENGINEERING_Projects\219006 - S&L - Otter Tail Power - FGC Equipment

REV	DATE	BY	CHK	APP	DESCRIPTION
4					
3					
2					
1					
0	06/24/19	DAB			ISSUED FOR CONSTRUCTION

aetherdbs
www.aetherdbs.com

CLIENT / LOCATION
S&L OTTERTAIL POWER COMPANY
ASTORIA STATION
--
ASTORIA, SD

DRAWING DESCRIPTION
FUEL GAS CONDITIONING EQUIPMENT
FUEL GAS HP WATER BATH HEATER SKID
GENERAL ARRANGEMENT

JOB 219006
SHT. C1
DWG. 61030

9.1 EXPECTED PERFORMANCE

- MAEP-0595K, Rev. 7

COMMERCIAL DATA													
Customer		**El Paso Electric**											
Project Name		**El Paso, TX**											
Manufacturer		**Mitsubishi Hitachi Power Systems Americas Inc.**											
INPUT INFORMATION													
Gas Turbine Type		**M501GAC**											
Configuration & Arrangement		**GTG Only 1x0 with Hot SCR**											
Scope		**GTG Only**											
Fuel Type		**Natural Gas**											
Fuel Heating Value HHV	Btu/lb	22,732											
Fuel Heating Value LHV	Btu/lb	20,501											
CASE #		1	2	3	4	5	6	7	8	9	10	11	12
Design Point	(Indicated by *)	*											
Ambient Dry Bulb Temperature	°F	105.0	105.0	105.0	105.0	105.0	70.0	70.0	70.0	70.0	70.0	35.0	35.0
Barometric Pressure	psia	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693
Relative Humidity	%	13.0	13.0	13.0	13.0	13.0	50.0	50.0	50.0	50.0	50.0	67.0	67.0
Inlet Conditioning	Evaporative Cooler On/Off	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
GT PERFORMANCE (per GT)													
GT Load	%	Base	Base	80%	60%	55%	Base	Base	80%	60%	50%	Base	80%
GT Heat Input	MMBtu/h - HHV	2,301	2,057	1,740	1,443	1,368	2,379	2,309	1,892	1,556	1,396	2,514	2,036
Gross GT Power Output	kW	231,800	202,500	164,800	123,600	113,300	241,100	233,100	186,500	139,900	116,500	257,700	206,900
Gross GT Heat Rate	Btu/kWh - HHV	9,926	10,155	10,557	11,669	12,073	9,866	9,904	10,144	11,122	11,977	9,752	9,837
MHPS GT Auxiliary Loads	kW	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Net GT Power Output	kW	227,800	198,500	160,800	119,600	109,300	237,100	229,100	182,500	135,900	112,500	253,700	202,900
Net GT Heat Rate	Btu/kWh - HHV	10,101	10,360	10,819	12,060	12,515	10,032	10,077	10,366	11,449	12,402	9,906	10,031
Hot SCR EXHAUST CONDITIONS @ Stack (per Stack)													
Hot SCR Stack Exhaust Flow	kpph	6,523	6,095	Later	Later	4,492	6,550	6,428	Later	Later	4,369	6,694	Later
Hot SCR Stack Exhaust Volumetric Flow	ACFM	4,029,414	3,752,178	Later	Later	2,760,176	4,040,786	3,960,881	Later	Later	2,688,871	4,113,454	Later
Hot SCR Stack Exhaust Velocity	ft/s	93	87	Later	Later	64	93	91	Later	Later	62	95	Later
Hot SCR Stack Exhaust Temperature	°F	825	825	Later	Later	825	825	825	Later	Later	825	825	Later
Hot SCR Stack Exhaust Gas Composition	vol%			Later	Later				Later	Later			Later
O_2		14.78	15.16	Later	Later	15.72	14.66	14.77	Later	Later	15.42	14.68	Later
CO_2		2.68	2.58	Later	Later	2.32	2.76	2.73	Later	Later	2.43	2.86	Later
H_2O		7.02	6.08	Later	Later	5.58	6.96	6.66	Later	Later	6.09	6.03	Later
N_2		74.60	75.26	Later	Later	75.46	74.71	74.91	Later	Later	75.13	75.51	Later
Ar		0.92	0.93	Later	Later	0.93	0.92	0.93	Later	Later	0.93	0.93	Later
Hot SCR Stack Exhaust Gas Mol.Weight	lb/lbmol	28.44	28.53	Later	Later	28.56	28.45	28.48	Later	Later	28.52	28.56	Later
STACK EMISSIONS (per Stack)													
NOx (abated)	ppmvd@15% O_2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
NOx (abated)	lb/MMBtu - HHV	0.00998	0.00997	0.00996	0.00995	0.00995	0.00997	0.00997	0.00997	0.00996	0.00997	0.00997	0.00997
CO (abated)	ppmvd@15% O_2	3	3	3	3	3	3	3	3	3	3	3	3
CO (abated)	lb/MMBtu - HHV	0.00729	0.00728	0.00728	0.00727	0.00727	0.00728	0.00728	0.00728	0.00728	0.00728	0.00728	0.00729
VOC (abated)	ppmvd@15% O_2	2	2	2	2	2	2	2	2	2	2	2	2
VOC (abated)	lb/MMBtu - HHV	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278
Particulates (PM_{10} Total)	lb/h	6.4	6.0	5.1	4.2	4.0	6.6	6.5	5.4	4.4	4.0	7.0	5.8
Particulates (PM_{10} Total)	lb/MMBtu - HHV	0.00279	0.00289	0.00294	0.00291	0.00295	0.00279	0.00281	0.00287	0.00283	0.00288	0.00279	0.00285
Ammonia Slip (NH_3)	ppmvd@15% O_2	5	5	5	5	5	5	5	5	5	5	5	5
Ammonia Slip (NH_3)	lb/MMBtu - HHV	0.00739	0.00738	0.00737	0.00737	0.00737	0.00738	0.00738	0.00738	0.00737	0.00738	0.00738	0.00738
Ammonia Feed (Aqueous 19% by weight)	lb/h	489	438	Later	Later	290	505	490	Later	Later	296	533	Later
CO_2	lb/h	274,300	245,900	207,100	171,900	163,000	283,200	274,900	225,200	185,200	166,200	299,300	242,600
CO_2	lb/MWh_{gross}	1,183	1,214	1,257	1,390	1,438	1,175	1,179	1,208	1,324	1,426	1,161	1,173

NOTES (Performance notes apply to all cases unless otherwise specified.):

1. All performance data are based on New & Clean conditions.
2. All supplied values are estimations and not guaranteed.
3. Fuel gas composition normalized to (mol%), 92.053% CH_4, 4.925% C_2H_6, 0.475% C_3H_8, 0.036% n-C_4H_{10}, 0.02% i-C_4H_{10}, 0.044% n-C_5H_{12}, 0.006% i-C_5H_{12}, 0.003% C_6H_{14}, 2.242% N_2, 0.195% CO_2
4. 0.2 gr/100scf of sulfur and 0% fuel bound nitrogen (FBN) are considered in the fuel. Fuel must be in compliance with MHPS's fuel specification.
5. Gross power output is at the generator terminals minus excitation losses.
6. Design Conditions: Frequency 60 Hz, Generator Power Factor 0.85
7. N/A
8. Confer with MHPS prior to including in any air permit application.
9. VOC's are expressed as non-methane and non-ethane basis assuming equivalent molecular weight of methane.
10. At the higher and lower bounds of ambient conditions, the GT load may be restricted due to mechanical limitations. The load percentages shown are based on the theoretical unrestricted base load performance and therefore may not be proportional to the higher loads stated for identical ambient conditions.

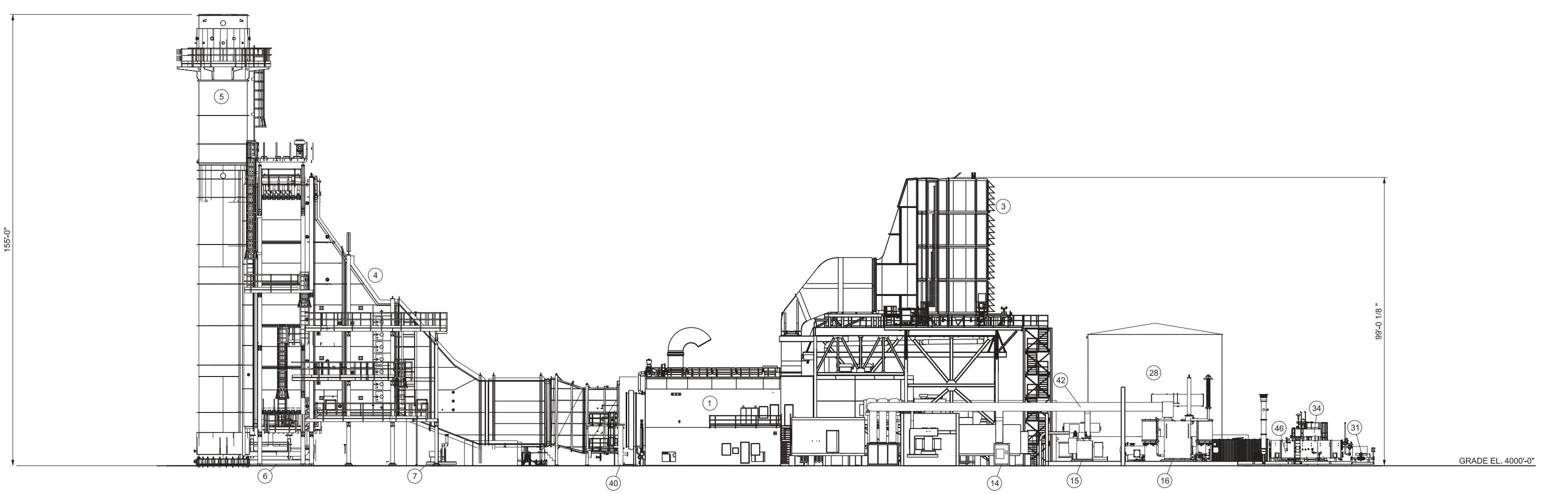
COMMERCIAL DATA		
Customer		**El Paso Electric**
Project Name		**El Paso, TX**
Manufacturer		**Mitsubishi Hitachi Power Systems Americas Inc.**
INPUT INFORMATION		
Gas Turbine Type		**M501GAC**
Configuration & Arrangement		**GTG Only 1x0 with Hot SCR**
Scope		**GTG Only**
Fuel Type		**Natural Gas**
Fuel Heating Value HHV	Btu/lb	22,732
Fuel Heating Value LHV	Btu/lb	20,501

CASE #		13	14	15	16	17	18	19	20	21	22
Design Point	(Indicated by *)										
Ambient Dry Bulb Temperature	°F	35.0	35.0	26.0	26.0	26.0	26.0	-10.0	-10.0	-10.0	-10.0
Barometric Pressure	psia	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693	12.693
Relative Humidity	%	67.0	67.0	23.2	23.2	23.2	23.2	60.0	60.0	60.0	60.0
Inlet Conditioning	Evaporative Cooler On/Off	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
GT PERFORMANCE (per GT)											
GT Load	%	60%	50%	Base	80%	60%	50%	Base	80%	60%	50%
GT Heat Input	MMBtu/h - HHV	1,657	1,492	2,542	2,070	1,680	1,514	2,526	2,267	1,799	1,614
Gross GT Power Output	kW	155,200	129,300	261,900	211,700	158,700	132,300	257,000	230,300	172,700	143,900
Gross GT Heat Rate	Btu/kWh - HHV	10,671	11,538	9,704	9,775	10,584	11,440	9,829	9,844	10,413	11,216
MHPS GT Auxiliary Loads	kW	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Net GT Power Output	kW	151,200	125,300	257,900	207,700	154,700	128,300	253,000	226,300	168,700	139,900
Net GT Heat Rate	Btu/kWh - HHV	10,954	11,906	9,855	9,964	10,857	11,797	9,984	10,018	10,660	11,537
Hot SCR EXHAUST CONDITIONS @ Stack (per Stack)											
Hot SCR Stack Exhaust Flow	kpph	Later	4,421	6,700	Later	Later	4,431	6,462	Later	Later	4,496
Hot SCR Stack Exhaust Volumetric Flow	ACFM	Later	2,713,560	4,111,283	Later	Later	2,715,984	3,965,694	Later	Later	2,756,772
Hot SCR Stack Exhaust Velocity	ft/s	Later	63	95	Later	Later	63	91	Later	Later	64
Hot SCR Stack Exhaust Temperature	°F	Later	825	825	Later	Later	825	825	Later	Later	825
Hot SCR Stack Exhaust Gas Composition	vol%	Later			Later	Later			Later	Later	
O_2		Later	15.30	14.68	Later	Later	15.30	14.50	Later	Later	15.04
CO_2		Later	2.57	2.89	Later	Later	2.61	2.98	Later	Later	2.73
H_2O		Later	5.47	5.71	Later	Later	5.14	5.80	Later	Later	5.33
N_2		Later	75.73	75.78	Later	Later	76.01	75.77	Later	Later	75.95
Ar		Later	0.93	0.94	Later	Later	0.94	0.94	Later	Later	0.94
Hot SCR Stack Exhaust Gas Mol.Weight	lb/lbmol	Later	28.60	28.60	Later	Later	28.64	28.60	Later	Later	28.63
STACK EMISSIONS (per Stack)											
NOx (abated)	ppmvd@15% O_2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
NOx (abated)	lb/MMBtu - HHV	0.00995	0.00997	0.00998	0.00997	0.00995	0.00997	0.00998	0.00997	0.00996	0.00996
CO (abated)	ppmvd@15% O_2	3	3	3	3	3	3	3	3	3	3
CO (abated)	lb/MMBtu - HHV	0.00727	0.00728	0.00729	0.00728	0.00727	0.00728	0.00729	0.00728	0.00727	0.00728
VOC (abated)	ppmvd@15% O_2	2	2	2	2	2	2	2	2	2	2
VOC (abated)	lb/MMBtu - HHV	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278	0.00278
Particulates (PM_{10} Total)	lb/h	4.7	4.2	7.1	5.9	4.7	4.3	7.0	6.5	5.0	4.5
Particulates (PM_{10} Total)	lb/MMBtu - HHV	0.00281	0.00283	0.00279	0.00285	0.00281	0.00282	0.00275	0.00284	0.00279	0.00279
Ammonia Slip (NH_3)	ppmvd@15% O_2	5	5	5	5	5	5	5	5	5	5
Ammonia Slip (NH_3)	lb/MMBtu - HHV	0.00737	0.00738	0.00739	0.00738	0.00737	0.00738	0.00739	0.00738	0.00737	0.00737
Ammonia Feed (Aqueous 19% by weight)	lb/h	Later	316	540	Later	Later	321	536	Later	Later	341
CO_2	lb/h	197,400	177,500	302,600	246,400	199,900	180,100	300,700	269,900	214,100	192,100
CO_2	lb/MWh_{gross}	1,272	1,373	1,156	1,164	1,260	1,361	1,170	1,172	1,239	1,335

NOTES (Performance notes apply to all cases unless otherwise specified.):

1. All performance data are based on New & Clean conditions.
2. All supplied values are estimations and not guaranteed.
3. Fuel gas composition normalized to (mol%), 92.053% CH_4, 4.925% C_2H_6, 0.475% C_3H_8, 0.036% n-C_4H_{10}, 0.02% i-C_4H_{10}, 0.044% n-C_5H_{12}, 0.006% i-C_5H_{12}, 0.003% C_6H_{14}, 2.242% N_2, 0.195% CO_2
4. 0.2 gr/100scf of sulfur and 0% fuel bound nitrogen (FBN) are considered in the fuel. Fuel must be in compliance with MHPS's fuel specification.
5. Gross power output is at the generator terminals minus excitation losses.
6. Design Conditions: Frequency 60 Hz, Generator Power Factor 0.85
7. N/A
8. Confer with MHPS prior to including in any air permit application.
9. VOC's are expressed as non-methane and non-ethane basis assuming equivalent molecular weight of methane.
10. At the higher and lower bounds of ambient conditions, the GT load may be restricted due to mechanical limitations. The load percentages shown are based on the theoretical unrestricted base load performance and therefore may not be proportional to the higher loads stated for identical ambient conditions.

ITEM	DESCRIPTION
1	COMBUSTION TURBINE (CT)
3	INLET AIR FILTER
4	SELECTIVE CATALYTIC REDUCTION (SCR)
5	EXHAUST STACK
6	CONTINUOUS EMISSIONS MONITORING ENCLOSURE (CEMS)
7	SCR BLOWER
14	CT EXCITATION PACKAGE
15	AUXILIARY TRANSFORMER
16	GENERATOR STEP-UP TRANSFORMER
28	SERVICE/FIRE WATER STORAGE TANK (500,000 GAL.)
31	FUEL GAS TRIP STOP VALVE
34	FUEL GAS COALESCER
40	CT FUEL GAS FINAL FILTER
42	ISOPHASE BUS DUCT
46	FUEL GAS WATER BATH HEATER



ELEVATION VIEW
LOOKING WEST

PRELIMINARY
NOT FOR CONSTRUCTION

16 0 16 32 48
GRAPHIC SCALE

HOLD INFORMATION

NO.	DESCRIPTION

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR'S/INSTALLER'S PERSONNEL (OR THAT OF ITS SUB-CONTRACTOR(S)) PERFORMING THE WORK.

RELEASE INFORMATION

REV.	DATE	DESCRIPTION
A	07-16-2019	ISSUED FOR INFORMATION
B	09-16-2019	ISSUED FOR INFORMATION

ISSUE PURPOSE: INFORMATION
SPECIFICATION: ---
PROJECT NO.: 13856.010

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF TEXAS.

ENTER NAME
ENTER DATE

MY LICENSE RENEWAL DATE IS: ENTER DATE
PAGES OR SHEETS COVERED BY THIS SEAL:
THIS DOCUMENT ONLY.

CAD FILE NAME: EPE-GA-M0003.DGN
PREPARED BY: JMZ
REVIEWED BY: RAM
APPROVED BY: ---

ANY MODIFICATION OR ADDITION TO THIS DRAWING BY AN ORGANIZATION OTHER THAN SARGENT & LUNDY IS NOT THE RESPONSIBILITY OF SARGENT & LUNDY.

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The Electric Company®
El Paso Electric

PROJECT

NEWMAN GENERATING STATION
NEWMAN 6 - GT5

EL PASO ELECTRIC

DRAWING TITLE

GENERAL ARRANGEMENT
ELEVATION VIEW

DRAWING NUMBER	REVISION
EPE-GA-M0003	B

SHEET 1

AHT - Villeurbanne
Country : USA
Tender : 20050728
Date : 1/24/2019
Rev. : 0

Grid Solutions

FKG type SF6 Generator Circuit-Breaker Cell	A2

General characteristics

Electrical references standard		IEC/IEEE 62271-37-013: 2015
Rated voltage	(kV)	24
Rated frequency	(Hz)	60

Service conditions

Rated service voltage	(kV)	21
Rated normal current	(A)	10000 @ 40 °C
Location		Outdoor
Ambiant air temperature limits	(°C)	-25°C / 40 °C
IPB without forced cooling		
- Busbars temperature limit	(°C)	105
- Enclosure temperature limit	(°C)	80

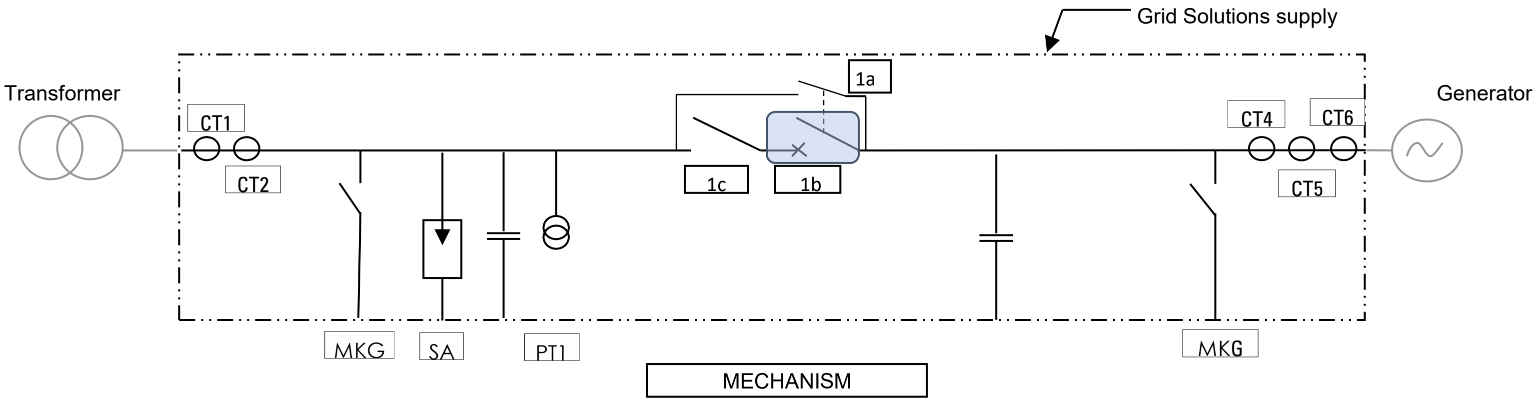
Cell description

Number of phases		3
Phase spacing	(mm)	1200
Number of LV control cubicle		1
Drive mechanism location (seen from the transformer side)		On the right
Protection Degrees (enclosure / cubicles)		IP65 / IP55
Enclosure type (thickness)		Aluminum (6 mm)
- paint color (enclosure / cover)		RAL9010GL / RAL9010GL
Cubicles type (thickness)		Aluminum (2 mm)
- paint color (body / cover)		RAL9010GL / RAL9010GL

Reference Documentation

Outline drawing, for tender purpose	VSFKGA2--GAD03D
Elementary diagram, for tender purpose	VSFKG-A2-EDD01D
Inspection program	DAQ 233 - DAQ 338
Interlocking diagram, for tender purpose	VSFKG---RIDD22D

Typical Single Line Diagram configuration



1a. Main contacts in Air / 1b. Arcing contacts in SF6 / 1c. Safety Visual Switch (SVS) in Air
1a + 1b = Circuit breaker / 1a + 1c = Air-Disconnector

Equipment list proposal

CT1 - Current transformer : 10000A / 5A - C800 - PER CLASS VA
CT2 - Current transformer : 10000A / 5A - C800 - PER CLASS VA
PT1 - Potential transformer
> N1 : 21000 / √3 V - 120 / √3 V - 0.3WXY1.2Z
-> Tertiary : 21000 / √3 V - 120 / 3 V - 1.2WXM - 35 VA
Surge arrester on transformer side : PSB20G
Capacitor on transformer side : 300 nF
Capacitor on generator side : 50 nF
CT4 - Current transformer : 10000A / 5A - C800 - PER CLASS VA

Grid Solutions

CT5 - Current transformer : 10000A / 5A - C800 - PER CLASS VA
CT6 - Current transformer : 10000A / 5A - C800 - PER CLASS VA

Grid Solutions

Circuit Breaker with integrated Air-Disconnector		FKG
Rated normal current	(A)	10000 @ 40 °C
Rated peak withstand current	(kApeak)	220
Rated short time withstand current	(kA)	80
Rated duration of short-circuit	(s)	3
Rated insulation level (at sea level)		
Phase to earth		
Rated power frequency withstand voltage	(kV)	60
Rated lightning impulse withstand voltage : wave 1,2/50µs	(kVpeak)	125
Across the isolating distance (open contacts)		
Rated power frequency withstand voltage	(kV)	60
Rated lightning impulse withstand voltage : wave 1,2/50µs	(kVpeak)	125
Breaking and Making characteristics		
Rated breaking capacity :		
- Symmetrical short-circuit (system-source fault)	(kA)	80
asymmetrical short-circuit : DC component	(%)	75
- Symmetrical short-circuit (generator-source fault)	(kA)	47.6
asymmetrical short-circuit : DC component	(%)	130
Generator circuit-breaker class		G2
First pole to clear factor		1.5
Rated short-circuit making current	(kApeak)	220
Rated out-of-phase breaking current	(kA)	40
Drive mechanism		**Spring - Spring**
Operating		Three phase reclosing
Number of mechanism		1
Rated short-circuit current operating sequence		CO-30min-CO
Rated load current operating sequence		CO-3min-CO
Rated operating sequence without motor supply		O-CO
Rated breaking time (note 1)	(ms)	75
Rated closing time (note 2)	(ms)	116
Free auxiliary switches	NO / NC	10 / 10
Insulating gas		**SF6**
Rated absolute pressure at 20°C	Pre (kPa)	850
Alarm absolute pressure at 20°C	Pae (kPa)	740
Minimum absolute pressure at 20°C	Pme (kPa)	710
Gas mass per circuit-breaker	(kg)	14
Number of densimeter per circuit breaker		1
Auxiliaries operating voltage		
Opening and closing circuits		125 Vdc
Spring charging motor		120 Vac 1P+N
Heating and lighting circuits		120 Vac-1P+N

Safety Visual Switch (Air gap)		SVS
Rated insulation level across the isolating distance (at sea level)		
Rated power frequency withstand voltage	(kV)	60
Rated lightning impulse withstand voltage : wave 1,2/50µs	(kVpeak)	125
Drive mechanism		Electrical motor
Operating		Three phase reclosing
Number of mechanism		1
Motor operating voltage		480 Vac 60Hz 3P+N
Free auxiliary switches	NO / NC	6 / 6

Earthing switch for generator busbar		MKG
Rated peak withstand current	(kApeak)	220
Rated short time withstand current	(kA)	80
Rated duration of short-circuit	(s)	3
Operating time	(s)	6.5
Rated insulation level across open contacts (at sea level)		
Rated power frequency withstand voltage	(kV)	60
Rated lightning impulse withstand voltage : wave 1,2/50µs	(kVpeak)	125
Drive mechanism		Electrical motor
Operating		Three phase reclosing
Number of mechanism		1
Motor operating voltage		480 Vac 60Hz 3P+N
Free auxiliary switches	NO / NC	6 / 6

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

GST Premium 32

Product Use: Turbine Oil
Product Number(s): 253092, 278072
Synonyms: GST Premium 32 ISOCLEAN Certified
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Not classified as hazardous according to 29 CFR 1910.1200 (2012).

HAZARDS NOT OTHERWISE CLASSIFIED: Not Applicable

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %weight

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.

Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR OTHER HEALTH EFFECTS: Not classified

Indication of any immediate medical attention and special treatment needed

Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand.

Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO_2) to extinguish flames.
Unusual Fire Hazards: Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Precautionary Measures: DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid,

and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge. Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Colorless to yellow
Physical State: Liquid
Odor: Petroleum odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: <0.01 mmHg @ 37.8 °C (100 °F)
Vapor Density (Air = 1): >1
Initial Boiling Point: 315°C (599°F)
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Melting Point: No data available
Density: 0.8604 kg/l @ 15°C (59°F) (Typical)
Viscosity: 28.80 mm2/s - 32 mm2/s @ 40°C (104°F)
Coefficient of Therm. Expansion / °F: No data available
Evaporation Rate: No data available
Decomposition temperature: No data available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): No Data Available

Flashpoint: (Cleveland Open Cup) 215 °C (419 °F) Minimum
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: Not applicable
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for product components.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for product components.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.
Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material.

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).
These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is not expected to be harmful to aquatic organisms.
The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY

No data available.

PERSISTENCE AND DEGRADABILITY
This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.
The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: NOT REGULATED AS A HAZARDOUS MATERIAL UNDER 49 CFR

IMO/IMDG Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:	1.	Immediate (Acute) Health Effects:	NO
	2.	Delayed (Chronic) Health Effects:	NO
	3.	Fire Hazard:	NO
	4.	Sudden Release of Pressure Hazard:	NO

5. Reactivity Hazard: NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TCSI (Taiwan), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Lubricating oil)

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 0 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

REVISION STATEMENT: This revision updates the following sections of this Safety Data Sheet: 1-16
Revision Date: January 25, 2017

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet

HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road, San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Material Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Material Name : **Shell Turbo Oil J 32**
Uses : Turbine oil.

Product Code : 001B0634

Manufacturer/Supplier : **Shell Marketing Egypt**
Corner St. 254 & 206
Degla, Maadi 11742
Cairo
Egypt

Telephone : +202 25225600, +202 27557500
Fax : +202 25225601 +202 25225602

Emergency Telephone Number : +202 25225600
+202 25198801

2. COMPOSITION/INFORMATION ON INGREDIENTS

Preparation description : Highly refined mineral oils and additives.

Hazardous Components

Chemical Identity	CAS	EINECS	Symbol(s)	R-phrase(s)	Conc.
N-phenyl-1-naphthylamine	90-30-2	201-983-0	Xi, N	R43; R50/53	0,10 - 0,50 %

Additional Information : The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346. Refer to chapter 16 for full text of EC R-phrases.

3. HAZARDS IDENTIFICATION

EC Classification : Not classified as dangerous under EC criteria.

Health Hazards : Not expected to be a health hazard when used under normal conditions. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. Used oil may contain harmful impurities.

Signs and Symptoms : Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.

Safety Hazards : Not classified as flammable but will burn.
Environmental Hazards : Not classified as dangerous for the environment.

4. FIRST AID MEASURES

General Information : Not expected to be a health hazard when used under normal conditions.
Inhalation : No treatment necessary under normal conditions of use. If

		symptoms persist, obtain medical advice.
Skin Contact	:	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.
Eye Contact	:	Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
Ingestion	:	In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
Advice to Physician	:	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Specific Hazards	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
Suitable Extinguishing Media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	:	Do not use water in a jet.
Protective Equipment for Firefighters	:	Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe all relevant local and international regulations.

Protective measures	:	Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Clean Up Methods	:	Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
Additional Advice	:	Local authorities should be advised if significant spillages cannot be contained.

7. HANDLING AND STORAGE

General Precautions	:	Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Handling	:	Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment

should be used.

Storage : Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Storage Temperature: 0 - 50 °C / 32 - 122 °F

Recommended Materials : For containers or container linings, use mild steel or high density polyethylene.

Unsuitable Materials : PVC.

Additional Information : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Oil mist, mineral	ACGIH	TWA [Mist.]		5 mg/m3	
Oil mist, mineral	ACGIH	STEL [Mist.]		10 mg/m3	

Exposure Controls : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

Personal Protective Equipment : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory Protection : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].

Hand Protection : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective

		hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Eye Protection	:	Wear safety glasses or full face shield if splashes are likely to occur.
Protective Clothing	:	Skin protection not ordinarily required beyond standard issue work clothes.
Monitoring Methods	:	Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Environmental Exposure Controls	:	Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Amber. Liquid at room temperature.
Odour	:	Slight hydrocarbon.
pH	:	Not applicable.
Initial Boiling Point and Boiling Range	:	> 280 °C / 536 °F estimated value(s)
Pour point	:	Typical -18 °C / 0 °F
Flash point	:	Typical 222 °C / 432 °F (COC)
Upper / lower Flammability or Explosion limits	:	Typical 1 - 10 %(V)
Auto-ignition temperature	:	> 320 °C / 608 °F
Vapour pressure	:	< 0,5 Pa at 20 °C / 68 °F (estimated value(s))
Density	:	Typical 890 kg/m3 at 15 °C / 59 °F
Water solubility	:	Negligible.
n-octanol/water partition coefficient (log Pow)	:	> 6 (based on information on similar products)
Kinematic viscosity	:	Typical 32 mm2/s at 40 °C / 104 °F
Vapour density (air=1)	:	> 1 (estimated value(s))
Evaporation rate (nBuAc=1)	:	Data not available

10. STABILITY AND REACTIVITY

Stability	:	Stable.
Conditions to Avoid	:	Extremes of temperature and direct sunlight.
Materials to Avoid	:	Strong oxidising agents.
Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage.
Hazardous Polymerisation	:	Data not available
Sensitivity to Mechanical Impact	:	Data not available

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	:	Information given is based on data on the components and the toxicology of similar products.
Acute Oral Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg
Acute Dermal Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg
Acute Inhalation Toxicity	:	Not considered to be an inhalation hazard under normal

		conditions of use.
Skin Irritation	:	Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Eye Irritation	:	Expected to be slightly irritating.
Respiratory Irritation	:	Inhalation of vapours or mists may cause irritation.
Sensitisation	:	Not expected to be a skin sensitiser.
Repeated Dose Toxicity	:	Not expected to be a hazard.
Mutagenicity	:	Not considered a mutagenic hazard.
Carcinogenicity	:	Components are not known to be associated with carcinogenic effects.
Reproductive and Developmental Toxicity	:	Not expected to be a hazard.
Additional Information	:	Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible. Continuous contact with used engine oils has caused skin cancer in animal tests.

12. ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Acute Toxicity	:	Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).
Mobility	:	Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.
Persistence/degradability	:	Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.
Bioaccumulation	:	Contains components with the potential to bioaccumulate.
Other Adverse Effects	:	Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

13. DISPOSAL CONSIDERATIONS

Material Disposal	:	Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.
Container Disposal	:	Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Local Legislation	:	Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

Land (as per ADR classification): Not regulated
This material is not classified as dangerous under ADR regulations.

IMDG
This material is not classified as dangerous under IMDG regulations.

IATA (Country variations may apply)
This material is not classified as dangerous under IATA regulations.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

EC Classification	:	Not classified as dangerous under EC criteria.
EINECS	:	All components listed or polymer exempt.
TSCA	:	All components listed.
Sensitiser not sufficient to classify	:	Contains N-phenyl-1-naphthylamine. May produce an allergic reaction.

16. OTHER INFORMATION

R-phrase(s)

R43	May cause sensitisation by skin contact.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

MSDS Version Number	:	1.0
MSDS Effective Date	:	02/23/2009
MSDS Revisions	:	A vertical bar (|) in the left margin indicates an amendment from the previous version.
MSDS Distribution	:	The information in this document should be made available to all who may handle the product.
Disclaimer	:	This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Material Safety Data Sheet

Appendix C. BACT Analysis Support

Appendix C Contents

Natural Gas Fired Simple Cycle Turbine NO_X - RBLC Dataset

PROCESS_NAME	PROCCESS_ TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_U NIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_ UNIT	EMISSION_LIMIT_1_AVG_ TIME_CONDITION
ELECTRICAL GENERATION	15.11	NATURAL GAS	170	MW	SEEKING TO AMEND THEIR EXISTING PERMIT TO CONSTRUCT DUCT FIRING CAPABILITY TO THE HEAT RECOVERY STEAM GENERATORS (HRSGS)	Nitrogen Oxides (NOx)	BACT IS **9 PPMVD** AT 15% O2 THROUGH THE USE OF DRY LOW-NOX (DLN) COMBUSTERS WHEN THE COMBUSTION TURBINE IS OPERATING IN THE **SIMPLE CYCLE MODE**.	2	PPMVD@15%O2	24-HOUR 15% O2
GE LMS-100 combustion turbines, simple cycle with water injection	15.11	natural gas	1690	MMBTU/H		Nitrogen Oxides (NOx)	Utilize water injection when combusting natural gas or ULSD; Utilize selective catalytic reduction (SCR) with aqueous ammonia injection at all times except	2.5	PPMVD@15%O2	3-HR ROLLING AVERAGE ON NG
2 COMBUSTION TURBINES	15.11	NATURAL GAS	130	MW	TWO GENERAL ELECTRIC (GE) FRAME 7EA COMBUSTION TURBINES (CTS) WITH A	Nitrogen Oxides (NOx)	USE OF DRY LOW-NOX COMBUSTOR TURBINE DESIGN (DLN1), USE OF FACILITY PROCESS FUEL GAS AND PIPELINE NATURAL GAS DURING NORMAL	2.5	PPMVD@15%O2	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD
COMBUSTION TURBINES, SIMPLE CYCLE , ROLLS ROYCE, 8	15.11	NATURAL GAS	603	MMBTU/H	EIGHT (8) IDENTICAL ROLLS ROYCE TRENT 60WLE (64 MW) SIMPLE CYCLE COMBUSTION	Nitrogen Oxides (NOx)	SELECTIVE CATALYTIC REDUCTION SYSTEM (SCR) AND WET LOW-EMISSION (WLE) COMBUSTORS SUBJECT TO LAER	2.5	PPMVD@15%O2	
SIMPLE CYCLE TURBINE	15.11	Natural Gas	8940000	MMBtu/year (HH	Throughput <= 8.94xE6 MMBtu/year (HHV) combined for all six gas turbines. The 6	Nitrogen Oxides (NOx)	SCR and Use of Clean Burning Fuel: Natural gas	2.5	PPMVD@15%O2	3-HR ROLLING AVERAGE BASED ON 1-HR BLOCK
SIMPLE CYCLE (NO WASTE HEAT RECOVERY)(>25 MW)	15.11	NATURAL GAS	5000	MMFT3/YR	THE PROCESS CONSISTS OF ONE NEW TRENT 60 SIMPLE CYCLE COMBUSTION TURBINE.	Nitrogen Oxides (NOx)	THE TURBINE WILL UTILIZE WATER INJECTION AND SELECTIVE CATALYTIC REDUCTION (SCR) TO CONTROL NOX EMISSION AND USE CLEAN FUELS	2.5	PPMVD@15%O2	3HR ROLLING AVERAGE BASED ON 1-HR BLOCK
Simple Cycle Stationary Turbines firing Natural gas	15.11	Natural Gas	2143980	MMBTU/YR	The Siemens/Rolls Royce Trent 60 wet low emissions (WLE) combustion turbine generators	Nitrogen Oxides (NOx)	Selective Catalytic Reduction, water injection, use of natural gas a low NOx emitting fuel	2.5	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H BLOCK AV
Natural Gas Fired Simple Cycle Turbines	15.11	Natural gas	412	MMBTU/H	The heat input is for a single unit.	Nitrogen Oxides (NOx)	SCR	5	PPMVD@15%O2	4 HOUR ROLLING AVERAGE EXCEPT STARTUP
Natural gas-fired turbines	15.11	Natural gas	451	MMBTU/H	Rating is for each turbine.	Nitrogen Oxides (NOx)	Water injection plus SCR	5	PPMVD@15%O2	4 HR. ROLLING AVERAGE EXCEPT FOR STARTUP
SIMPLE CYCLE COMBUSTION TURBINE - ELECTRIC GENERATING PLANT	15.11	NATURAL GASE	1530	MW	THE PROCESS USES FUEL OIL FOR BACKUP AT THE RATE OF 2129 MMBUT/H	Nitrogen Oxides (NOx)	DRY LOW NOX BURNERS (FIRING NATURAL GAS). WATER INJECTION (FIRING FUEL OIL).	9	PPMVD@15%O2	3 HOUR AVERAGE/CONDITION 3.3.23
GE LM6000PC SPRINT Simple cycle combustion turbine	15.11	Pipeline quality nat	405.3	MMBTU/hr		Nitrogen Dioxide (NO2)	dry low NOx burners and fire only pipeline natural gas	9	PPMVD@15%O2	24-HR ROLLING AVE, CORRECTED TO 15% O2
GE 7FA Simple Cycle Combustion Turbine	15.11	Pipeline quality nat	1780	MMBTU/HR		Nitrogen Oxides (NOx)	dry low NOx burners and fire only pipeline natural gas	9	PPMVD@15%O2	24-HR ROLLING AVE, CORRECTED TO 15% O2
Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	15.11	Natural Gas	927	MM BTU/h		Nitrogen Oxides (NOx)	Dry Low NOx Combustor Design, Good Combustion Practices, and Natural Gas Combustion.	9	PPMVD@15%O2	30 DAY ROLLING AVERAGE
Five 200-MW combustion turbines	15.11	Natural gas	2000	MMBtu/hr (appro	Throughput could vary slightly (+/- 120 MMBtu/hr) depending on final selection of turbine	Nitrogen Oxides (NOx)	Required to employ dry low-NOx technology and wet injection. Water injection must be used when firing ULSD.	9	PPMVD@15%O2	24-HR BLOCK AVG, BY CEMS (NAT GAS)
TWO SIMPLE CYCLE COMBUSTION TURBINE - MODEL 7FA	15.11	NATURAL GAS	170	MW	BACKUP FUEL: ULTRA LOW SULFUR DIESEL WITH A MAXIMUM SULFUR CONTENT	Nitrogen Oxides (NOx)	FIRING NATURAL GAS AND USING DLN 2.6 COMBUSTORS TO MINIMIZE NOX EMISSSIONS.	9	PPMVD@15%O2	24-HR BLOCK AVG BY CEMS
Combustion Turbine	15.11	Natural gas	986	MMBTU/H	Turbine is a GE Model PG 7121 (7EA) used as a peaking unit.	Nitrogen Oxides (NOx)	Dry low-NOx combustion (DLN)	9	PPMVD@15%O2	4 H.R.A. WHEN > 50MWE AND > 0 DEGREES F
CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	15.11	Natural Gas	2201	MM BTU/hr	Normal operations are based on 7000 hrs/yr	Nitrogen Oxides (NOx)	Pipeline quality natural gas & dry-low-NOX burners	9	PPMVD@15%O2	30-DAY ROLLING AVERAGE
CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	15.11	Natural Gas	2201	MM BTU/hr	Normal operations are based on 7000 hours per year	Nitrogen Oxides (NOx)	Pipeline quality natural gas & dry-low-NOX burners	9	PPMVD@15%O2	30-DAY ROLLING AVERAGE
Five 200-MW combustion turbines	15.11	Natural gas	2100	MMBtu/hr (appro	Five simple cycle GE 7F.05 turbines. Max of 3390 hours per year per turbine. Of the	Nitrogen Oxides (NOx)	Dry-low-NOx combustion system. Wet injection when firing ULSD.	9	PPMVD@15%O2	24-HR BLOCK AVERAGE
Gas turbines (9 units)	15.11	natural gas	1069	mm btu/hr		Nitrogen Oxides (NOx)	good combustion practices and dry low nox burners	15	PPMVD@15%O2	@15%O2

Natural Gas Fired Simple Cycle Turbine NO_x - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Normal Mode (without Power Augmentation)	15.11	natural gas	0			Nitrogen Dioxide (NO2)	Dry Low NOx Burners Type K & Good Combustion Practice	21	PPMVD@15%O2	HOUR
GE LM6000PC SPRINT Simple cycle combustion turbine	15.11	Pipeline quality nat	405.3	MMBTU/hr		Nitrogen Oxides (NOx)	water injection	25	PPMVD@15%O2	24-HR ROLLING AVE; CORRECTED TO 15% O
PRATT & TWIN-PAC SIMPLE CYCLE TURBINES	15.11	NATURAL GAS	270.9	MMBTU/H	NO. 2 DIESEL OIL BACKUP FUEL	Nitrogen Oxides (NOx)	WATER INJECTION	25	PPMVD@15%O2	AT 15% O2 FOR NATURAL GAS
Gas Turbines (8 units)	15.11	natural gas	333	mm btu/hr		Nitrogen Oxides (NOx)	Dry Low NOX burners and good combustion practices	25	PPMVD@15%O2	@15 %O2
Simple Cycle Refrigeration Compressor Turbines (16)	15.11	Natural Gas	286	MMBTU/H	GE LM2500+G4	Nitrogen Oxides (NOx)	water injection	22.94	LB/HR	HOURLY MAXIMUM
Turbines - two simple cycle gas	15.11	natural gas	799.7	MMBTU/H each	GE LMS100PA, natural gas fired, simple cycle, combustion turbine.	Nitrogen Oxides (NOx)	SCR and dry low NOx burners	23	LB/HR	1-HR AVE / STARTUP AND SHUTDOWN
Simple Cycle Generation Turbines (2)	15.11	Natural Gas	286	MMBTU/H	GE LM2500+G4	Nitrogen Oxides (NOx)	water injection	28.68	LB/HR	HOURLY MAXIMUM
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	15.11	Natural Gas	2201	MM BTU/hR	Limited to 600 hr/yr	Nitrogen Oxides (NOx)	Pipeline quality natural gas & dry-low-NOX burners	86.38	LB/HR	HOURLY MAXIMUM
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Nitrogen Oxides (NOx)	Pipeline quality natural gas & dry-low-NOX burners	86.38	LB/HR	HOURLY MAXIMUM
Turbines (4), simple cycle, natural gas	15.11	NATURAL GAS	15020	H/YR	Hours per year for all 4 turbines	Nitrogen Oxides (NOx)	dry low NOx burners	161	LB/HR	EACH TURBINE
CTG01 CO - Simple-Cycle Combustion Turbine 1 (Commissioning) [SCN0005]	15.11	Natural Gas	2201	MM BTU/hr	Commissioning is a one-time event which occurs after construction and is not	Nitrogen Oxides (NOx)	Pipeline quality natural gas & dry-low-NOX burners	240	LB/HR	HOURLY MAXIMUM
CTG02 CO - Simple-Cycle Combustion Turbine 2 (Commissioning) [SCN0006]	15.11	natural gas	2201	MM BTU/hr	Commissioning is a one-time event which occurs after construction and is not	Nitrogen Oxides (NOx)	Pipeline quality natural gas & dry-low-NOX burners	240	LB/HR	HOURLY MAXIMUM
SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	15.11	NATURAL GAS	80	MW		Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES	250	LB/HR	EACH TURBINE

Natural Gas Fired Simple Cycle Turbine CO - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Five 200-MW combustion turbines	15.11	Natural gas	2000	MMBtu/hr (approx)	Throughput could vary slightly (+/- 120 MMBtu/hr) depending on final selection of turbine	Carbon Monoxide	Good combustion practices	4	PPMVD@15%O2	
Five 200-MW combustion turbines	15.11	Natural gas	2100	MMBtu/hr (approx)	Five simple cycle GE 7F.05 turbines. Max of 3390 hours per year per turbine. Of the	Carbon Monoxide	Good combustion minimizes CO formation	4	PPMVD@15%O2	NAT GAS, THREE 1-HR RUNS
SIMPLE CYCLE TURBINE	15.11	Natural Gas	8940000	MMBtu/year (HHV)	Throughput <= 8.94xE6 MMBtu/year (HHV) combined for all six gas turbines. The 6	Carbon Monoxide	Oxidation Catalyst, Good combustion practices	5	PPMVD@15%O2	3-HR ROLLING AVERAGE BASED ON 1-HR BLOCK
COMBUSTION TURBINES, SIMPLE CYCLE , ROLLS ROYCE, 8	15.11	NATURAL GAS	603	MMBTU/H	EIGHT (8) IDENTICAL ROLLS ROYCE TRENT 60WLE (64 MW) SIMPLE CYCLE COMBUSTION	Carbon Monoxide	CO OXIDATION CATALYST AND CLEAN BURNING FUELS	5	PPMVD@15%O2	
SIMPLE CYCLE (NO WASTE HEAT RECOVERY)(>25 MW)	15.11	NATURAL GAS	5000	MMFT3/YR	THE PROCESS CONSISTS OF ONE NEW TRENT 60 SIMPLE CYCLE COMBUSTION TURBINE.	Carbon Monoxide	THE TURBINE WILL UTILIZE A CATALYTIC OXIDIZER TO CONTROL CO EMISSION, IN ADDITION TO USING CLEAN BURNING FUELS, NATURAL GAS AND ULTRA	5	PPMVD@15%O2	3HR ROLLING AVERAGE BASED ON 1-HR BLOCK
Simple Cycle Stationary Turbines firing Natural gas	15.11	Natural Gas	2143980	MMBTU/YR	The Siemens/Rolls Royce Trent 60 wet low emissions (WLE) combustion turbine generators	Carbon Monoxide	Add-on control is CO Oxidation Catalyst, and use of natural gas as fuel for pollution prevention	5	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H BLOCK AV
GE LMS-100 combustion turbines, simple cycle with water injection	15.11	natural gas	1690	MMBTU/H		Carbon Monoxide	Oxidation catalyst; Limit the time in startup or shutdown.	6	PPMVD@15%O2	3-HR ROLLING AVERAGE ON NG
Natural gas-fired turbines	15.11	Natural gas	451	MMBTU/H	Rating is for each turbine.	Carbon Monoxide	Catalytic oxidation system	6	PPMVD@15%O2	8 HR. ROLLING AVERAGE/EXCEPT STARTUP
Natural Gas Fired Simple Cycle Turbines	15.11	Natural gas	412	MMBTU/H	The heat input is for a single unit.	Carbon Monoxide	Oxidation Catalyst	6	PPMVD@15%O2	8-HOUR ROLLING AVERAGE EXCEPT STARTUP
CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	15.11	Natural Gas	2201	MM BTU/hr	Normal operations are based on 7000 hours per year	Carbon Monoxide	Good combustion practices & use of pipeline quality natural gas	6	PPMVD@15%O2	ANNUAL AVERAGE
CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	15.11	Natural Gas	2201	MM BTU/hr	Normal operations are based on 7000 hrs/yr	Carbon Monoxide	Good combustion practices & use of pipeline quality natural gas	6	PPMVD@15%O2	ANNUAL AVERAGE
TWO SIMPLE CYCLE COMBUSTION TURBINE - MODEL 7FA	15.11	NATURAL GAS	170	MW	BACKUP FUEL: ULTRA LOW SULFUR DIESEL WITH A MAXIMUM SULFUR CONTENT	Carbon Monoxide		6.5	PPMVD@15%O2	
SIMPLE CYCLE COMBUSTION TURBINE - ELECTRIC GENERATING PLANT	15.11	NATURAL GASE	1530	MW	THE PROCESS USES FUEL OIL FOR BACKUP AT THE RATE OF 2129 MMBUT/H	Carbon Monoxide	GOOD COMBUSTION PRACTICES	9	PPMVD@15%O2	3-HOUR AVERAGE/CONDITION 3.3.24
ELECTRICAL GENERATION	15.11	NATURAL GAS	170	MW	BOSQUE POWER COMPANY IS SEEKING TO AMEND THEIR EXISTING PERMIT TO	Carbon Monoxide	BACT IS THE USE OF GOOD COMBUSTION PRACTICES TO MINIMIZE THE PRODUCTS OF INCOMPLETE COMBUSTION AND ACHIEVE 9 PPMVD	9	PPMVD@15%O2	3 HOUR @ 15% O2
Gas turbines (9 units)	15.11	natural gas	1069	mm btu/hr		Carbon Monoxide	good combustion practices and fueled by natural gas	15	PPMVD@15%O2	@15%O2
Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	15.11	Natural Gas	927	MM BTU/h		Carbon Monoxide	Proper Equipment Design, Proper Operation, and Good Combustion Practices.	25	PPMVD@15%O2	30 DAY ROLLING AVERAGE
Combustion Turbine	15.11	Natural gas	986	MMBTU/H	Turbine is a GE Model PG 7121 (7EA) used as a peaking unit.	Carbon Monoxide	Good Combustion	25	PPMVD@15%O2	4 H.R.A./WHEN > 50 MWE
Refrigeration compressor turbines	15.11	natural gas	40000	hp	3 liquefied natural gas trains consisting of a total of (12) GE LM2500+ DLE turbines drive	Carbon Monoxide	dry low emission combustors	29	PPMVD@15%O2	@15% O2, 4 HOUR ROLLING AVERAGE
Gas Turbines (8 units)	15.11	natural gas	333	mm btu/hr		Carbon Monoxide	good combustion practices and fueled by natural gas	0.062	LB/MMBTU	THREE ONE-HOUR TEST AVERAGE
PRATT & TWIN-PAC SIMPLE CYCLE TURBINES	15.11	NATURAL GAS	270.9	MMBTU/H	NO. 2 DIESEL OIL BACKUP FUEL	Carbon Monoxide	NATURAL GAS AS PRIMARY FUEL; GOOD COMBUSTION PRACTICES	0.2	LB/MMBTU	NATURAL GAS
Simple Cycle Generation Turbines (2)	15.11	Natural Gas	286	MMBTU/H	GE LM2500+G4	Carbon Monoxide	Good combustion practices and fueled by natural gas	17.46	LB/HR	HOURLY MAXIMUM
GE 7FA Simple Cycle Combustion Turbine	15.11	Pipeline quality natural gas	1780	MMBTU/HR		Carbon Monoxide	utilize efficient combustion/design technology	39	LB/HR	AT FULL LOAD

Natural Gas Fired Simple Cycle Turbine CO - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Simple Cycle Refrigeration Compressor Turbines (16)	15.11	Natural Gas	286	MMBTU/H	GE LM2500+G4	Carbon Monoxide	Good combustion practices and fueled by natural gas	43.6	LB/HR	HOURLY MAXIMUM
Turbines - two simple cycle gas	15.11	natural gas	799.7	MMBTU/H each	GE LMS100PA, natural gas fired, simple cycle, combustion turbine.	Carbon Monoxide	Catalytic Oxidation.	55	LB/HR	1-HR AVE / STARTUP AND SHUTDOWN
GE LM6000PC SPRINT Simple cycle combustion turbine	15.11	Pipeline quality natural gas	405.3	MMBTU/hr		Carbon Monoxide	utilize efficient combustion/design technology	63.8	LB/HR	FULL LOAD, AMBIENT TEMP < OR = TO 54 F
Normal Mode (without Power Augmentation)	15.11	natural gas	0			Carbon Monoxide	Good Combustion Practices as defined in the permit.	77.2	LB/HR	HOURLY
Turbines (4), simple cycle, natural gas	15.11	NATURAL GAS	15020	H/YR	Hours per year for all 4 turbines	Carbon Monoxide	efficient combution technology	301	LB/HR	EACH TURBINE
SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	15.11	NATURAL GAS	80	MW		Carbon Monoxide	GOOD COMBUSTION PRACTICES	525	LB/HR	EACH TURBINE
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	15.11	Natural Gas	2201	MM BTU/hR	Limited to 600 hr/yr	Carbon Monoxide	Good combustion practices & use of pipeline quality natural gas	800.08	LB/HR	HOURLY MAXIMUM
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Carbon Monoxide	Good combustion practices & use of pipeline quality natural gas	800.08	LB/HR	HOURLY MAXIMUM
CTG01 CO - Simple-Cycle Combustion Turbine 1 (Commissioning) [SCN0005]	15.11	Natural Gas	2201	MM BTU/hr	Commissioning is a one-time event which occurs after construction and is not	Carbon Monoxide	Good combustion practices & use of pipeline quality natural gas	2000	LB/HR	HOURLY MAXIMUM
CTG02 CO - Simple-Cycle Combustion Turbine 2 (Commissioning) [SCN0006]	15.11	natural gas	2201	MM BTU/hr	Commissioning is a one-time event which occurs after construction and is not	Carbon Monoxide	Good combustion practices & use of pipeline quality natural gas	2000	LB/HR	HOURLY MAXIMUM

Natural Gas Fired Simple Cycle Turbine VOC - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	15.11	Natural Gas	927	MM BTU/h		Volatile Organic Compounds (VOC)	Proper Equipment Design, Proper Operation, and Good Combustion Practices.	1.4	PPMVD@15%O2	3 HOUR AVERAGE
Gas turbines (9 units)	15.11	natural gas	1069	mm btu/hr		Volatile Organic Compounds (VOC)	good combustion practices and fueled by natural gas	1.6	PPMVD@15%O2	@15%O2
Simple Cycle Stationary Turbines firing Natural gas	15.11	Natural Gas	2143980	MMBTU/YR	The Siemens/Rolls Royce Trent 60 wet low emissions (WLE) combustion turbine generators	Volatile Organic Compounds (VOC)	Add-on VOC control is Oxidation Catalyst, and use of natural gas as fuel for pollution prevention	2	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H BLOCK AV
TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	16.21	NATURAL GAS	283	MMBTU/H, EACH	NATURAL GAS FIRED, OPEN-SIMPLE CYCLE COMBUSTION TURBINES WITH HEAT	Volatile Organic Compounds (VOC)	GOOD COMBUSTION PRACTICES AND PROPER DESIGN	2.5	PPMVD@15%O2	1-HR AVERAGE
TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	16.21	NATURAL GAS	283	MMBTU/H, EACH	NATURAL GAS FIRED, OPEN-SIMPLE CYCLE COMBUSTION TURBINES WITH HEAT	Volatile Organic Compounds (VOC)	GOOD COMBUSTION PRACTICES AND PROPER DESIGN	2.5	PPMVD@15%O2	1-HR AVERAGE
ELECTRICAL GENERATION	15.11	NATURAL GAS	170	MW	BOSQUE POWER COMPANY IS SEEKING TO AMEND THEIR EXISTING PERMIT TO	Volatile Organic Compounds (VOC)	BACT IS THE USE OF GOOD COMBUSTION PRACTICES TO MINIMIZE THE PRODUCTS OF INCOMPLETE COMBUSTION OF THE NATURAL GAS	4	PPMVD@15%O2	3 HOUR
SIMPLE CYCLE TURBINE	15.11	Natural Gas	8940000	MMBtu/year (HHV)	Throughput <= 8.94xE6 MMBtu/year (HHV) combined for all six gas turbines. The 6	Volatile Organic Compounds (VOC)	Oxidation Catalyst and good combustion practices, use of natural gas.	4	PPMVD@15%O2	AVERAGE OF THREE TESTS
SIMPLE CYCLE COMBUSTION TURBINE - ELECTRIC GENERATING PLANT	15.11	NATURAL GASE	1530	MW	THE PROCESS USES FUEL OIL FOR BACKUP AT THE RATE OF 2129 MMBUT/H	Volatile Organic Compounds (VOC)	GOOD COMBUSTION PRACTICES	5	PPMVD@15%O2	3 HOUR AVERAGE/CONTITION 3.3.24
Refrigeration compressor turbines	15.11	natural gas	40000	hp	3 liquefied natural gas trains consisting of a total of (12) GE LM2500+ DLE turbines drive	Volatile Organic Compounds (VOC)	good combustion practices	0.6	LB/HR	1 HOUR
Refrigeration compressor turbines	15.21	natural gas	40000	hp	3 liquefied natural gas trains consisting of a total of (6) GE LM2500+ DLE turbines that	Volatile Organic Compounds (VOC)	good combustion practices	0.6	LB/HR	1 HOUR
Simple Cycle Refrigeration Compressor Turbines (16)	15.11	Natural Gas	286	MMBTU/H	GE LM2500+G4	Volatile Organic Compounds (VOC)	Good combustion practices and fueled by natural gas	0.66	LB/HR	HOURLY MAXIMUM
Simple Cycle Generation Turbines (2)	15.11	Natural Gas	286	MMBTU/H	GE LM2500+G4	Volatile Organic Compounds (VOC)	Good combustion practices and fueled by natural gas	0.66	LB/HR	HOURLY MAXIMUM
COMBUSTION TURBINES, SIMPLE CYCLE , ROLLS ROYCE, 8	15.11	NATURAL GAS	603	MMBTU/H	EIGHT (8) IDENTICAL ROLLS ROYCE TRENT 60WLE (64 MW) SIMPLE CYCLE COMBUSTION	Volatile Organic Compounds (VOC)	CO OXIDATION CATALYST AND POLLUTION PREVENTION, BURNING CLEAN FUELS, NATURAL GAS AND ULTRA LOW SULFUR DISTILLATE OIL WITH	1.93	LB/HR	
GE 7FA Simple Cycle Combustion Turbine	15.11	Pipeline quality natural gas	1780	MMBTU/HR		Volatile Organic Compounds (VOC)	will utilize efficient combustion/design technology	3.2	LB/HR	AT FULL LOAD
Five 200-MW combustion turbines	15.11	Natural gas	2000	MMBtu/hr (approx)	Throughput could vary slightly (+/- 120 MMBtu/hr) depending on final selection of turbine	Volatile Organic Compounds (VOC)	Good combustion practice	3.77	LB/HR	THREE ONE-HR RUNS (NATURAL GAS)
Turbines (4), simple cycle, natural gas	15.11	NATURAL GAS	15020	H/YR	Hours per year for all 4 turbines	Volatile Organic Compounds (VOC)		4	LB/HR	EACH TURBINE
GE LM6000PC SPRINT Simple cycle combustion turbine	15.11	Pipeline quality natural gas	405.3	MMBTU/hr		Volatile Organic Compounds (VOC)	utilize efficient combustion/design technology	5.8	LB/HR	AT FULL LOAD
SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	15.11	NATURAL GAS	80	MW		Volatile Organic Compounds (VOC)	GOOD COMBUSTION PRACTICES	17.6	LB/HR	EACH TURBINE

Natural Gas Fired Simple Cycle Turbine PM - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
COMBUSTION TURBINES (NORMAL OPERATION)	15.11	NATURAL GAS	300	MW	Three simple cycle combustion turbine generators (CTG). Each CTG rated at 100 MW (nominal	Particulate matter, total (TPM)	PUC-QUALITY NATURAL GAS	0.0065	LB/MMBTU (HHV)	AT LOADS OF 80% OR HIGHER
COMBUSTION TURBINES (NORMAL OPERATION)	15.11	NATURAL GAS	300	MW	Three simple cycle combustion turbine generators (CTG). Each CTG rated at 100 MW (nominal	Particulate matter, total < 10 µ (TPM10)	PUC-QUALITY NATURAL GAS	0.0065	LB/MMBTU (HHV)	AT LOADS OF 80% OR HIGHER
COMBUSTION TURBINES (NORMAL OPERATION)	15.11	NATURAL GAS	300	MW	Three simple cycle combustion turbine generators (CTG). Each CTG rated at 100 MW (nominal	Particulate matter, filterable < 2.5 µ (FPM2.5)	PUC-QUALITY NATURAL GAS	0.0065	LB/MMBTU (HHV)	AT LOADS OF 80% OR HIGHER
TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	16.21	NATURAL GAS	283	MMBTU/H, EACH	NATURAL GAS FIRED, OPEN-SIMPLE CYCLE COMBUSTION TURBINES WITH HEAT	Particulate matter, filterable (FPM)	GOOD COMBUSTION PRACTICES AND PROPER DESIGN	0.0019	LB/MMBTU	3-HR AVERAGE
TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	16.21	NATURAL GAS	283	MMBTU/H, EACH	NATURAL GAS FIRED, OPEN-SIMPLE CYCLE COMBUSTION TURBINES WITH HEAT	Particulate matter, filterable (FPM)	GOOD COMBUSTION PRACTICES AND PROPER DESIGN	0.0019	LB/MMBTU	3-HR AVERAGE
Turbine - natural gas	15.11	natural gas	107	MW		Particulate matter, filterable (FPM)	Baghouse with leak detection system.	0.002	LB/MMBTU	1 H
2 COMBUSTION TURBINES	15.11	NATURAL GAS	130	MW	TWO GENERAL ELECTRIC (GE) FRAME 7EA COMBUSTION TURBINES (CTS) WITH A	Particulate matter, filterable (FPM)	EXCLUSIVE USE OF FACILITY PROCESS FUEL GAS OR PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.0033	LB/MMBTU	3-HOUR BLOCK AVERAGE
Two Simple Cycle Combustion Turbines	15.11	Natural Gas	190	MW	Two simple cycle combustion turbines used for peaking purposes and fired primarily	Particulate matter, filterable (FPM)	turbine design and good combustion practices	0.0038	LB/MMBTU	3-HOUR BLOCK AVERAGE
Combustion Turbines (GEN1 and GEN2)	15.11	Natural Gas	2217	MMBtu/hr	Each combustion turbine rated at 214 MW, with a maximum heat input rate of 2,217	Particulate matter, filterable (FPM)	Clean fuel and good combustion practices	0.0048	LB/MMBTU	TEST AVERAGE
Combustion Turbines (GEN1 and GEN2)	15.11	Natural Gas	2217	MMBtu/hr	Each combustion turbine rated at 214 MW, with a maximum heat input rate of 2,217	Particulate matter, total < 10 µ (TPM10)	Clean fuel and good combustion practices	0.0048	LB/MMBTU	TEST AVERAGE
Combustion Turbines (GEN1 and GEN2)	15.11	Natural Gas	2217	MMBtu/hr	Each combustion turbine rated at 214 MW, with a maximum heat input rate of 2,217	Particulate matter, total < 2.5 µ (TPM2.5)	Clean fuel and good combustion practices	0.0048	LB/MMBTU	TEST AVERAGE
Two Simple Cycle Combustion Turbines	15.11	Natural Gas	190	MW	Two simple cycle combustion turbines used for peaking purposes and fired primarily	Particulate matter, total < 10 µ (TPM10)	turbine design and good combustion practices	0.005	LB/MMBTU	3-HOUR BLOCK AVERAGE
Two Simple Cycle Combustion Turbines	15.11	Natural Gas	190	MW	Two simple cycle combustion turbines used for peaking purposes and fired primarily	Particulate matter, total < 2.5 µ (TPM2.5)	turbine design and good combustion practices	0.005	LB/MMBTU	3-HOUR BLOCK AVERAGE
Turbines and duct burners	15.11	natural gas	228	mw		Particulate matter, filterable (FPM)	good combustion practiced and pipeline quality natural gas	0.005	LB/MMBTU	1 H
PRATT & TWIN-PAC SIMPLE CYCLE TURBINES	15.11	NATURAL GAS	270.9	MMBTU/H	NO. 2 DIESEL OIL BACKUP FUEL	Particulate matter, filterable < 10 µ (FPM10)	USE NATURAL GAS AS PRIMARY FUEL; GOOD COMBUSTION PRACTICES	0.0066	LB/MMBTU	3-HR AVG FOR NATURAL GAS
PRATT & TWIN-PAC SIMPLE CYCLE TURBINES	15.11	NATURAL GAS	270.9	MMBTU/H	NO. 2 DIESEL OIL BACKUP FUEL	Particulate matter, total < 2.5 µ (TPM2.5)	NATURAL GAS PRIMARY FUEL; GOOD COMBUSTION PRACTICES	0.0066	LB/MMBTU	3-HR AVG FOR NATURAL GAS
Combustion turbine wih duct burner and heat recovery steam generator	15.11	Natural Gas	0	Three 40.6 MW turbines	Three (3) General Electric Frame 6B NG fired turbine with duct burners and heat	Particulate matter, total < 10 µ (TPM10)		0.0066	LB/MMBTU	
Combustion turbine wih duct burner and heat recovery steam generator	15.11	Natural Gas	0	Three 40.6 MW turbines	Three (3) General Electric Frame 6B NG fired turbine with duct burners and heat	Particulate matter, total < 2.5 µ (TPM2.5)		0.0066	LB/MMBTU	
2 COMBUSTION TURBINES	15.11	NATURAL GAS	130	MW	TWO GENERAL ELECTRIC (GE) FRAME 7EA COMBUSTION TURBINES (CTS) WITH A	Particulate matter, total < 10 µ (TPM10)	EXCLUSIVE USE OF FACILITY PROCESS FUEL GAS OR PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.007	LB/MMBTU	3 STACK TEST RUN AVERAGE, EXCEPT SU/SD
2 COMBUSTION TURBINES	15.11	NATURAL GAS	130	MW	TWO GENERAL ELECTRIC (GE) FRAME 7EA COMBUSTION TURBINES (CTS) WITH A	Particulate matter, total < 2.5 µ (TPM2.5)	EXCLUSIVE USE OF FACILITY PROCESS FUEL GAS OR PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.007	LB/MMBTU	3 STACK TEST RUN AVERAGE, EXCEPT SU/SD
Gas turbines (9 units)	15.11	natural gas	1069	mm btu/hr		Particulate matter, total < 10 µ (TPM10)	good combustion practices and fueled by natural gas	0.0076	LB/MMBTU	THREE ONE-HOUR TEST AVERAGE
Gas turbines (9 units)	15.11	natural gas	1069	mm btu/hr		Particulate matter, total < 2.5 µ (TPM2.5)	good combustion practices and fueled by natural gas	0.0076	LB/MMBTU	THREE ONE-HOUR TEST AVERAGE

Natural Gas Fired Simple Cycle Turbine PM - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	16.21	NATURAL GAS	283	MMBTU/H, EACH	NATURAL GAS FIRED, OPEN-SIMPLE CYCLE COMBUSTION TURBINES WITH HEAT	Particulate matter, total < 10 µ (TPM10)	GOOD COMBUSTION PRACTICES AND PROPER DESIGN	0.0076	LB/MMBTU	3-HR AVERAGE
TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	16.21	NATURAL GAS	283	MMBTU/H, EACH	NATURAL GAS FIRED, OPEN-SIMPLE CYCLE COMBUSTION TURBINES WITH HEAT	Particulate matter, total < 2.5 µ (TPM2.5)	GOOD COMBUSTION PRACTICES AND PROPER DESIGN	0.0076	LB/MMBTU	3-HR AVERAGE
TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	16.21	NATURAL GAS	283	MMBTU/H, EACH	NATURAL GAS FIRED, OPEN-SIMPLE CYCLE COMBUSTION TURBINES WITH HEAT	Particulate matter, total < 10 µ (TPM10)	GOOD COMBUSTION PRACTICES AND PROPER DESIGN	0.0076	LB/MMBTU	3-HR AVERAGE
TWO (2) NATURAL GAS FIRED COMBUSTION TURBINES	16.21	NATURAL GAS	283	MMBTU/H, EACH	NATURAL GAS FIRED, OPEN-SIMPLE CYCLE COMBUSTION TURBINES WITH HEAT	Particulate matter, total < 2.5 µ (TPM2.5)	GOOD COMBUSTION PRACTICES AND PROPER DESIGN	0.0076	LB/MMBTU	3-HR AVERAGE
Combined cycle combustion turnbine with HRSG and duct firing	15.11	Natural gas pipeline quality	849	MW	Two CT with HRSGs with duct burner Max fuel input for CTs and HRSGs 6,714 mmBtu/hr	Particulate matter, total < 10 µ (TPM10)	Combust only pipeline quality natural gas	0.0088	LB/MMBTU	THREE(3) HOUR ROLLING AVERAGE
Combined cycle combustion turnbine with HRSG and duct firing	15.11	Natural gas pipeline quality	849	MW	Two CT with HRSGs with duct burner Max fuel input for CTs and HRSGs 6,714 mmBtu/hr	Particulate matter, total < 2.5 µ (TPM2.5)	Combust pipeline quality natural gas only	0.0088	LB/MMBTU	THREE HOUR ROLLING AVERAGE
Combined cycle combustion turnbine with HRSG and duct firing	15.11	Natural gas pipeline quality	849	MW	Two CT with HRSGs with duct burner Max fuel input for CTs and HRSGs 6,714 mmBtu/hr	Particulate matter, total (TPM)	Combust only pipeline quality natural gas	0.0088	LB/MMBTU	THREE HOUR ROLLING AVERAGE
ELECTRICAL GENERATION	15.11	NATURAL GAS	170	MW	BOSQUE POWER COMPANY IS SEEKING TO AMEND THEIR EXISTING PERMIT TO	Particulate Matter (PM)	BACT IS THE USE OF PIPELINE-QUALITY NATURAL GAS AND THE APPLICATION OF GOOD COMBUSTION CONTROLS. WITH THIS METHOD OF	0.01	LB/MMBTU	3 HR ROLLING PERIOD
Turbines (4), simple cycle, natural gas	15.11	NATURAL GAS	15020	H/YR	Hours per year for all 4 turbines	Particulate matter, filterable (FPM)		0.013	LB/MMBTU	ACTUAL HEAT INPUT
Turbines (4), simple cycle, natural gas	15.11	NATURAL GAS	15020	H/YR	Hours per year for all 4 turbines	Particulate matter, filterable < 10 µ (FPM10)		0.013	LB/MMBTU	ACTUAL HEAT INPUT
Turbine - natural gas	15.11	natural gas	107	MW		Particulate matter, filterable < 2.5 µ (FPM2.5)	Baghouse with leak detection system.	8.25	LB/MMBTU	1 H
Turbine - natural gas	15.11	natural gas	107	MW		Particulate matter, filterable < 10 µ (FPM10)	Baghouse with leak detection system.	8.25	LB/MMBTU	1 H
Refrigeration compressor turbines	15.11	natural gas	40000	hp	3 liquefied natural gas trains consisting of a total of (12) GE LM2500+ DLE turbines drive	Particulate matter, total < 2.5 µ (TPM2.5)		0.72	LB/HR	1 HOUR
Simple Cycle Refrigeration Compressor Turbines (16)	15.11	Natural Gas	286	MMBTU/H	GE LM2500+G4	Particulate matter, total (TPM)	Good combustion practices and fueled by natural gas	2.08	LB/HR	HOURLY MAXIMUM
Simple Cycle Generation Turbines (2)	15.11	Natural Gas	286	MMBTU/H	GE LM2500+G4	Particulate matter, total (TPM)	Good combustion practices and fueled by natural gas	2.08	LB/HR	HOURLY MAXIMUM
Aeroderivative Simple Cycle Combustion Turbine	16.11	Natural Gas	263	MM BTU/h		Particulate matter, total < 10 µ (TPM10)	Exclusive Combustion of Fuel Gas, Good Combustion Practices Including Proper Burner Design.	4.5	LB/HR	3 HOUR AVERAGE
Aeroderivative Simple Cycle Combustion Turbine	16.11	Natural Gas	263	MM BTU/h		Particulate matter, total < 2.5 µ (TPM2.5)	Exclusive Combustion of Fuel Gas, Good Combustion Practices Including Proper Burner Design.	4.5	LB/HR	3 HOUR AVERAGE
Combined Cycle Combustion Turbine without Duct Burner Firing Natural Gas	15.11	Natural Gas	28169501	MMBTU/YR	Natural Gas Usage: <=28,169,501 MMBtu/year which includes maximum ultra	Particulate matter, filterable (FPM)	USE OF NATURAL GAS A CLEAN BURNING FUEL	4.7	LB/HR	AV OF THREE ONE H STACK TESTS
SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	15.11	NATURAL GAS	80	MW		Particulate matter, filterable (FPM)	GOOD COMBUSTION PRACTICES	5	LB/HR	EACH TURBINE
SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	15.11	NATURAL GAS	80	MW		Particulate matter, filterable < 10 µ (FPM10)	GOOD COMBUSTION PRACTICES	5	LB/HR	EACH TURBINE
SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	15.11	NATURAL GAS	80	MW		Particulate matter, total < 2.5 µ (TPM2.5)	GOOD COMBUSTION PRACTICES	5	LB/HR	EACH TURBINE
(2) 60-MW SIMPLE CYCLE COMBUSTION TURBINES, FIRING NATURAL GAS	15.11	NATURAL GAS	120	MW	(2) 60-MEGAWATT PRATT & WHITNEY GAS TURBINE GENERATOR PACKAGE	Particulate matter, total < 10 µ (TPM10)	GOOD COMBUSTION PRACTICES AND USE OF NATURAL GAS	5	LB/HR	3 STACK TEST RUNS

Natural Gas Fired Simple Cycle Turbine PM - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Natural Gas Fired Simple Cycle Turbines	15.11	Natural gas	412	MMBTU/H	The heat input is for a single unit.	Particulate matter, total < 2.5 µ (TPM2.5)		5	LB/HR	AVERAGE OF THREE TEST RUNS
COMBUSTION TURBINES, SIMPLE CYCLE , ROLLS ROYCE, 8	15.11	NATURAL GAS	603	MMBTU/H	EIGHT (8) IDENTICAL ROLLS ROYCE TRENT 60WLE (64 MW) SIMPLE CYCLE COMBUSTION	Particulate matter, filterable < 10 µ (FPM10)	BURNING CLEAN FUELS, NATURAL GAS AND ULTRA LOW SULFUR DISTILLATE OIL WITH SULFUR CONTENT OF 15 PPM.	5	LB/HR	
COMBUSTION TURBINES, SIMPLE CYCLE , ROLLS ROYCE, 8	15.11	NATURAL GAS	603	MMBTU/H	EIGHT (8) IDENTICAL ROLLS ROYCE TRENT 60WLE (64 MW) SIMPLE CYCLE COMBUSTION	Particulate matter, filterable < 2.5 µ (FPM2.5)	BURNING CLEAN FUELS, NATURAL GAS AND ULTRA LOW SULFUR DISTILLATE OIL WITH SULFUR CONTENT OF 15 PPM.	5	LB/HR	
SIMPLE CYCLE (NO WASTE HEAT RECOVERY)(>25 MW)	15.11	NATURAL GAS	5000	MMFT3/YR	THE PROCESS CONSISTS OF ONE NEW TRENT 60 SIMPLE CYCLE COMBUSTION TURBINE.	Particulate matter, filterable < 10 µ (FPM10)	USE OF CLEAN BURNING FUELS; NATURAL GAS AS PRIMARY FUEL AND ULTRA LOW SULFUR DISTILLATE OIL WITH 15 PPMSULFUR BY WEIGHT AS BACKUP	5	LB/HR	AVERAGE OF THREE TESTS
SIMPLE CYCLE (NO WASTE HEAT RECOVERY)(>25 MW)	15.11	NATURAL GAS	5000	MMFT3/YR	THE PROCESS CONSISTS OF ONE NEW TRENT 60 SIMPLE CYCLE COMBUSTION TURBINE.	Particulate matter, filterable < 2.5 µ (FPM2.5)	USE OF CLEAN BURNING FUELS; NATURAL GAS AS PRIMARY FUEL AND ULTRA LOW SULFUR DISTILLATE OIL WITH 15 PPMSULFUR BY WEIGHT AS BACKUP	5	LB/HR	AVERAGE OF THREE TESTS
Simple Cycle Stationary Turbines firing Natural gas	15.11	Natural Gas	2143980	MMBTU/YR	The Siemens/Rolls Royce Trent 60 wet low emissions (WLE) combustion turbine generators	Particulate matter, filterable (FPM)	Use of Natural gas a clean burning fuel	5	LB/HR	AV OF THREE ONE H STACK TESTS EVERY 5 YR
Simple Cycle Stationary Turbines firing Natural gas	15.11	Natural Gas	2143980	MMBTU/YR	The Siemens/Rolls Royce Trent 60 wet low emissions (WLE) combustion turbine generators	Particulate matter, total < 10 µ (TPM10)	Use of Natural gas a clean burning fuel	5	LB/HR	AV OF THREE ONE H STACK TESTS EVERY 5 YR
Simple Cycle Stationary Turbines firing Natural gas	15.11	Natural Gas	2143980	MMBTU/YR	The Siemens/Rolls Royce Trent 60 wet low emissions (WLE) combustion turbine generators	Particulate matter, total < 2.5 µ (TPM2.5)	Use of natural gas a clean burning fuel	5	LB/HR	AV OF THREE ONE H STACK TESTS EVERY 5 YR
Natural gas-fired turbines	15.11	Natural gas	451	MMBTU/H	Rating is for each turbine.	Particulate matter, total < 2.5 µ (TPM2.5)		5.4	LB/HR	
Normal Mode (without Power Augmentation)	15.11	natural gas	0			Particulate matter, filterable < 10 µ (FPM10)	Good Combustion Practices as described in the permit.	5.4	LB/HR	HOURLY
Power Augmentation	15.11	natural gas	0		Increase power output by lowering the outlet air temperatur through water	Particulate matter, filterable < 10 µ (FPM10)	Good combustion practices as defined in the permit.	5.4	LB/HR	HOURLY
GE LM6000PC SPRINT Simple cycle combustion turbine	15.11	Pipeline quality natural gas	405.3	MMBTU/hr		Particulate matter, total < 10 µ (TPM10)	fire only pipeline quality natural gas	6	LB/HR	AT FULL OAD
GE LM6000PC SPRINT Simple cycle combustion turbine	15.11	Pipeline quality natural gas	405.3	MMBTU/hr		Particulate matter, total (TPM)	fire only pipeline quality natural gas	6	LB/HR	AT FULL LOAD
SIMPLE CYCLE TURBINE	15.11	Natural Gas	8940000	MMBtu/year (HHV)	Throughput <= 8.94xE6 MMBtu/year (HHV) combined for all six gas turbines. The 6	Particulate matter, total < 10 µ (TPM10)	Good combustion practice, Use of Clean Burning Fuel: Natural gas	6	LB/HR	AVERAGE OF THREE TESTS
SIMPLE CYCLE TURBINE	15.11	Natural Gas	8940000	MMBtu/year (HHV)	Throughput <= 8.94xE6 MMBtu/year (HHV) combined for all six gas turbines. The 6	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion practice, Use of Clean Burning Fuel: Natural gas	6	LB/HR	AVERGE OF THREE TESTS
SIMPLE CYCLE TURBINE	15.11	Natural Gas	8940000	MMBtu/year (HHV)	Throughput <= 8.94xE6 MMBtu/year (HHV) combined for all six gas turbines. The 6	Particulate matter, filterable (FPM)	Good combustion practice, Use of Clean Burning Fuel: Natural gas	6	LB/HR	AVERAGE OF THREE TESTS
CTG01 CO - Simple-Cycle Combustion Turbine 1 (Commissioning) [SCN0005]	15.11	Natural Gas	2201	MM BTU/hr	Commissioning is a one-time event which occurs after construction and is not	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
CTG01 CO - Simple-Cycle Combustion Turbine 1 (Commissioning) [SCN0005]	15.11	Natural Gas	2201	MM BTU/hr	Commissioning is a one-time event which occurs after construction and is not	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
CTG02 CO - Simple-Cycle Combustion Turbine 2 (Commissioning) [SCN0006]	15.11	natural gas	2201	MM BTU/hr	Commissioning is a one-time event which occurs after construction and is not	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
CTG02 CO - Simple-Cycle Combustion Turbine 2 (Commissioning) [SCN0006]	15.11	natural gas	2201	MM BTU/hr	Commissioning is a one-time event which occurs after construction and is not	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	15.11	Natural Gas	2201	MM BTU/hR	Limited to 600 hr/yr	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	15.11	Natural Gas	2201	MM BTU/hR	Limited to 600 hr/yr	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM

Natural Gas Fired Simple Cycle Turbine PM - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	15.11	Natural Gas	2201	MM BTU/hr	Normal operations are based on 7000 hrs/yr	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	15.11	Natural Gas	2201	MM BTU/hr	Normal operations are based on 7000 hrs/yr	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion practices & use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	15.11	Natural Gas	2201	MM BTU/hr	Normal operations are based on 7000 hours per year	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	15.11	Natural Gas	2201	MM BTU/hr	Normal operations are based on 7000 hours per year	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion practices & use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOULY MAXIMUM
Three simple cycle combustion turbines	15.11	natural gas	799.7	MMBTU/H	Three GE, LMS100PA, natural gas-fired, simple cycle CTG rated at 799.7 MMBtu per	Particulate matter, total (TPM)	Use of pipeline quality natural gas and good combustor design	6.6	LB/HR	AVE OVER STACK TEST LENGTH
Three simple cycle combustion turbines	15.11	natural gas	799.7	MMBTU/H	Three GE, LMS100PA, natural gas-fired, simple cycle CTG rated at 799.7 MMBtu per	Particulate matter, total < 10 µ (TPM10)	Use of pipeline quality natural gas and good combustor design	6.6	LB/HR	AVE OVER STACK TEST LENGTH
Combustion Turbine	15.11	Natural gas	986	MMBTU/H	Turbine is a GE Model PG 7121 (7EA) used as a peaking unit.	Particulate matter, total < 10 µ (TPM10)	Good Combustion Practices	7.3	LB/HR	AVERAGE OF 3 TEST RUNS
Combustion Turbine	15.11	Natural gas	986	MMBTU/H	Turbine is a GE Model PG 7121 (7EA) used as a peaking unit.	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion practices.	7.3	LB/HR	AVERAGE OF THREE TEST RUNS
Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	15.11	Natural Gas	927	MM BTU/h		Particulate matter, total < 10 µ (TPM10)	Exclusive Combustion of Fuel Gas and Good Combustion Practices, Including Proper Burner Design.	8	LB/HR	3 HOUR AVERAGE
Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	15.11	Natural Gas	927	MM BTU/h		Particulate matter, total < 2.5 µ (TPM2.5)	Exclusive Combustion of Fuel Gas and Good Combustion Practices, Including Proper Burner Design.	8	LB/HR	3 HOUR AVERAGE
SIMPLE CYCLE COMBUSTION TURBINE - ELECTRIC GENERATING PLANT	15.11	NATURAL GASE	1530	MW	THE PROCESS USES FUEL OIL FOR BACKUP AT THE RATE OF 2129 MMBUT/H	Particulate matter, total < 10 µ (TPM10)	GOOD COMBUSTION PRACTICES PIPELINE QUALITY NATURAL GAS, ULTRA LOW SULFUR DISTILLATE FUEL	9.1	LB/HR	3 HOUR AVERAGE/CONDITION 3.3.23
GE LMS-100 combustion turbines, simple cycle with water injection	15.11	natural gas	1690	MMBTU/H		Particulate matter, total < 10 µ (TPM10)	Utilize only natural gas or ULSD fuel; Limit the time in startup or shutdown.	9.1	LB/HR	6-HR AVERAGE ON NG
Combined Cycle Combustion Turbine with Duct Burner firing natural gas	15.11	Natural Gas	0			Particulate matter, filterable (FPM)	Use of clean burning fuel like natural gas	12	LB/HR	AV OF THREE ONE H STACK TESTS
Combined Cycle Combustion Turbine without Duct Burner Firing Natural Gas	15.11	Natural Gas	28169501	MMBTU/YR	Natural Gas Usage: <=28,169,501 MMBtu/year which includes maximum ultra	Particulate matter, total < 10 µ (TPM10)	Use of natural gas a clean burning fuel	14.4	LB/HR	AV OF THREE ONE H STACK TESTS
Combined Cycle Combustion Turbine without Duct Burner Firing Natural Gas	15.11	Natural Gas	28169501	MMBTU/YR	Natural Gas Usage: <=28,169,501 MMBtu/year which includes maximum ultra	Particulate matter, total < 2.5 µ (TPM2.5)	Use of natural gas a clean burning fuel	14.4	LB/HR	AV OF THREE ONE H STACK TESTS
TURBINE EXHAUST STACK NO. 1 & NO. 2	15.11	NATURAL GAS	1900	MM BTU/H EACH		Particulate matter, total < 2.5 µ (TPM2.5)	USE OF PIPELINE NATURAL GAS	17	LB/HR	HOURLY MAXIMUM
TURBINE EXHAUST STACK NO. 1 & NO. 2	15.11	NATURAL GAS	1900	MM BTU/H EACH		Particulate matter, total < 10 µ (TPM10)	USE OF PIPELINE NATURAL GAS	17	LB/HR	HOURLY MAXIMUM
GE 7FA Simple Cycle Combustion Turbine	15.11	Pipeline quality natural gas	1780	MMBTU/HR		Particulate matter, total < 10 µ (TPM10)	will fire only pipeline quality natural gas	18	LB/HR	
GE 7FA Simple Cycle Combustion Turbine	15.11	Pipeline quality natural gas	1780	MMBTU/HR		Particulate matter, total (TPM)	will fire only pipeline quality natural gas	18	LB/HR	
Combined Cycle Combustion Turbine with Duct Burner firing natural gas	15.11	Natural Gas	0			Particulate matter, total < 10 µ (TPM10)	Use of natural gas a clean burning fuel	22.6	LB/HR	AV OF THREE ONE H STACK TESTS

Natural Gas Fired Simple Cycle Turbine PM - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Combined Cycle Combustion Turbine with Duct Burner firing natural gas	15.11	Natural Gas	0			Particulate matter, total < 2.5 µ (TPM2.5)	Use of natural gas a clean burning fuel	22.6	LB/HR	AV OF THREE ONE H STACK TESTS
Five 200-MW combustion turbines	15.11	Natural gas	2100	MMBtu/hr (approx)	Five simple cycle GE 7F.05 turbines. Max of 3390 hours per year per turbine. Of the	Particulate matter, total (TPM)	Clean fuel prevents PM formation	2	GR. S / 100 SCF GAS	FUEL RECORD KEEPING
Five 200-MW combustion turbines	15.11	Natural gas	2100	MMBtu/hr (approx)	Five simple cycle GE 7F.05 turbines. Max of 3390 hours per year per turbine. Of the	Particulate matter, total < 10 µ (TPM10)	Clean fuel prevents PM formation	2	GR. S / 100 SCF GAS	FUEL RECORD KEEPING
Five 200-MW combustion turbines	15.11	Natural gas	2100	MMBtu/hr (approx)	Five simple cycle GE 7F.05 turbines. Max of 3390 hours per year per turbine. Of the	Particulate matter, total < 2.5 µ (TPM2.5)	Clean fuel prevents PM formation	2	GR. S / 100 SCF GAS	FUEL RECORD KEEPING
Combustion Turbines	15.11	Natural gas	2262.4	MMBtu/hr gas	Two GE 7F.05 turbines, approximately 200 MW each. Natural-gas is primary fuel.	Particulate matter, total (TPM)	Use of clean fuels, and annual VE test	2	GR. S / 100 SCF GAS	FOR NATURAL GAS
Combustion Turbines	15.11	Natural gas	2262.4	MMBtu/hr gas	Two GE 7F.05 turbines, approximately 200 MW each. Natural-gas is primary fuel.	Particulate matter, total < 10 µ (TPM10)	Use of clean fuels	2	GR. S / 100 SCF GAS	FOR NATURAL GAS
Combustion Turbines	15.11	Natural gas	2262.4	MMBtu/hr gas	Two GE 7F.05 turbines, approximately 200 MW each. Natural-gas is primary fuel.	Particulate matter, total < 2.5 µ (TPM2.5)	Use of clean fuels	2	GR. S / 100 SCF GAS	FOR NATURAL GAS
TWO SIMPLE CYCLE COMBUSTION TURBINE - MODEL 7FA	15.11	NATURAL GAS	170	MW	BACKUP FUEL: ULTRA LOW SULFUR DIESEL WITH A MAXIMUM SULFUR CONTENT	Particulate matter, total < 10 µ (TPM10)		10	% OPACITY	6-MINUTE BLOCK BY EPA METHOD 9

Natural Gas Fired Simple Cycle Turbine GHG - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION	CASE-BY-CASE_BASIS
CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	15.11	Natural Gas	2201	MM BTU/hr	Normal operations are based on 7000 hrs/yr	Carbon Dioxide Equivalent (CO2e)	Facility-wide energy efficiency measures , such as improved combustion measures, and use of pipeline quality natural gas.	50	KG/GJ	ANNUAL AVERAGE	BACT-PSD
CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	15.11	Natural Gas	2201	MM BTU/hr	Normal operations are based on 7000 hours per year	Carbon Dioxide Equivalent (CO2e)	Facility-wide energy efficiency measures , such as improved combustion measures, and use of pipeline quality natural gas.	50	KG/GJ	ANNUAL AVERAGE	BACT-PSD
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	15.11	Natural Gas	2201	MM BTU/hR	Limited to 600 hr/yr	Carbon Dioxide Equivalent (CO2e)	Facility-wide energy efficiency measures , such as improved combustion measures, and use of pipeline quality natural gas.	120	LB/MM BTU	ANNUAL AVERAGE	BACT-PSD
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Carbon Dioxide Equivalent (CO2e)	Facility-wide energy efficiency measures , such as improved combustion measures, and use of pipeline quality natural gas.	120	LB/MM BTU	ANNUAL AVERAGE	BACT-PSD
2 COMBUSTION TURBINES	15.11	NATURAL GAS	130	MW	TWO GENERAL ELECTRIC (GE) FRAME 7EA COMBUSTION TURBINES (CTS) WITH A	Carbon Dioxide Equivalent (CO2e)	HIGH EFFICIENCY GE 7EA CTS WITH HRSGS EQUIPPED WITH DLN1 COMBUSTORS AND EXCLUSIVE USE OF FACILITY PROCESS FUEL GAS OR	117	LB/MMBTU	3-HOUR BLOCK AVERAGE	BACT-PSD
PRATT & TWIN-PAC SIMPLE CYCLE TURBINES	15.11	NATURAL GAS	270.9	MMBTU/H	NO. 2 DIESEL OIL BACKUP FUEL	Carbon Dioxide	NATURAL GAS AS PRIMARY FUEL; GOOD COMBUSTION PRACTICES	118	LB/MMBTU	FOR NATURAL GAS	BACT-PSD
Turbine - natural gas	15.11	natural gas	107	MW		Carbon Dioxide		130.17	LB/MMBTU	1 H	BACT-PSD
COMBUSTION TURBINES (NORMAL OPERATION)	15.11	NATURAL GAS	300	MW	Three simple cycle combustion turbine generators (CTG). Each CTG rated at 100 MW (nominal	Carbon Dioxide Equivalent (CO2e)		1328	LB/MWH	GROSS OUTPUT	BACT-PSD
Five 200-MW combustion turbines	15.11	Natural gas	2100	MMBtu/hr (approx)	Five simple cycle GE 7F.05 turbines. Max of 3390 hours per year per turbine. Of the	Carbon Dioxide	Use of natural gas with restricted use of ULSD as backup fuel	1372	LB/MWH	NAT GAS OPERATION, 12- OR 36- MO ROLLING	BACT-PSD
Combustion Turbines	15.11	Natural gas	2262.4	MMBtu/hr gas	Two GE 7F.05 turbines, approximately 200 MW each. Natural-gas is primary fuel.	Carbon Dioxide Equivalent (CO2e)	Use of low-emitting fuel and efficient turbine	1374	LB/MWH	FOR NATURAL GAS OPERATION	BACT-PSD
(2) 60-MW SIMPLE CYCLE COMBUSTION TURBINES, FIRING NATURAL GAS	15.11	NATURAL GAS	120	MW	(2) 60-MEGAWATT PRATT & WHITNEY GAS TURBINE GENERATOR PACKAGE	Carbon Dioxide Equivalent (CO2e)	USE OF NATURAL GAS. ENERGY EFFICIENCY DESIGN - USE OF INLET FOGGING/WET COMPRESSION, INSULATION BLANKETS TO REDUCE HEAT LOSS,	1394	LB/MWH	12-MONTH ROLLING, EXCLUDING SU/SD	BACT-PSD
GE LMS-100 combustion turbines, simple cycle with water injection	15.11	natural gas	1690	MMBTU/H		Carbon Dioxide Equivalent (CO2e)	Thermal efficiency Clean fuels	1707	LB/MWH	365-DAY ROLLING AVERAGE	BACT-PSD
Natural Gas Fired Simple Cycle Turbines	15.11	Natural gas	412	MMBTU/H	The heat input is for a single unit.	Carbon Dioxide Equivalent (CO2e)	High efficiency turbines	220122	TONS/YR	12 MONTH ROLLING TOTAL	BACT-PSD
Natural gas-fired turbines	15.11	Natural gas	451	MMBTU/H	Rating is for each turbine.	Carbon Dioxide Equivalent (CO2e)		243147	TONS/YR	12 MONTH ROLLING TOTAL/EACH UNIT	BACT-PSD
Combustion Turbine	15.11	Natural gas	986	MMBTU/H	Turbine is a GE Model PG 7121 (7EA) used as a peaking unit.	Carbon Dioxide Equivalent (CO2e)		413198	TONS/YR	12 MONTH ROLLING TOTAL	BACT-PSD
Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	15.11	Natural Gas	927	MM BTU/h		Carbon Dioxide Equivalent (CO2e)	Exclusively combust low carbon fuel gas, good combustion practices, good operation and maintenance practices, and insulation	1426146	TONS/YR	ANNUAL TOTAL	BACT-PSD
Simple Cycle Refrigeration Compressor Turbines (16)	15.11	Natural Gas	286	MMBTU/H	GE LM2500+G4	Carbon Dioxide Equivalent (CO2e)	Good combustion/operating practices and fueled by natural gas - use GE LM2500+G4 turbines	4872107	TONS/YR	ANNUAL MAXIMUM FROM THE FACILITYWIDE	BACT-PSD
Simple Cycle Generation Turbines (2)	15.11	Natural Gas	286	MMBTU/H	GE LM2500+G4	Carbon Dioxide Equivalent (CO2e)	Good combustion/operating practices and fueled by natural gas - use GE LM2500+G4 turbines	4872107	TONS/YR	ANNUAL MAXIMUM FROM THE FACILITYWIDE	BACT-PSD
Two Simple Cycle Combustion Turbines	15.11	Natural Gas	190	MW	Two simple cycle combustion turbines used for peaking purposes and fired primarily	Carbon Dioxide Equivalent (CO2e)	Turbine-generator design and proper operation	0			BACT-PSD
Gas Turbines (8 units)	15.11	natural gas	333	mm btu/hr		Carbon Dioxide Equivalent (CO2e)	good combustion/operating/maintenance practices and fueled by natural gas; use intake air chiller	0			BACT-PSD
Gas turbines (9 units)	15.11	natural gas	1069	mm btu/hr		Carbon Dioxide Equivalent (CO2e)	good combustion practices and fueled by natural gas; Use high thermal efficiency turbines	0			BACT-PSD

El Paso Electric
Newman Station
RBLC MSS Emission Rate Comparisons

BACT/LAER Analysis - Emission Rates During Turbine Startup/Shutdown[1]

Unit	NOX		CO		VOC[2]		PM[2]	
	Start	Shutdown	Start	Shutdown	Start	Shutdown	Start	Shutdown
Proposed lb/hr/MMBTU/hr	0.0232	0.0190	0.2206	0.1343	0.1242	0.0626	0.0028	0.0028
Highest Value from RBLC lb/hr/MMBTU/hr	0.2100	0.0225	3.0240	3.0240	0.0695	0.0695	0.0089	0.0089
Lowest Value from RBLC lb/hr/MMBTU/hr	0.0150	0.0225	0.0350	0.0342	0.0695	0.0695	0.0029	0.0029
Proposed lb/hr/MW	0.0227	0.0186	0.2157	0.1313	0.1203	0.0612	0.0027	0.0027
Highest Value from RBLC lb/hr/MW	5.0173	0.0773	2.2660	2.2660	0.3888	0.0369	0.0395	-
Lowest Value from RBLC lb/hr/MW	0.0750	0.0773	0.6180	0.4554	0.3888	0.0369	0.0395	-

[1] For the purpose of this analysis, to the extent that data is available, the RBLC database turbine startup and shutdown emissions are compared against the proposed unit emission rates. However, these rates are normalized based on their MMBtu/hr or MW ratings depending on the available data in the RBLC dataset.

[2] Minimal Data for the analysis was available.

Natural Gas Fired Simple Cycle Turbine Start up/Shut Down NO_X - RBLC Dataset - Relevant data in Red

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION	EMISSION_LIMIT_2	EMISSION_LIMIT_2_UNIT	EMISSION_LIMIT_2_AVGERAGE_TIME_CONDITION	POLLUTANT_COMPLIANCE_NOTES
Turbine - natural gas	15.11	natural gas	107	MW		Nitrogen Oxides (NOx)	Advanced low NOx burners, closed-coupled and staged over-fire air, Selective Non-Catalytic Reduction, and Selective Catalytic Reduction.	0.03	LB/MMBTU	12 MO	0.0365	LB/MMBTU	1 H	0.03 LB/MMBTU 12 MO Includes startups, shutdowns, malfunctions, and upsets. 0.0365 LB/MMBTU 1 H Does not includes startups,
(2) 60-MW SIMPLE CYCLE COMBUSTION TURBINES, FIRING NATURAL GAS	15.11	NATURAL GAS	120	MW	(2) 60-MEGAWATT PRATT & WHITNEY GAS TURBINE GENERATOR PACKAGE	Nitrogen Oxides (NOx)	USE OF NATURAL GAS, WATER/STEAM INJECTION, AND A SELECTIVE CATATYIC REDUCTION (SCR) SYSTEM	2.5	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD	5.8	LB/H	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD	STARTUP EVENTS (1 CT OR 2 CTS) ARE LIMITED TO 36.4 LB/EVENT; AND SHUTDOWN EVENTS (1 CT OR 2 CTS) ARE LIMITED TO 9.27 LB/EVENT
GE LMS-100 combustion turbines, simple cycle with water injection	15.11	natural gas	1690	MMBTU/H		Nitrogen Oxides (NOx)	Utilize water injection when combusting natural gas or ULSD; Utilize selective catalytic reduction (SCR) with aqueous ammonia injection at all times except during startup and shutdown; Limit the time in startup or shutdown.	2.5	PPMDV AT 15% O2	3-HR ROLLING AVERAGE ON NG	3.8	PPMDV AT 15% O2	3-HR ROLLING AVERAGE ON ULSD	
Three simple cycle combustion turbines	15.11	natural gas	799.7	MMBTU/H	Three GE, LMS100PA, natural gas-fired, simple cycle CTG rated at 799.7	Nitrogen Oxides (NOx)	Good combustor design, Water Injection and Selective Catalytic Reduction (SCR)	5	PPMVD AT 15% O2	1-HR AVE	15.5	LB/H	30-DAY ROLLING AVE	startup limit = 12.0 lb per event shutdown limit = 18.0 lb per event compliance with BACT limits monitored via continuous emissions monitors.
Natural gas-fired turbines	15.11	Natural gas	451	MMBTU/H	Rating is for each turbine.	Nitrogen Oxides (NOx)	Water injection plus SCR	5	PPPMVD	4 HR. ROLLING AVERAGE EXCEPT FOR STARTUP	19	LB/H	DURING STARTUP	RBLC Staff: Original Emis Limit 2 Units were Numeric Limit - ''LB'' and Avg Time/Condition - ''PER HOUR DURING STARTUP'' The Emission
Natural Gas Fired Simple Cycle Turbines	15.11	Natural gas	412	MMBTU/H	The heat input is for a single unit.	Nitrogen Oxides (NOx)	SCR	5	PPMVD	4 HOUR ROLLING AVERAGE EXCEPT STARTUP	18.5	LB	TOTAL FOR 30 MINUTES DURING STARTUP	The startup limit is for each unit. The three units are limited to a total combined emission rate of 42.9 pounds per hour (1-hour average) at all
COMBUSTION TURBINES (STARTUP & SHUTDOWN PERIODS)	15.11	NATURAL GAS	300	MW	Three simple cycle combustion turbine generators (CTG). Each CTG	Nitrogen Oxides (NOx)	water injection and SCR system	22.5	LB/H	STARTUP EVENTS	6	LB/H	SHUTDOWN EVENTS	Third emission limit incorrectly entered into the Standard Limit field. RBLC SysOp moved the information into this Notes field. Here is the
Turbines - two simple cycle gas	15.11	natural gas	799.7	MMBTU/H each	GE LMS100PA, natural gas fired, simple cycle, combustion turbine.	Nitrogen Oxides (NOx)	SCR and dry low NOx burners	23	LB/H	1-HR AVE / STARTUP AND SHUTDOWN	0			The NOx limit was converted to an equivalent hourly based limit (the original permit included an event based limit) for periods of startup and shutdown.
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	15.11	Natural Gas	2201	MM BTU/hR	Limited to 600 hr/yr	Nitrogen Oxides (NOx)	Pipeline quality natural gas & dry-low-NOX burners	86.38	LB/HR	HOURLY MAXIMUM	0			NOX monitored with a Continuous Emissions Monitoring System (CEMS) as required by NSPS Subpart KKKK.
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Nitrogen Oxides (NOx)	Pipeline quality natural gas & dry-low-NOX burners	86.38	LB/HR	HOURLY MAXIMUM	0			NOX monitored with a Continuous Emissions Monitoring System (CEMS) as required by NSPS Subpart KKKK.
TURBINE EXHAUST STACK NO. 1 & NO. 2	15.11	NATURAL GAS	1900	MM BTU/H EACH		Nitrogen Oxides (NOx)	DRY LOW NOX COMBUSTORS	240	LB/H	HOURLY MAXIMUM	798	LB/H	HOURLY MAXIMUM / STARTUP & SHUTDOWN ONLY	LIMITS ARE PER TURBINE EXHAUST STACK. AGGREGATE NOX EMISSIONS FROM BOTH TURBINE EXHAUST STACKS ARE LIMITED TO 391.30 TONS PER YEAR. STARTUP & SHUTDOWN OPERATIONS ARE LIMITED TO 520 HOURS PER YEAR.
Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	15.21	natural gs	2988	MMBTU/H	or ULSD; Duct burner 499 MMBtu/hr, natural gas	Nitrogen Oxides (NOx)	Utilize dry low-NOx burners when combusting natural gas; Utilize water injection when combusting ULSD; Utilize selective catalytic reduction (SCR) with aqueous ammonia injection at all times except during startup and shutdown; Limit the time in startup or shutdown.	2	PPMDV AT 15% O2	3-HR ROLLING AVERAGE ON NG	5.5	PPMDV AT 15% O2	3-HR ROLLING AVERAGE ON ULSD	

Natural Gas Fired Simple Cycle Turbine Start up/Shut Down NO_X - RBLC Dataset - Relevant data in Red

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	Startup MSS lb/hr/unit	Shut Down MSS lb/hr/unit	MSS startup lb/hr/MMBtu/hr	MSS Shutdown lb/hr/MMBTU/hr	MSS Startup lb/hr/MW	MSS Shutdown lb/hr/MW
Turbine - natural gas	15.11	natural gas	107	MW		Nitrogen Oxides (NOx)	Limit duration of event/hours per year	Limit duration of event/hours per year				
(2) 60-MW SIMPLE CYCLE COMBUSTION TURBINES, FIRING NATURAL GAS	15.11	NATURAL GAS	120	MW	(2) 60-MEGAWATT PRATT & WHITNEY GAS TURBINE GENERATOR PACKAGE	Nitrogen Oxides (NOx)	36.4	9.27			0.303	0.077
GE LMS-100 combustion turbines, simple cycle with water injection	15.11	natural gas	1690	MMBTU/H		Nitrogen Oxides (NOx)	Limit duration of event/hours per year	Limit duration of event/hours per year				
Three simple cycle combustion turbines	15.11	natural gas	799.7	MMBTU/H	Three GE, LMS100PA, natural gas-fired, simple cycle CTG rated at 799.7	Nitrogen Oxides (NOx)	12	18	0.015	0.023		
Natural gas-fired turbines	15.11	Natural gas	451	MMBTU/H	Rating is for each turbine.	Nitrogen Oxides (NOx)	19		0.042			
Natural Gas Fired Simple Cycle Turbines	15.11	Natural gas	412	MMBTU/H	The heat input is for a single unit.	Nitrogen Oxides (NOx)	18.5		0.045			
COMBUSTION TURBINES (STARTUP & SHUTDOWN PERIODS)	15.11	NATURAL GAS	300	MW	Three simple cycle combustion turbine generators (CTG). Each CTG	Nitrogen Oxides (NOx)	22.5				0.075	
Turbines - two simple cycle gas	15.11	natural gas	799.7	MMBTU/H each	GE LMS100PA, natural gas fired, simple cycle, combustion turbine.	Nitrogen Oxides (NOx)	23		0.029			
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	15.11	Natural Gas	2201	MM BTU/hR	Limited to 600 hr/yr	Nitrogen Oxides (NOx)	86.38		0.039			
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Nitrogen Oxides (NOx)	86.38		0.039			
TURBINE EXHAUST STACK NO. 1 & NO. 2	15.11	NATURAL GAS	1900	MM BTU/H EACH		Nitrogen Oxides (NOx)	399		0.210			
Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	15.21	natural gs	2988	MMBTU/H	or ULSD; Duct burner 499 MMBtu/hr, natural gas	Nitrogen Oxides (NOx)	Limit duration of event/hours per year	Limit duration of event/hours per year				

Natural Gas Fired Simple Cycle Turbine Start up/Shut Down CO - RBLC Dataset - Relevant data in Red

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION	CASE-BY-CASE_BASIS	EMISSION_LIMIT_2	EMISSION_LIMIT_2_UNIT	EMISSION_LIMIT_2_AVGERAGE_TIME_CONDITION	POLLUTANT_COMPLIANCE_NOTES
Turbine - natural gas	15.11	natural gas	107	MW		Carbon Monoxide		0.095	LB/MMBTU	12 MO	BACT-PSD	0.037	LB/MMBTU	24 H	Includes startups, shutdowns, malfunctions, and upsets.
Turbines - two simple cycle gas	15.11	natural gas	799.7	MMBTU/H each	GE LMS100PA, natural gas fired, simple cycle, combustion turbine.	Carbon Monoxide	Catalytic Oxidation.	55	LB/H	1-HR AVE / STARTUP AND SHUTDOWN	BACT-PSD	0			The CO limit was converted to an equivalent hourly based limit (the original permit included an event based limit) for periods of startup and
Turbines (4), simple cycle, natural gas	15.11	NATURAL GAS	1115.2	MMBTU/hr	Hours per year for all 4 turbines	Carbon Monoxide	efficient combution technology	301	LB/H	EACH TURBINE	BACT-PSD	724	T/YR	PER ROLLING 12-MO. FOR 4 UNITS &ALL FUEL	T/YR limit is for both fuels and for the 4 turbines combined. Limit during startup-shutdown shall not exceed 413 LB/H for each unit when burning
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback)	15.11	Natural Gas	2201	MM BTU/hR	Limited to 600 hr/yr	Carbon Monoxide	Good combustion practices & use of pipeline quality natural gas	800.08	LB/HR	HOURLY MAXIMUM	BACT-PSD	0			CO emissions will be monitored with a Continuous Emissions Monitoring System (CEMS).
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback)	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Carbon Monoxide	Good combustion practices & use of pipeline quality natural gas	800.08	LB/HR	HOURLY MAXIMUM	BACT-PSD	0			CO emissions will be monitored with a Continuous Emissions Monitoring System (CEMS).
Combustion Turbines (GEN1 and GEN2)	15.11	Natural Gas	2217	MMBtu/hr	Each combustion turbine rated at 214 MW, with a maximum heat input rate of	Carbon Monoxide	Oxidation Catalyst	1.5	PPM @ 15% O2	1-HR, DEMO LIMIT, W/O DUCT FIRING	BACT-PSD	2	PPM @ 15% O2	1-HR W/DUCT FIRING	During demonstration period, limit without duct firing is 2.0 ppm Mass Emission Limits: w/o duct firing: 7.8 lb/hr (10.4 lb/hr during demonstration
Combustion turbine wih duct burner and heat recovery steam generator	15.11	Natural Gas	40.6	MW	Three (3) General Electric Frame 6B NG fired turbine with duct burners and heat	Carbon Monoxide		2	PPMDV @ 15% O2	1 HR AVG EX DURING STARTUP AND SHUTDOWN	BACT-PSD	276	LB/HR	DURING STARTUP AND SHUTDOWN	3 units
GE LMS-100 combustion turbines, simple cycle with water injection	15.11	natural gas	1690	MMBTU/H		Carbon Monoxide	Oxidation catalyst; Limit the time in startup or shutdown.	6	PPMDV AT 15% O2	3-HR ROLLING AVERAGE ON NG	BACT-PSD	6	PPMDV AT 15% O2	3-HR ROLLING AVERAGE ON ULSD	
Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	15.21	natural gs	2988	MMBTU/H	or ULSD; Duct burner 499 MMBtu/hr, natural gas	Carbon Monoxide	Oxidation catalyst; Limit the time in startup or shutdown.	3.3	PPMDV AT 15% O2	3-HR ROLLING AVERAGE ON NG	BACT-PSD	9	PPMDV AT 15% O2	3-HR ROLLING AVERAGE ON ULSD	
Natural gas-fired turbines	15.11	Natural gas	451	MMBTU/H	Rating is for each turbine.	Carbon Monoxide	Catalytic oxidation system	6	PPMVD	8 HR. ROLLING AVERAGE/EXCEPT STARTUP	BACT-PSD	57.2	LB/H	DURING STARTUP	RBLC Staff: Original Emis Limit 2 Units were Numeric Limit - ‘‘LB‘‘ and Avg Time/Condition - ‘‘1 HR/DURING STARTUP‘‘ The Emission Units
Natural Gas Fired Simple Cycle Turbines	15.11	Natural gas	412	MMBTU/H	The heat input is for a single unit.	Carbon Monoxide	Oxidation Catalyst	6	PPMVD	8-HOUR ROLLING AVERAGE EXCEPT STARTUP	BACT-PSD	31.5	LB	30 MINUTE TOTAL FOR STARTUP	The startup limit is for each unit. The three units are limited to a total combined emission rate of 54.2 pounds per hour (1-hour average) at all
Three simple cycle combustion turbines	15.11	natural gas	799.7	MMBTU/H	Three GE, LMS100PA, natural gas-fired, simple cycle CTG rated at 799.7	Carbon Monoxide	Good Combustion Control and Catalytic Oxidation (CatOx)	10	PPMVD AT 15% O2	1-HR AVE	BACT-PSD	19.8	LB/H	30-DAY ROLLING AVE	Startup limit: 28.0 lb per event Shutdown limit: 36.0 lb per event compliance with BACT limits monitored via continuous emissions monitors.
2 COMBUSTION TURBINES	15.11	NATURAL GAS	130	MW	TWO GENERAL ELECTRIC (GE) FRAME 7EA COMBUSTION TURBINES (CTS) WITH A NOMINAL NET 87.2 MEGAWATT (MW) RATED CAPACITY, COUPLED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG), EQUIPPED WITH DRY LOW-NOX COMBUSTORS, SELECTIVE CATALYTIC REDUCTION SYSTEM (SCR), AND OXIDATION CATALYST	Carbon Monoxide	EXCLUSIVE USE OF FACILITY PROCESS FUEL GAS OR PIPELINE QUALITY NATURAL GAS, USE OF AN OXIDATION CATALYST AND EFFICIENT COMBUSTION	1.5	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE, EXLUDING SU/SD	BACT-PSD	562.4	LB/EVENT	FOR ALL STARTUPS	59.2 LB/SHUTDOWN EVENT. LIMITS ARE TOTAL FOR BOTH FRAME 7 CTS PER STARTUP OR SHUTDOWN EVENT
Turbines and duct burners	15.11	natural gas	228	MW		Carbon Monoxide	good combustion practice and oxidation catalyst	2	PPMVD @ 15% O2	1 H	BACT-PSD	0			Applies to all operating loads, except during startup and shutdown.
Four combined cycle combution turbines	15.21	natural gas	373	MMBTU/H	Three GE, LMS6000 PF, natural gas-fired, combined cycle CTG, rated at 373 MMBtu per hour each, based on HHV and one (1) HRSG each with no Duct Burners	Carbon Monoxide	Good combustion control and catalytic oxidation	4	PPMVD AT 15% O2	1-HR AVE	BACT-PSD	3.3	LB/H	30-DAY ROLLING AVE	startup limit: 140.0 lb per event shutdown limit: 15.0 lb per event compliance is monitored with continuous emissions monitors
Turbine - natural gas and wood	15.9	natural gas and up to 19% wood	107	MW	Natural gas with up to 19% biomass - clean unadulterated wood and/or kiln dried wood (including resinated wood)	Carbon Monoxide		0.095	LB/MMBTU	12 MO	BACT-PSD	0.075	LB/MMBTU	24 H	Includes startups, shutdowns, malfunctions, and upsets. 0.095 LB/MMBTU 12 M 0.075 LB/MMBTU 24 H 0.075 LB/MMBTU 30 D
TURBINE EXHAUST STACK NO. 1 & NO. 2	15.11	NATURAL GAS	1900	MM BTU/H EACH		Carbon Monoxide	DRY LOW NOX COMBUSTORS	781	LB/H	HOURLY MAXIMUM	BACT-PSD	5745.6	LB/H	HOURLY MAXIMUM / STARTUP & SHUTDOWN ONLY	LIMITS ARE PER TURBINE EXHAUST STACK. AGGREGATE CO EMISSIONS FROM BOTH TURBINE EXHAUST STACKS ARE LIMITED TO 1344.53 TONS PER YEAR. STARTUP & SHUTDOWN OPERATIONS ARE LIMITED TO 520 HOURS PER YEAR.

Natural Gas Fired Simple Cycle Turbine Start up/Shut Down CO - RBLC Dataset - Relevant data in Red

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	Startup MSS lb/hr/unit	Shut Down MSS lb/hr/unit	MSS startup lb/hr/MMBtu/hr	MSS Shutdown lb/hr/MMBTU/hr	MSS Startup lb/hr/MW	MSS Shutdown lb/hr/MW
Turbine - natural gas	15.11	natural gas	107	MW		Carbon Monoxide	Limit duration of event/hours per year	Limit duration of event/hours per year				
Turbines - two simple cycle gas	15.11	natural gas	799.7	MMBTU/H each	GE LMS100PA, natural gas fired, simple cycle, combustion turbine.	Carbon Monoxide	55		0.068775791			
Turbines (4), simple cycle, natural gas	15.11	NATURAL GAS	1115.2	MMBTU/hr	Hours per year for all 4 turbines	Carbon Monoxide	413	413	0.370	0.370		
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback)	15.11	Natural Gas	2201	MM BTU/hR	Limited to 600 hr/yr	Carbon Monoxide	800.08	800.08	0.364	0.364		
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback)	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Carbon Monoxide	800.08	800.08	0.364	0.364		
Combustion Turbines (GEN1 and GEN2)	15.11	Natural Gas	2217	MMBtu/hr	Each combustion turbine rated at 214 MW, with a maximum heat input rate of	Carbon Monoxide	416	75.9	0.187640956	0.034235453		
Combustion turbine wih duct burner and heat recovery steam generator	15.11	Natural Gas	40.6	MW	Three (3) General Electric Frame 6B NG fired turbine with duct burners and heat	Carbon Monoxide	92	92			2.266	2.266
GE LMS-100 combustion turbines, simple cycle with water injection	15.11	natural gas	1690	MMBTU/H		Carbon Monoxide	Limit duration of event/hours per year	Limit duration of event/hours per year				
Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	15.21	natural gs	2988	MMBTU/H	or ULSD; Duct burner 499 MMBtu/hr, natural gas	Carbon Monoxide	Limit duration of event/hours per year	Limit duration of event/hours per year				
Natural gas-fired turbines	15.11	Natural gas	451	MMBTU/H	Rating is for each turbine.	Carbon Monoxide	57.2	57.2	0.127	0.127		
Natural Gas Fired Simple Cycle Turbines	15.11	Natural gas	412	MMBTU/H	The heat input is for a single unit.	Carbon Monoxide	31.5	31.5	0.076	0.076		
Three simple cycle combustion turbines	15.11	natural gas	799.7	MMBTU/H	Three GE, LMS100PA, natural gas-fired, simple cycle CTG rated at 799.7	Carbon Monoxide	28	36	0.035	0.045		
2 COMBUSTION TURBINES	15.11	NATURAL GAS	130	MW	TWO GENERAL ELECTRIC (GE) FRAME 7EA COMBUSTION TURBINES (CTS) WITH A NOMINAL NET 87.2 MEGAWATT (MW) RATED CAPACITY, COUPLED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG), EQUIPPED WITH DRY LOW-NOX COMBUSTORS, SELECTIVE CATALYTIC REDUCTION SYSTEM (SCR), AND OXIDATION CATALYST	Carbon Monoxide	80.3	59.2			0.62	0.46
Turbines and duct burners	15.11	natural gas	228	MW		Carbon Monoxide	Limit duration of event/hours per year	Limit duration of event/hours per year				
Four combined cycle combution turbines	15.21	natural gas	373	MMBTU/H	Three GE, LMS6000 PF, natural gas-fired, combined cycle CTG, rated at 373 MMBtu per hour each, based on HHV and one (1) HRSG each with no Duct Burners	Carbon Monoxide	140.0	15.0	0.4	0.04		
Turbine - natural gas and wood	15.9	natural gas and up to 19% wood	107	MW	Natural gas with up to 19% biomass - clean unadulterated wood and/or kiln dried wood (including resinated wood)	Carbon Monoxide	Limit duration of event/hours per year	Limit duration of event/hours per year				
TURBINE EXHAUST STACK NO. 1 & NO. 2	15.11	NATURAL GAS	1900	MM BTU/H EACH		Carbon Monoxide	5745.6	5745.6	3.024	3.024		

Natural Gas Fired Simple Cycle Turbine Start up/Shut Down VOC - RBLC Dataset - Relevant data in Red

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION	CASE-BY-CASE_BASIS	EMISSION_LIMIT_2	EMISSION_LIMIT_2_UNIT	EMISSION_LIMIT_2_AVGERAGE_TIME_CONDITION	POLLUTANT_COMPLIANCE_NOTES
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	15.11	Natural Gas	2201	MM BTU/hR	Limited to 600 hr/yr	Volatile Organic Compounds (VOC)	Good combustion practices & use of pipeline quality natural gas	0			BACT-PSD	0			
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Volatile Organic Compounds (VOC)	Good combustion practices & use of pipeline quality natural gas	0			BACT-PSD	0			
GE LMS-100 combustion turbines, simple cycle with water injection	15.11	natural gas	1690	MMBTU/H		Volatile Organic Compounds (VOC)	Oxidation catalyst; Limit the time in startup or shutdown.	0			BACT-PSD	0			
2 COMBUSTION TURBINES	15.11	NATURAL GAS	130	MW	TWO GENERAL ELECTRIC (GE) FRAME 7EA COMBUSTION TURBINES (CTS) WITH A NOMINAL NET 87.2 MEGAWATT (MW) RATED CAPACITY, COUPLED	Volatile Organic Compounds (VOC)	THE USE OF PROCESS FUEL GAS AND PIPELINE NATURAL GAS, GOOD COMBUSTION PRACTICES, AND USE OF AN OXIDATION CATALYST	0.7	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD	LAER	101.1	LB/EVENT	FOR ALL STARTUPS	4.8 LBS/SHUTDOWN EVENT. LIMITS ARE TOTAL FOR BOTH FRAME 7 CTS PER STARTUP OR SHUTDOWN EVENT
TURBINE EXHAUST STACK NO. 1 & NO. 2	15.11	NATURAL GAS	1900	MM BTU/H EACH		Volatile Organic Compounds (VOC)	DRY LOW NOX COMBUSTORS	7	LB/H	HOURLY MAXIMUM	BACT-PSD	132	LB/H	HOURLY MAXIMUM / STARTUP & SHUTDOWN ONLY	LIMITS ARE PER TURBINE EXHAUST STACK. AGGREGATE VOC EMISSIONS FROM BOTH TURBINE EXHAUST STACKS ARE LIMITED TO 45.24 TONS PER YEAR. STARTUP & SHUTDOWN OPERATIONS ARE LIMITED TO 520 HOURS PER YEAR.

Natural Gas Fired Simple Cycle Turbine Start up/Shut Down VOC - RBLC Dataset - Relevant data in Red

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	Startup MSS lb/hr/unit	Shut Down MSS lb/hr/unit	MSS startup lb/hr/MMBtu/hr	MSS Shutdown lb/hr/MMBTU/hr	MSS Startup lb/hr/MW	MSS Shutdown lb/hr/MW
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	15.11	Natural Gas	2201	MM BTU/hR	Limited to 600 hr/yr	Volatile Organic Compounds (VOC)	Limit duration of event/hours per year	Limit duration of event/hours per year				
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Volatile Organic Compounds (VOC)	Limit duration of event/hours per year	Limit duration of event/hours per year				
GE LMS-100 combustion turbines, simple cycle with water injection	15.11	natural gas	1690	MMBTU/H		Volatile Organic Compounds (VOC)		Limit duration of event/hours per year				
2 COMBUSTION TURBINES	15.11	NATURAL GAS	130	MW	TWO GENERAL ELECTRIC (GE) FRAME 7EA COMBUSTION TURBINES (CTS) WITH A NOMINAL NET 87.2 MEGAWATT (MW) RATED CAPACITY, COUPLED	Volatile Organic Compounds (VOC)	50.55	4.80			0.39	0.04
TURBINE EXHAUST STACK NO. 1 & NO. 2	15.11	NATURAL GAS	1900	MM BTU/H EACH		Volatile Organic Compounds (VOC)	132.00	132.00	0.07	0.07		

Natural Gas Fired Simple Cycle Turbine Start up/Shut Down PM - RBLC Dataset - Relevant data in Red

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION	CASE-BY-CASE_BASIS	EMISSION_LIMIT_2	EMISSION_LIMIT_2_UNIT	EMISSION_LIMIT_2_AVGERAGE_TIME_CONDITION	POLLUTANT_COMPLIANCE_NOTES
Two Simple Cycle Combustion Turbines	15.11	Natural Gas	190	MW	Two simple cycle combustion turbines used for peaking purposes and fired primarily on natural gas with ULSD as a secondary fuel.	Particulate matter, filterable (FPM)	turbine design and good combustion practices	0.0038	LB/MMBTU	3-HOUR BLOCK AVERAGE	BACT-PSD	0.015	LB/MMBTU	3-HOUR BLOCK AVERAGE	Emission 1 (natural gas): 0.0038 lb/mmbtu* Emission 2 (ULSD): 0.0150 lb/mmbtu* *During an hour that includes a startup, the particulate emissions of the turbine shall not exceed 7.5 lb/hr (natural gas) and 32.2 lb/hr (ULSD).
Turbines and duct burners	15.11	natural gas	228	MW		Particulate matter, filterable (FPM)	good combustion practiced and pipeline quality natural gas	0.005	LB/MMBTU	1 H	BACT-PSD	0			Also for PM-10 EPA Method 201/201A or 202 0.005 lb/mmBtu without duct firing 0.006 lb/mmBtu with duct firing Applies to all operating loads, except during startup and shutdown.
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/	15.11	Natural Gas	2201	MM BTU/hr	Limited to 600 hr/yr	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	0			
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/	15.11	Natural Gas	2201	MM BTU/hr	Limited to 600 hr/yr	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	0			
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	0			
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM	BACT-PSD	0			
GE LMS-100 combustion turbines, simple cycle with water injection	15.11	natural gas	1690	MM BTU/hr		Particulate matter, total < 10 µ (TPM10)	Utilize only natural gas or ULSD fuel; Limit the time in startup or shutdown.	9.1	LB/H TOTAL PM	6-HR AVERAGE ON NG	BACT-PSD	22.7	LB/H TOTAL PM	6-HR AVERAGE ON ULSD	
TURBINE EXHAUST STACK NO. 1 & NO. 2	15.11	NATURAL GAS	1900	MM BTU/hr		Particulate matter, total < 2.5 µ (TPM2.5)	USE OF PIPELINE NATURAL GAS	17	LB/H	HOURLY MAXIMUM	BACT-PSD	17	LB/H	HOURLY MAXIMUM / STARTUP & SHUTDOWN ONLY	LIMITS ARE PER TURBINE EXHAUST STACK. AGGREGATE PM2.5 EMISSIONS FROM BOTH TURBINE EXHAUST STACKS ARE LIMITED TO 30.94 TONS PER YEAR. STARTUP & SHUTDOWN OPERATIONS ARE LIMITED TO 520 HOURS PER YEAR.
TURBINE EXHAUST STACK NO. 1 & NO. 2	15.11	NATURAL GAS	1900	MM BTU/hr		Particulate matter, total < 10 µ (TPM10)	USE OF PIPELINE NATURAL GAS	17	LB/H	HOURLY MAXIMUM	BACT-PSD	17	LB/H	HOURLY MAXIMUM / STARTUP & SHUTDOWN ONLY	LIMITS ARE PER TURBINE EXHAUST STACK. AGGREGATE PM10 EMISSIONS FROM BOTH TURBINE EXHAUST STACKS ARE LIMITED TO 30.94 TONS PER YEAR. STARTUP & SHUTDOWN OPERATIONS ARE LIMITED TO 520 HOURS PER YEAR.

Natural Gas Fired Simple Cycle Turbine Start up/Shut Down PM - RBLC Dataset - Relevant data in Red

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	Startup MSS lb/hr/unit	Shut Down MSS lb/hr/unit	MSS startup lb/hr/MMBtu/hr	MSS Shutdown lb/hr/MMBTU/hr	MSS Startup lb/hr/MW	MSS Shutdown lb/hr/MW
Two Simple Cycle Combustion Turbines	15.11	Natural Gas	190	MW	Two simple cycle combustion turbines used for peaking purposes and fired primarily on natural gas with ULSD as a secondary fuel.	Particulate matter, filterable (FPM)	7.5				0.0395	
Turbines and duct burners	15.11	natural gas	228	MW		Particulate matter, filterable (FPM)	-				-	
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/	15.11	Natural Gas	2201	MM BTU/hr	Limited to 600 hr/yr	Particulate matter, total < 2.5 µ (TPM2.5)	6.3		0.00286	0.00286		
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/	15.11	Natural Gas	2201	MM BTU/hr	Limited to 600 hr/yr	Particulate matter, total < 10 µ (TPM10)	6.3		0.00286	0.00286		
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Particulate matter, total < 2.5 µ (TPM2.5)	6.3		0.00286	0.00286		
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Particulate matter, total < 10 µ (TPM10)	6.3		0.00286	0.00286		
GE LMS-100 combustion turbines, simple cycle with water injection	15.11	natural gas	1690	MM BTU/hr		Particulate matter, total < 10 µ (TPM10)	Limit duration of event/hours per year		-	-	-	
TURBINE EXHAUST STACK NO. 1 & NO. 2	15.11	NATURAL GAS	1900	MM BTU/hr		Particulate matter, total < 2.5 µ (TPM2.5)	17		0.00895	0.00895		
TURBINE EXHAUST STACK NO. 1 & NO. 2	15.11	NATURAL GAS	1900	MM BTU/hr		Particulate matter, total < 10 µ (TPM10)	17		0.00895	0.00895		

Natural Gas Fired in-line Fuel Gas Heater NO_x - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
EUFUELHTR2: Natural gas fired fuel heater	13.31	Natural gas	3.8	MMBTU/H	A natural gas-fired 3.8 MMBTU/H heat input HP fuel heater.	Nitrogen Oxides (NOx)	Low NOx burner	0.14	LB/HR	HOURLY
Indirect fuel-gas heater	13.31		2	mmBTU/hr	One (1) indirect fuel-gas heater, rated at 2 mmBtu/hr heat input, which shall only	Nitrogen Oxides (NOx)		0.2	LB/HR	EXCLUDES STARTUP, SHUTDOWN & MALFUNCTION
Fuel Gas Heaters (2 identical, P007 and P008)	13.31	Natural gas	15	MMBTU/H	Two identical Fuel Gas Heaters; 15.0 MMBtu/hr natural gas-fired fuel gas heater with low-	Nitrogen Oxides (NOx)	Low-NOx gas burner	0.3	LB/HR	
Reactor Charge Heater - 53B001	13.31	Natural Gas	10.1	MMBTU/HR		Nitrogen Oxides (NOx)	Ultra-Low NOx Burners (ULNB)	0.4	LB/HR	HOURLY MAXIMUM
Fuel pre-heater (EUFUELHTR)	13.31	natural gas	3.7	MMBTU/H	One natural gas-fired dew point heater for warming the natural gas fuel (EUFUELHTR).	Nitrogen Oxides (NOx)	Good combustion practices.	0.55	LB/HR	TEST PROTOCOL
EUFUELHTR (Fuel pre-heater)	13.31	Natural gas	3.7	MMBTU/H	One natural gas fired dew point heater for warming the natural gas fuel (EUFUELHTR).	Nitrogen Oxides (NOx)	Good combustion practices.	0.55	LB/HR	TEST PROTOCOL WILL SPECIFY AVG TIME.
Startup boiler (B001)	13.31	Natural gas	15.17	MMBTU/H	Startup boiler, natural gas fired with maximum heat input of 15.17 MMBtu/hr.	Nitrogen Oxides (NOx)	Low-NOX burners, good combustion practices and the use of natural gas	0.634	LB/HR	
EUFUELHTR1: Natural gas fired fuel heater	13.31	Natural gas	20.8	MMBTU/H	A natural gas-fired 20.8 MMBTU/H heat input HP fuel heater.	Nitrogen Oxides (NOx)	Low NOx burner	0.75	LB/HR	HOURLY
Recycle Gas Heater - 51B002A	13.31	Natural Gas	33	MMBTU/HR		Nitrogen Oxides (NOx)	Ultra-Low NOx Burners (ULNB)	1.3	LB/HR	HOURLY MAXIMUM
Recycle Gas Heater - 51B002B	13.31	Natural Gas	33	MMBTU/HR		Nitrogen Oxides (NOx)	Ultra-Low NOx Burners (ULNB)	1.3	LB/HR	HOURLY MAXIMUM
Recycle Gas Heater - 51B002C	13.31	Natural Gas	33	MMBTU/HR		Nitrogen Oxides (NOx)	Ultra-Low NOx Burners (ULNB)	1.3	LB/HR	HOURLY MAXIMUM
Recycle Gas Heater - 51B002D	13.31	Natural Gas	33	MMBTU/HR		Nitrogen Oxides (NOx)	Ultra-Low NOx Burners (ULNB)	1.3	LB/HR	HOURLY MAXIMUM
Recycle Gas Heater - 51B002E	13.31	Natural Gas	33	MMBTU/HR		Nitrogen Oxides (NOx)	Ultra-Low NOx Burners (ULNB)	1.3	LB/HR	HOURLY MAXIMUM
NATURAL GAS SPACE HEATERS - 14 UNITS (ID 17)	13.31	NATURAL GAS	20.89	MMBTU/H		Nitrogen Oxides (NOx)		1.99	LB/HR	
Ladle Preheaters (P002, P003 and P004)	13.31	Natural gas	15	MMBTU/H	Three identical Ladle dryers / preheaters, natural gas fired with maximum heat input of	Nitrogen Oxides (NOx)	Good combustion practices and the use of natural gas	2.12	LB/HR	
Regeneraton Heater - 51B001	13.31	Natural Gas	61	MMBTU/HR		Nitrogen Oxides (NOx)	Ultra-Low NOx Burners (ULNB)	2.44	LB/HR	HOURLY MAXIMUM
FGFUELHTR (Two fuel pre-heaters identified as EUFUELHTR1 & EUFUELHTR2)	13.31	Natural gas	27	MMBTU/H	Two natural gas fired dew point heaters for warming the natural gas fuel (EUFUELHTR1	Nitrogen Oxides (NOx)	Good combustion practices.	2.65	LB/HR	HOURLY; EACH UNIT
FUEL GAS HEATER (H2O BATH)	13.31		18.8	MMBTU/H		Nitrogen Oxides (NOx)		2.7	LB/HR	
EQT0028 - PACOL STARTUP HEATER H-202	13.31	natural gas	21	MMBTU/H		Nitrogen Oxides (NOx)	low nox burners	2.71	LB/HR	HOURLY MAXIMUM
SHIFT REACTOR STARTUP HEATER	13.31	NATURAL GAS	34.2	MMBTU/H		Nitrogen Oxides (NOx)	GOOD DESIGN AND PROPER OPERATION	3.35	LB/HR	MAXIMUM
GASIFIER STARTUP PREHEATER BURNERS (5)	13.31	NATURAL GAS	35	MMBTU/H		Nitrogen Oxides (NOx)	GOOD DESIGN AND PROPER OPERATION	3.85	LB/HR	MAXIMUM (EACH)
METHANATION STARTUP HEATERS	13.31	NATURAL GAS	56.9	MMBTU/H		Nitrogen Oxides (NOx)	GOOD DESIGN AND PROPER OPERATION	5.58	LB/HR	MAXIMUM

Natural Gas Fired in-line Fuel Gas Heater NO_x - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
EQT0027 - PACOL CHARGE HEATER H-201	13.31	Natural Gas	87.3	MMBTU/H		Nitrogen Oxides (NOx)	Low NOX Burners	7.15	LB/HR	HOURLY MAXIMUM
Startup Heater (B001)	13.31	Natural gas	100	MMBTU/H	100 mmBtu/hr Startup Heater	Nitrogen Oxides (NOx)	Good combustion control (i.e., high temperatures, sufficient excess air, sufficient residence times, and god air/fuel mixing).	10	LB/HR	
STARTUP HEATER EU-002	13.31	NATURAL GAS	70	MMBTU/HR		Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES	12.611	LB/HR	3 HOUR AVERAGE
AMMONIA START-UP HEATER (102-B)	13.31	NATURAL GAS	59.4	MM BTU/HR	HEATER IS PERMITTED TO OPERATE 500 HOURS PER YEAR.	Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES: PROPER DESIGN OF BURNER AND FIREBOX COMPONENTS; MAINTAINING THE PROPER AIR-TO-FUEL RATIO,	14.65	LB/HR	HOURLY MAXIMUM
Heater	13.31	natural gas	10	MMBTU/H		Nitrogen Oxides (NOx)	low-NOx burners	0.01	LB/MMBTU	
Inlet Air Heater (EP06)	13.31	Natural Gas	16.1	MMBTU/H		Nitrogen Oxides (NOx)	Ultra Low-NOx Burners	0.012	LB/MMBTU	3-HOUR AVERAGE
Inlet Air Heater (EP07)	13.31	Natural Gas	16.1	MMBTU/H		Nitrogen Oxides (NOx)	Ultra Low NOx Burners	0.012	LB/MMBTU	3-HOUR AVERAGE
Inlet Air Heater (EP08)	13.31	Natural Gas	16.1	MMBTU/H		Nitrogen Oxides (NOx)	Ultra Low NOx Burners	0.012	LB/MMBTU	3-HOUR AVERAGE
Inlet Air Heater (EP09)	13.31	Natural Gas	16.1	MMBTU/H		Nitrogen Oxides (NOx)	Ultra Low NOx Burners	0.012	LB/MMBTU	3-HOUR AVERAGE
Inlet Air Heater (EP10)	13.31	Natural Gas	16.1	MMBTU/H		Nitrogen Oxides (NOx)	Ultra Low NOx Burners	0.012	LB/MMBTU	3-HOUR AVERAGE
Inlet Air Heater (EP11)	13.31	Natural Gas	16.1	MMBTU/H		Nitrogen Oxides (NOx)	Ultra Low NOx Burners	0.012	LB/MMBTU	3-HOUR AVERAGE
dew point heater	13.31	natural gas	13.32	mmBtu/hr		Nitrogen Oxides (NOx)		0.013	LB/MMBTU	3-HOUR AVERAGE
WATER HEATERS - UNITS NY037 AND NY038 AT NEW YORK - NEW YORK	13.31	NATURAL GAS	2	MMBTU/H	THE TWO UNITS ARE IDENTICAL RBI FUTURA III WATER HEATERS.THE	Nitrogen Oxides (NOx)	LOW-NOX BURNERS AND GOOD COMBUSTION PRACTICES	0.025	LB/MMBTU	
HOT OIL HEATER S38	13.31	NATURAL GAS	84	MMBTU/H		Nitrogen Oxides (NOx)	LOW NOX BURNERS WITH FLUE GAS RECIRCULATION	0.03	LB/MMBTU	
PREHEATER, GALVANIZING LINE SN-28	13.31	NATURAL GAS	78.2	MMBTU/HR		Nitrogen Oxides (NOx)	SCR, LOW NOX BURNERS, AND COMBUSTION OF CLEAN FUEL AND GOOD COMBUSTION PRACTICES	0.035	LB/MMBTU	
heater	13.31	natural gas	5.5	MMBTU/H		Nitrogen Oxides (NOx)		0.036	LB/MMBTU	1 HOUR
heaters (5)	13.31	natural gas	24.3	MMBTU/H		Nitrogen Oxides (NOx)	ultra low NOx burners	0.036	LB/MMBTU	
Heaters	13.31	natural gas	45	MMBTU/H		Nitrogen Oxides (NOx)	ultra low NOx burners	0.036	LB/MMBTU	
HEATERS	13.31	NATL GAS	31	BTU/HR		Nitrogen Oxides (NOx)	LOW NOX BURNERS, CLEAN FUEL	0.04	LB/MMBTU	
REGENERATION HEATERS	13.31	NATURAL GAS	5.61	MMBTUH	THERE ARE TO BE TWO IDENTICAL HEATERS.	Nitrogen Oxides (NOx)	LOW-NOx BURNERS	0.045	LB/MMBTU	3-HR
HOT OIL HEATER	13.31	NATURAL GAS	17.4	MMBTUH	PROCESS PERTAINS TO TWO(2) IDENTICAL HEATERS.	Nitrogen Oxides (NOx)	LOW-NOx BURNERS.	0.045	LB/MMBTU	3-HR
Hot Oil Heaters and Regeneration Heaters	13.31	Residue gas equivalent to natural gas	60	MMBTU/H	Hot Oil Heaters: 60 MMBtu/hr; Regeneration Heaters: 36 MMBtu/hr	Nitrogen Oxides (NOx)	low NOx burners	0.045	LB/MMBTU	

Natural Gas Fired in-line Fuel Gas Heater NO_x - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Space Heaters	13.31		0		(a) Six (6) Sterling TF-400 natural gas-fired space heaters, identified as HTR 1 through 6,	Nitrogen Oxides (NOx)		0.05	LB/MMBTU	UNITS 1-6, COMBUSTING NATURAL GAS
EUFLTOS1 in FGTOH	13.31	Natural gas	10.2	MMBTU/H	One natural gas-fired thermal oil system for thermally fused lamination lines rated at 10.2	Nitrogen Oxides (NOx)	Good design and combustion practices, low NOx burners.	0.05	LB/MMBTU	TEST PROTOCOL SHALL SPECIFY
GASIFICATION PREHEATER 2	13.31	NATURAL GAS	21	MMBTU/H	500 HOURS OF OPERATION	Nitrogen Oxides (NOx)	LOW NOX BURNERS	0.05	LB/MMBTU	HOURLY
GASIFICATION PREHEATER 3	13.31	NATURAL GAS	21	MMBTU/H	500 HOURS OF OPERATION	Nitrogen Oxides (NOx)	LOW NOX BURNERS	0.05	LB/MMBTU	HOURLY
GASIFICATION PREHEATER 4	13.31	NATURAL GAS	21	MMBTU/H	500 HOURS OF OPERATION	Nitrogen Oxides (NOx)	LOW NOX BURNERS	0.05	LB/MMBTU	HOURLY
GASIFICATION PREHEATER 5	13.31	NATURAL GAS	21	MMBTU/H	500 HOURS OF OPERATION	Nitrogen Oxides (NOx)	LOW NOX BURNERS	0.05	LB/MMBTU	HOURLY
GASIFICATION PREHEATER 1	13.31	NATURAL GAS	21	MMBTU/H	500 HOURS OF OPERATION	Nitrogen Oxides (NOx)	LOW NOX BURNERS	0.05	LB/MMBTU	HOURLY
EUFLTOS1 in FGTOH (Thermal Oil System for Thermally Fused Lamination Lines)	13.31	Natural gas	34	MMBTU/H	One natural gas fired thermal oil system for thermally fused lamination lines rated at 10.2	Nitrogen Oxides (NOx)	Low NOx burners and good design and combustion practices.	0.05	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME
EUTOH (In FGTOH)--Thermal Oil Heater	13.31	Natural gas	34	MMBTU/H	One natural gas fired thermal oil heater for press and sifter rated at 34 MMBTU/H fuel	Nitrogen Oxides (NOx)	Low NOx burners and good design and combustion practices.	0.05	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME
EUTOH in FGTOH	13.31	Natural gas	38	MMBTU/H	One natural gas-fired thermal oil heater for press and sifter rated at 38 MMBTU/hr fuel	Nitrogen Oxides (NOx)	Good design and combustion practices, Low NOx burners.	0.05	LB/MMBTU	TEST PROTOCOL SHALL SPECIFY
Reboiler (dehydrator with reboiler)	13.31	natural gas	4.8	MMBTU/H	4.8 MMBTU/H reboiler	Nitrogen Oxides (NOx)		0.098	LB/MMBTU	TEST METHOD
Heaters (Gas-Fired)	13.31	Natural Gas	0		Numerous gas-fired heaters will be installed. The application requested that the	Nitrogen Oxides (NOx)	Natural Gas Fuel	0.1	LB/MMBTU	
heater	13.31	natural gas	3	MMBTU/H		Nitrogen Oxides (NOx)		0.1	LB/MMBTU	1 HOUR
2 Heaters	13.31	natural gas	5	MMBTU/H	two small heaters (~3 and 5 MMBtu/hr)	Nitrogen Oxides (NOx)		0.1	LB/MMBTU	
Two natural gas heaters	13.31	Natural gas	9.9	MMBtu/hr		Nitrogen Oxides (NOx)	Manufacturer certification	0.1	LB/MMBTU	DESIGN VALUE
Two natural gas heaters	13.31	Natural gas	10	MMBtu/hr	Fueled only with gas. May operate one heater at a time.	Nitrogen Oxides (NOx)	Must have NOx emission design value less than 0.1 lb/MMBtu	0.1	LB/MMBTU	
fuel gas heater	13.31	natural gas	18	MMBTU/H		Nitrogen Oxides (NOx)		0.1	LB/MMBTU	
4 Indirect-Fired Air Preheaters	13.31	Natural gas	0		Four preheaters for 2 production test cells for aviation engines and turbines	Nitrogen Oxides (NOx)		0.14	LB/MMBTU	OPERATING AT 60% TO 100% CAPACITY
Heater	13.31	Propane, field gas, PUC natural gas	3	MMBTU/H		Nitrogen Oxides (NOx)	Low NOx burner	12	PPMVD@3% O2	40 MINUTES
Heaters	13.31	Natural Gas	48	MMBTU/H		Nitrogen Oxides (NOx)	Flue Gas Recirculation	7.62	TON	YEAR

Natural Gas Fired in-line Fuel Gas Heater CO - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
EUFUELHTR2: Natural gas fired fuel heater	13.31	Natural gas	3.8	MMBTU/H	A natural gas-fired 3.8 MMBTU/H heat input HP fuel heater.	Carbon Monoxide	Good combustion controls	0.14	LB/HR	HOURLY
Indirect fuel-gas heater	13.31		2	mmBTU/hr	One (1) indirect fuel-gas heater, rated at 2 mmBtu/hr heat input, which shall only	Carbon Monoxide		0.16	LB/HR	EXCLUDES STARTUP, SHUTDOWN & MALFUNCTION
FUEL GAS HEATER (H2O BATH)	13.31		18.8	MMBTU/H		Carbon Monoxide		0.39	LB/HR	
Fuel pre-heater (EUFUELHTR)	13.31	natural gas	3.7	MMBTU/H	One natural gas-fired dew point heater for warming the natural gas fuel (EUFUELHTR).	Carbon Monoxide	Good combustion practices	0.41	LB/HR	TEST PROTOCOL
EUFUELHTR (Fuel pre-heater)	13.31	Natural gas	3.7	MMBTU/H	One natural gas fired dew point heater for warming the natural gas fuel (EUFUELHTR).	Carbon Monoxide	Good combustion practices.	0.41	LB/HR	TEST PROTOCOL WILL SPECIFY AVG TIME
EUFUELHTR1: Natural gas fired fuel heater	13.31	Natural gas	20.8	MMBTU/H	A natural gas-fired 20.8 MMBTU/H heat input HP fuel heater.	Carbon Monoxide	Good combustion controls.	0.77	LB/HR	HOURLY
Reactor Charge Heater - 53B001	13.31	Natural Gas	10.1	MMBTU/HR		Carbon Monoxide	Combustion controls (proper burner design and operation using natural gas)	0.83	LB/HR	HOURLY MAXIMUM
Fuel Gas Heaters (2 identical, P007 and P008)	13.31	Natural gas	15	MMBTU/H	Two identical Fuel Gas Heaters; 15.0 MMBtu/hr natural gas-fired fuel gas heater with low-	Carbon Monoxide	Combustion control	0.83	LB/HR	
Nitric Acid Preheaters No. 1 (EU 401, EUG 4)	13.31	Natural Gas	20	MMBTUH		Carbon Monoxide	good combustion practices	1.65	LB/HR	1-HR, 8-HR
Nitric Acid Preheater No3 (EU 402, EUG 4)	13.31	Natural Gas	20	mmbtu/h		Carbon Monoxide	good combustion	1.65	LB/HR	1-HR/8-HR
NITRIC ACID PREHEATERS #1, #3, AND #4	13.31	NATURAL GAS	20	MMBTU/H	THE NITRIC ACID PLANT PREHEATERS ARE USED TO PREHEAT THE PROCESS AIR	Carbon Monoxide	GOOD COMBUSTION PRACTICES.	1.65	LB/HR	1-HOUR/8-HOUR
NATURAL GAS SPACE HEATERS - 14 UNITS (ID 17)	13.31	NATURAL GAS	20.89	MMBTU/H		Carbon Monoxide		1.67	LB/HR	
GASIFIER STARTUP PREHEATER BURNERS (5)	13.31	NATURAL GAS	35	MMBTU/H		Carbon Monoxide	GOOD DESIGN AND PROPER OPERATION	1.96	LB/HR	MAXIMUM (EACH)
FGFUELHTR (Two fuel pre-heaters identified as EUFUELHTR1 & EUFUELHTR2)	13.31	Natural gas	27	MMBTU/H	Two natural gas fired dew point heaters for warming the natural gas fuel (EUFUELHTR1	Carbon Monoxide	Good combustion practices.	2.22	LB/HR	HOURLY; EACH UNIT
STARTUP HEATER EU-002	13.31	NATURAL GAS	70	MMBTU/HR		Carbon Monoxide	GOOD COMBUSTION PRACTICES	2.556	LB/HR	3 HOUR AVERAGE
Recycle Gas Heater - 51B002A	13.31	Natural Gas	33	MMBTU/HR		Carbon Monoxide	Combustion controls (proper burner design and operation using natural gas)	2.67	LB/HR	HOURLY MAXIMUM
Recycle Gas Heater - 51B002B	13.31	Natural Gas	33	MMBTU/HR		Carbon Monoxide	Combustion controls (proper burner design and operation using natural gas)	2.67	LB/HR	HOURLY MAXIMUM
Recycle Gas Heater - 51B002C	13.31	Natural Gas	33	MMBTU/HR		Carbon Monoxide	Combustion controls (proper burner design and operation using natural gas)	2.67	LB/HR	HOURLY MAXIMUM
Recycle Gas Heater - 51B002D	13.31	Natural Gas	33	MMBTU/HR		Carbon Monoxide	Combustion controls (proper burner design and operation using natural gas)	2.67	LB/HR	HOURLY MAXIMUM
Recycle Gas Heater - 51B002E	13.31	Natural Gas	33	MMBTU/HR		Carbon Monoxide	Combustion controls (proper burner design and operation using natural gas)	2.67	LB/HR	HOURLY MAXIMUM
SHIFT REACTOR STARTUP HEATER	13.31	NATURAL GAS	34.2	MMBTU/H		Carbon Monoxide	GOOD DESIGN AND PROPER OPERATION	2.82	LB/HR	MAXIMUM
AMMONIA START-UP HEATER (102-B)	13.31	NATURAL GAS	59.4	MM BTU/HR	HEATER IS PERMITTED TO OPERATE 500 HOURS PER YEAR.	Carbon Monoxide	GOOD COMBUSTION PRACTICES: PROPER DESIGN OF BURNER AND FIREBOX COMPONENTS; MAINTAINING THE PROPER AIR-TO-FUEL RATIO,	2.97	LB/HR	HOURLY MAXIMUM

Natural Gas Fired in-line Fuel Gas Heater CO - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
METHANATION STARTUP HEATERS	13.31	NATURAL GAS	56.9	MMBTU/H		Carbon Monoxide	GOOD DESIGN AND PROPER OPERATION	4.69	LB/HR	MAXIMUM
Regeneraton Heater - 51B001	13.31	Natural Gas	61	MMBTU/HR		Carbon Monoxide	Combustion controls (proper burner design and operation using natural gas)	5	LB/HR	HOURLY MAXIMUM
75 MILLION BTU/HR BACKUP THERMAL OIL HEATER	13.31	NATURAL GAS	75	MMBTU/H	THE THERMAL OIL HEATER IS A STAND-ALONE NATURAL GAS FIRED HEATER USED TO	Carbon Monoxide	TUNE-UPS AND INSPECTIONS WILL BE PERFORMED AS OUTLINED THE GOOD MANAGEMENT PRACTICE PLAN.	6	LB/HR	
Startup Heater (B001)	13.31	Natural gas	100	MMBTU/H	100 mmBtu/hr Startup Heater	Carbon Monoxide	good combustion control (i.e., high temperatures, sufficient excess air, sufficient residence times, and god air/fuel mixing)	8.24	LB/HR	
No. 6 Ammonia Plant Start-up Heater (4-13, EQT 158)	13.31	Natural Gas	94.5	MM Btu/hr	Heater permitted for 96 hours per year of operation.	Carbon Monoxide	Good combustion practices; proper engineering design	7.78	LB/HR	HOURLY MAXIMUM
Startup Heater	13.31	natural gas	58.8	MMBTU/H	Limited to 5.76 MMCF of natural gas/yr	Carbon Monoxide	good operating practices & use of natural gas	0.0194	LB/MMBTU	AVERAGE OF THREE (3) STACK TEST RUNS
HOT OIL HEATER S38	13.31	NATURAL GAS	84	MMBTU/H		Carbon Monoxide	GOOD COMBUSTION PRACTICES	0.02	LB/MMBTU	
WATER HEATERS - UNITS NY037 AND NY038 AT NEW YORK - NEW YORK	13.31	NATURAL GAS	2	MMBTU/H	THE TWO UNITS ARE IDENTICAL RBI FUTURA III WATER HEATERS.THE	Carbon Monoxide	LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES	0.035	LB/MMBTU	
Space Heaters	13.31		0		(a) Six (6) Sterling TF-400 natural gas-fired space heaters, identified as HTR 1	Carbon Monoxide		0.038	LB/MMBTU	WHEN COMBUSTING NATURAL GAS
heater	13.31	natural gas	3	MMBTU/H		Carbon Monoxide		0.04	LB/MMBTU	1 HOUR
dew point heater	13.31	natural gas	13.32	mmBtu/hr		Carbon Monoxide		0.041	LB/MMBTU	3-HOUR AVERAGE
CRACKING FURNACES A-D	13.31		90	MMBTU/H EA.		Carbon Monoxide	GOOD COMBUSTION PRACTICES AND USE OF NATURAL GAS AS FUEL	0.046	LB/MMBTU	THREE ONE-HOUR TEST AVERAGE
fuel gas heater	13.31	natural gas	18	MMBTU/H		Carbon Monoxide		0.054	LB/MMBTU	
heater	13.31	natural gas	5.5	MMBTU/H		Carbon Monoxide		0.08	LB/MMBTU	1 HOUR
Reactor Heater, 5	13.31	NATURAL GAS	12	MMBTU/H	Five 12 MMBTU/H reactor heaters, equipped with low-NOx burners	Carbon Monoxide		0.08	LB/MMBTU	3-HR AVERAGE
Regeneration Heater, methanol to gasoline	13.31	NATURAL GAS	13	MMBTU/H	13 MMBTU/H methanol-to-gasoline regeneration heater, equipped with low-NOx burner	Carbon Monoxide		0.08	LB/MMBTU	3-HR AVERAGE
Inlet Air Heater (EP06)	13.31	Natural Gas	16.1	MMBTU/H		Carbon Monoxide	good combustion practices	0.08	LB/MMBTU	3-HOUR AVERAGE
Inlet Air Heater (EP07)	13.31	Natural Gas	16.1	MMBTU/H		Carbon Monoxide	good combustion practices	0.08	LB/MMBTU	3-HOUR AVERAGE
Inlet Air Heater (EP08)	13.31	Natural Gas	16.1	MMBTU/H		Carbon Monoxide	good combustion practices	0.08	LB/MMBTU	3-HOUR AVERAGE
Inlet Air Heater (EP09)	13.31	Natural Gas	16.1	MMBTU/H		Carbon Monoxide	good combustion practices	0.08	LB/MMBTU	3-HOUR AVERAGE
Inlet Air Heater (EP10)	13.31	Natural Gas	16.1	MMBTU/H		Carbon Monoxide	good combustion practices	0.08	LB/MMBTU	3-HOUR AVERAGE
Inlet Air Heater (EP11)	13.31	Natural Gas	16.1	MMBTU/H		Carbon Monoxide	good combustion practices	0.08	LB/MMBTU	3-HOUR AVERAGE

Natural Gas Fired in-line Fuel Gas Heater CO - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
GASIFICATION PREHEATER 2	13.31	NATURAL GAS	21	MMBTU/H	500 HOURS OF OPERATION	Carbon Monoxide	GOOD COMBUSTION PRACTICES	0.08	LB/MMBTU	HOURLY
GASIFICATION PREHEATER 3	13.31	NATURAL GAS	21	MMBTU/H	500 HOURS OF OPERATION	Carbon Monoxide	GOOD COMBUSTION PRACTICES	0.08	LB/MMBTU	HOURLY
GASIFICATION PREHEATER 4	13.31	NATURAL GAS	21	MMBTU/H	500 HOURS OF OPERATION	Carbon Monoxide	GOOD COMBUSTION PRACTICES	0.08	LB/MMBTU	HOURLY
GASIFICATION PREHEATER 5	13.31	NATURAL GAS	21	MMBTU/H	500 HOURS OF OPERATION	Carbon Monoxide	GOOD COMBUSTION PRACTICES	0.08	LB/MMBTU	HOURLY
GASIFICATION PREHEATER 1	13.31	NATURAL GAS	21	MMBTU/H	500 HOURS OF OPERATION	Carbon Monoxide	GOOD COMBUSTION PRACTICES	0.08	LB/MMBTU	HOURLY
EUFLTOS1 in FGTOH	13.31	Natural gas	10.2	MMBTU/H	One natural gas-fired thermal oil system for thermally fused lamination lines rated at 10.2	Carbon Monoxide	Good design and operation.	0.082	LB/MMBTU	TEST PROTOCOL SHALL SPECIFY
EUFLTOS1 in FGTOH (Thermal Oil System for Thermally Fused Lamination Lines)	13.31	Natural gas	34	MMBTU/H	One natural gas fired thermal oil system for thermally fused lamination lines rated at 10.2	Carbon Monoxide	Good design and operation	0.082	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME
EUTOH (In FGTOH)--Thermal Oil Heater	13.31	Natural gas	34	MMBTU/H	One natural gas fired thermal oil heater for press and sifter rated at 34 MMBTU/H fuel	Carbon Monoxide	Good design and operation	0.082	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME.
EUTOH in FGTOH	13.31	Natural gas	38	MMBTU/H	One natural gas-fired thermal oil heater for press and sifter rated at 38 MMBTU/hr fuel	Carbon Monoxide	Good design and operation.	0.082	LB/MMBTU	TEST PROTOCOL SHALL SPECIFY
Thermal Oxidizer	13.31	NATL GAS	71.3	MMBTU/HR	Two thermal oxidizers to burn acid gas from natural gas Acid Gas Removal Units for Trains 1	Carbon Monoxide	Natural Gas / Clean Fuel, good combustion practices.	0.082	LB/MMBTU	
REGENERATION HEATERS	13.31	NATURAL GAS	5.61	MMBTUH	THERE ARE TO BE TWO IDENTICAL HEATERS.	Carbon Monoxide	GOOD COMBUSTION PRACTICES.	0.0824	LB/MMBTU	3-HR
HOT OIL HEATER	13.31	NATURAL GAS	17.4	MMBTUH	PROCESS PERTAINS TO TWO(2) IDENTICAL HEATERS.	Carbon Monoxide	Efficient design and combustion.	0.0824	LB/MMBTU	3-HR
FURNACES SN-40 AND SN-42, DECARBURIZING LINE	13.31	NATURAL GAS	22	MMBTU/H		Carbon Monoxide	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	0.0824	LB/MMBTU	
PREHEATER, GALVANIZING LINE SN-28	13.31	NATURAL GAS	78.2	MMBTU/HR		Carbon Monoxide	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	0.0824	LB/MMBTU	
Heaters (Gas-Fired)	13.31	Natural Gas	0		Numerous gas-fired heaters will be installed. The application requested that the	Carbon Monoxide	Natural Gas Fuel.	0.084	LB/MMBTU	
4 Indirect-Fired Air Preheaters	13.31	Natural gas	0		Four preheaters for 2 production test cells for aviation engines and turbines	Carbon Monoxide		0.15	LB/MMBTU	
heaters (5)	13.31	natural gas	24.3	MMBTU/H		Carbon Monoxide	clean fuel and good combustion practices	50	PPMVD @ 3% O2	ANNUAL
Heaters	13.31	natural gas	45	MMBTU/H		Carbon Monoxide	clean fuel and good combustion practices	50	PPMVD @ 3% O2	ANNUAL
2 Heaters	13.31	natural gas	5	MMBTU/H	two small heaters (~3 and 5 MMBtu/hr)	Carbon Monoxide		100	PPMVD @ 3% O2	@3% O2
Heater	13.31	natural gas	10	MMBTU/H		Carbon Monoxide		100	PPMVD @ 3% O2	@3% O2
Hot Oil Heaters and Regeneration Heaters	13.31	Residue gas equivalent to natural gas	60	MMBTU/H	Hot Oil Heaters: 60 MMBtu/hr; Regeneration Heaters: 36 MMBtu/hr	Carbon Monoxide	Good combustion practices and firing of residue gas with low carbon content	50	PPMVD @ 3% O2	
Heaters	13.31	Natural Gas	48	MMBTU/H		Carbon Monoxide	Best combustion practices	17.39	TON	YEAR

Natural Gas Fired in-line Fuel Gas Heater CO - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
WSA Preheat Burners	13.31	Natural Gas	0			Carbon Monoxide	good engineering design and practices and use of clean fuels	0		
Heaters	13.31	Natural Gas	3	MMBTU/H		Carbon Monoxide	Good Combustion Practices	0		
Regenerative Heaters	13.31	natural gas	7.37	mm btu/hr		Carbon Monoxide	good combustion practices	0		
Heaters	13.31	Natural Gas	10	MMBTU/H		Carbon Monoxide	Good combustion Practices	0		
Heaters	13.31	Natural Gas	17	MMBTU/H		Carbon Monoxide	Good Combustion Practices	0		
Gasifier Start-up Preheat Burners	13.31	Natural gas	23	MM BTU/hr (each)		Carbon Monoxide	good engineering practices, good combustion technology, and use of clean fuels	0		
FACE PRIMARY DRYER	13.31	NATURAL GAS	45	MMBTU/H	NATURAL GAS FIRED, LOW-NOX BURNER USED IN THE PRIMARY FACE DRYER OF AN	Carbon Monoxide	GOOD COMBUSTION PRACTICES AND NATURAL GAS AS FUEL	0		
CORE PRIMARY DRYER	13.31	NATURAL GAS	45	MMBTU/H	NATURAL GAS FIRED, LOW-NOX BURNER USED IN THE PRIMARY CORE DRYER OF AN	Carbon Monoxide	GOOD COMBUSTION PRACTICES AND NATURAL GAS AS FUEL	0		

Natural Gas Fired in-line Fuel Gas Heater VOC - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Startup Heater	13.31	natural gas	58.8	MMBTU/H	Limited to 5.76 MMCF of natura	Volatile Organic Compound	good operating practices & use of natural gas	0.0014	LB/MMBTU	AVERAGE OF THREE (3) STACK TEST RUNS
AUXILIARY BOILER	13.31	Natural Gas	40	MMBTU/H		Volatile Organic Compounds (VOC)		0.0015	LB/MMBTU	
Auxiliary boiler	13.31	natural gas	60	MMBTU/H	Limited to 4,500 H/YR	Volatile Organic Compounds (VOC)	good combustion practice	0.0015	LB/MMBTU	1 H
Auxiliary Boiler	13.31	natual gas	25.06	MMBtu/h		Volatile Organic Compounds (VOC)	good combustion practices	0.0017	LB/MMBTU	3 HOUR AVERAGE
AUXILLARY BOILER	13.31	NATURAL GAS	93	MMBTU/H	NATURAL GAS FUEL ONLY, OPERATION OF LOW-NOX BURNER TECHNOLOGY, FLUE	Volatile Organic Compounds (VOC)	EXCLUSIVE USE OF NATURAL GAS, AND GOOD COMBUSTION PRACTICES	0.002	LB/MMBTU	3-HOUR AVERAGE BLOCK
AUXILIARY BOILER	13.31	PIPELINE QUALITY NATURAL GAS	93	MMBTU/H	ONE AUXILIARY BOILER WITH ULTRA-LOW NOX BURNER (ULNB) AND FLUE GAS	Volatile Organic Compounds (VOC)	EFFICIENT BOILER DESIGN, EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS, THE USE OF ULTRA-LOW NOX BURNERS, AND GOOD	0.002	LB/MMBTU	3-HOUR BLOCK AVERAGE
Boilers	13.31	natural gas	25.1	MMBTU/H		Volatile Organic Compounds (VOC)	Good equipment design and proper combustion techniques	0.003	LB/MMBTU	NATURAL GAS FIRED
AUXILIARY BOILER	13.31	NATURAL GAS	42	MMBTU/H	PIPELINE QUALITY NATURAL GAS FUEL ONLY, OPERATION OF ULTRA LOW-NOX BURNER	Volatile Organic Compounds (VOC)	EXCLUSIVE USE OF NATURAL GAS, AND GOOD COMBUSTION PRACTICES	0.003	LB/MMBTU	3-HOUR BLOCK AVERAGE
Four(4) Natural Gas Boilers - 46 MMBtu/hour	13.31	Natural Gas	46	MMBTU/H	The four natural gas boilers are used to generate the hot water that is used in the lumber kiln	Volatile Organic Compounds (VOC)	Good Combustion Practice	0.003	LB/MMBTU	
NATURAL GAS BOILER EU004	13.31	NATURAL GAS	46	MMBTU/H		Volatile Organic Compounds (VOC)		0.003	LB/MMBTU	3-HOUR
NATURAL GAS BOILER EU005	13.31	NATURAL GAS	46	MMBTU/H		Volatile Organic Compounds (VOC)		0.003	LB/MMBTU	3-HOUR
NATURAL GAS BOILER EU006	13.31	NATURAL GAS	46	MMBTU/H		Volatile Organic Compounds (VOC)		0.003	LB/MMBTU	3-HOUR
AUXILLARY BOILER	13.31	NATURAL GAS	45	MMBTU/H	NATURAL GAS FUEL ONLY, OPERATION OF ULTRA LOW-NOX BURNER TECHNOLOGY,	Volatile Organic Compounds (VOC)	THE EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS, LIMITED HOURS OF OPERATION, AND GOOD COMBUSTION PRACTICES	0.0033	LB/MMBTU	3-HOUR BLOCK AVERAGE
Auxiliary boiler	13.31	natural gas	0			Volatile Organic Compounds (VOC)	Good combustion practice.	0.0038	LB/MMBTU	1 H
EUAUXBOILER (North Plant): Auxiliary Boilder	13.31	Natural gas	61.5	MMBTU/H	A natural gas-fired auxiliary boiler, rated at 61.5 MMBTU/H (HHV) to facilitate startup of	Volatile Organic Compounds (VOC)	Good combustion practices.	0.004	LB/MMBTU	HOURLY
EUAUXBOILER (South Plant): Auxiliary Boiler	13.31	Natural gas	61.5	MMBTU/h	A natural gas-fired auxiliary boiler, rated at 61.5 MMBTU/H (HHV) to facilitate startup of	Volatile Organic Compounds (VOC)	Good combustion practices.	0.004	LB/MMBTU	HOURLY
Auxilary Boiler	13.31	Natural Gas	62.04	MCF/hr	The proposed auxilary boiler will fire NG exclusively with maximum rated heat input	Volatile Organic Compounds (VOC)	Good combustion practices and FGR	0.004	LB/MMBTU	
4 Indirect-Fired Air Preheaters	13.31	Natural gas	0		Four preheaters for 2 production test cells for aviation engines and turbines	Volatile Organic Compounds (VOC)		0.005	LB/MMBTU	
Two natural gas heaters (< 10 MMBtu/hr each)	13.31	Natural gas	9.9	MMBtu/hr	Two natural gas heaters, each less than 10 MMBtu/hr	Volatile Organic Compounds (VOC)		0.005	LB/MMBTU	
Auxillary Boiler	13.31	Natural gas	13.31	MMBtu/hr	Fired only on natural gas supplied by a public utility. Limited to 4000 hrs per year on	Volatile Organic Compounds (VOC)		0.005	LB/MMBTU	30-DAY ROLLING BASIS
Auxiliary boiler	13.31	natural gas	39.8	MMBTU/H		Volatile Organic Compounds (VOC)	Utilize Low-NOx burners and FGR.	0.005	LB/MMBTU	3-HR BLOCK AVERAGE
FG-AUXBOILER1-2; Two (2) natural gas-fired auxiliary boilers.	13.31	natural gas	40	MMBTU/H	Two (2) natural gas-fired auxiliary boilers. 40 MMBTU/H each. Fuel restriction = 360.8	Volatile Organic Compounds (VOC)	Good combustion practices.	0.005	LB/MMBTU	TEST PROTOCOL; EACH UNIT.

Natural Gas Fired in-line Fuel Gas Heater VOC - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Auxilary Boiler	13.31	Natural Gas	55.4	MMBtu/hr	Shall construct qualifying small gas combustion units capable of reducing nitrogen oxides	Volatile Organic Compounds (VOC)		0.005	LB/MMBTU	
auxiliary boiler	13.31	natural gas	60.1	mmBtu/hr	fuel limit of 288.7 million cubic feet of natural gas per 12-month rolling period	Volatile Organic Compounds (VOC)		0.005	LB/MMBTU	AVERAGE OF 3 ONE-HOUR TEST RUNS
AUXILIARY BOILER	13.31	Natural Gas	66.7	MMBTU/H	The auxiliary boiler will provide steam to the steam turbine at start-up and at cold starts to	Volatile Organic Compounds (VOC)	Clean fuel and good combustion practices	0.005	LB/MMBTU	
TWO (2) NATURAL GAS AUXILIARY BOILERS	13.31	NATURAL GAS	80	MMBTU/H	BOTH BOILERS, LABELED AS B001 AND B002, ARE EQUIPPED WITH LOW NOX	Volatile Organic Compounds (VOC)	GOOD COMBUSTION PRACTICES	0.005	LB/MMBTU	3 HOURS
Space Heaters	13.31		0		(a) Six (6) Sterling TF-400 natural gas-fired space heaters, identified as HTR 1 through 6,	Volatile Organic Compounds (VOC)		0.0053	LB/MMBTU	WHEN COMBUSTING NATURAL GAS
Boiler No. 2	13.31	Natural Gas	0		29.113 MMBtu/hr rated heat input capacity	Volatile Organic Compounds (VOC)	Work Practice Standards	0.0054	LB/MMBTU	
WATER HEATERS - UNITS NY037 AND NY038 AT NEW YORK - NEW YORK	13.31	NATURAL GAS	2	MMBTU/H	THE TWO UNITS ARE IDENTICAL RBI FUTURA III WATER HEATERS.THE	Volatile Organic Compounds (VOC)	LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES	0.0054	LB/MMBTU	
Reboiler (dehydrator with reboiler)	13.31	natural gas	4.8	MMBTU/H	4.8 MMBTU/H reboiler	Volatile Organic Compounds (VOC)	Thermal oxidizer	0.0054	LB/MMBTU	TEST METHOD
Refinery Boiler	13.31	Natural Gas	5	MMBTUH		Volatile Organic Compounds (VOC)	Good Combustion	0.0054	LB/MMBTU	3-HOUR AVG
EUFLTOS1 in FGTOH	13.31	Natural gas	10.2	MMBTU/H	One natural gas-fired thermal oil system for thermally fused lamination lines rated at 10.2	Volatile Organic Compounds (VOC)	Good design and operating/combustion practices.	0.0054	LB/MMBTU	TEST PROTOCOL SHALL SPECIFY
Commercial/Institutional Boilers (<100 MMBTUH)	13.31	Natural Gas	11.04	MMBTUH		Volatile Organic Compounds (VOC)		0.0054	LB/MMBTU	
BOILER - UNIT FL01	13.31	NATURAL GAS	14.34	MMBTU/H	UNIT FL01 IS A JOHNSTON BOILER AT FLAMINGO LAS VEGAS. THIS UNIT MAY	Volatile Organic Compounds (VOC)	FLUE GAS RECIRCULATION	0.0054	LB/MMBTU	
BOILER - UNIT BA01	13.31	NATURAL GAS	16.8	MMBTU/H	UNIT BA01 IS A KEWANEE BOILER AT BALLY'S LAS VEGAS. UNIT BA01 IS IDENTICAL TO	Volatile Organic Compounds (VOC)	FLUE GAS RECIRCULATION	0.0054	LB/MMBTU	
FURNACES SN-40 AND SN-42, DECARBURIZING LINE	13.31	NATURAL GAS	22	MMBTU/H		Volatile Organic Compounds (VOC)	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	0.0054	LB/MMBTU	
BOILER - UNIT CP26	13.31	NATURAL GAS	24	MMBTU/H	UNIT CP26 IS A UNILUX BOILER AT CAESAR'S PALACE. THE UNIT IS ALLOWED TO OPERATE	Volatile Organic Compounds (VOC)	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0054	LB/MMBTU	
BOILERS SN-26 AND 27, GALVANIZING LINE	13.31	NATURAL GAS	24.5	MMBTU/H		Volatile Organic Compounds (VOC)	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	0.0054	LB/MMBTU	
BOILER - UNIT BA03	13.31	NATURAL GAS	31.38	MMBTU/H	UNIT BA03 IS A KIWANEE BOLER AT BALLY'S LAS VEGAS. THE ANNUAL OPERATING TIME	Volatile Organic Compounds (VOC)	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0054	LB/MMBTU	
BOILER - UNIT CP03	13.31	NATURAL GAS	33.48	MMBTU/H	UNIT CP03 IS A BURNHAM BOILER AT CAESAR'S PALACE. UNITS CP01 THROUGH CP05	Volatile Organic Compounds (VOC)	OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0054	LB/MMBTU	
EUFLTOS1 in FGTOH (Thermal Oil System for Thermally Fused Lamination Lines)	13.31	Natural gas	34	MMBTU/H	One natural gas fired thermal oil system for thermally fused lamination lines rated at 10.2	Volatile Organic Compounds (VOC)	Good design and operating/combustion practices.	0.0054	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME
EUTOH (In FGTOH)--Thermal Oil Heater	13.31	Natural gas	34	MMBTU/H	One natural gas fired thermal oil heater for press and sifter rated at 34 MMBTU/H fuel	Volatile Organic Compounds (VOC)	Good design and operating/combustion practices.	0.0054	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME
BOILER - UNIT CP01	13.31	NATURAL GAS	35.4	MMBTU/H	UNIT CP01 IS A HURST BOILER AT CAESAR'S PALACE. UNIT CP01 IS IDENTICAL TO UNIT	Volatile Organic Compounds (VOC)	FLUE GAS RECIRCULATION AND OPERATING IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION	0.0054	LB/MMBTU	
EUTOH in FGTOH	13.31	Natural gas	38	MMBTU/H	One natural gas-fired thermal oil heater for press and sifter rated at 38 MMBTU/hr fuel	Volatile Organic Compounds (VOC)	Good design and operating/combustion practices.	0.0054	LB/MMBTU	TEST PROTOCOL SHALL SPECIFY

Natural Gas Fired in-line Fuel Gas Heater VOC - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Five (5) Waste Heat Boilers	13.31	Natural Gas	50	MMBTU/H	Five (5) Natural Gas-Fired 50 MMBtu/hr Waste Heat Boilers. Installed in 1986.	Volatile Organic Compounds (VOC)		0.0054	LB/MMBTU	3-HR AVG
BOILER, PICKLE LINE	13.31	NATURAL GAS	53.7	MMBTU/HR		Volatile Organic Compounds (VOC)	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	0.0054	LB/MMBTU	
Thermal Oxidizer	13.31	NATL GAS	71.3	MMBTU/HR	Two thermal oxidizers to burn acid gas from natural gas Acid Gas Removal Units for Trains 1	Volatile Organic Compounds (VOC)	Natural Gas / Clean Fuel, good combustion practices.	0.0054	LB/MMBTU	
PREHEATER, GALVANIZING LINE SN-28	13.31	NATURAL GAS	78.2	MMBTU/HR		Volatile Organic Compounds (VOC)	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	0.0054	LB/MMBTU	
Natural Gas Fired Boilers (3)	13.31	Natural Gas	100	mm btu/hr		Volatile Organic Compounds (VOC)	Good combustion Practices.	0.0054	LB/MMBTU	
60 MMBTU/HR NATURAL GAS-FIRED BOILER (ES-008)	13.31	NATURAL GAS	60	MMBTU/H		Volatile Organic Compounds (VOC)	GOOD COMBUSTION PRACTICES	0.0054	LB/MMBTU	
Heaters (Gas-Fired)	13.31	Natural Gas	0		Numerous gas-fired heaters will be installed. The application requested that the	Volatile Organic Compounds (VOC)	Natural Gas Fuel.	0.0055	LB/MMBTU	
Natural gas-fied boiler (Boiler B01)	13.31	Natural Gas	35	mmBtu/hr		Volatile Organic Compounds (VOC)	Good combustion practices, use only natural gas, equip boiler with Low NOx burners and flue gas recirculation	0.0055	LB/MMBTU	
DUAL-FIRED 85.6 MMBTU/HR WATER-TUBE BOILER	13.31	NATURAL GAS	85.6	MMBTU/H	BOILER PROVIDES ADDITIONAL STEAM FOR TEH SOYBEAN SOLVENT EXTRACTION.	Volatile Organic Compounds (VOC)	GOOD COMBUSTION PRACTICES	0.0055	LB/MMBTU	TEST METHOD AVG
PACKAGE BOILER	13.31	NATURAL GAS	17.5	MMBTU/H		Volatile Organic Compounds (VOC)	GCP	0.006	LB/MMBTU	
2 CALP LINE BOILERS	13.31	NATURAL GAS	24.59	MMBTU/H	2 IDENTICAL BOILERS	Volatile Organic Compounds (VOC)	GCP	0.006	LB/MMBTU	
Gas-fired Boiler	13.31	Natural Gas	95	MMBTUH		Volatile Organic Compounds (VOC)	Good Combustion	0.006	LB/MMBTU	3-HOUR
Auxiliary Boiler A (EUAUXBOILERA)	13.31	natural gas	55	MMBTU/H	One natural gas-fired auxiliary boiler rated at 55 MMBTU/hr fuel heat input	Volatile Organic Compounds (VOC)	Good combustion control	0.008	LB/MMBTU	TEST PROTOCOL
EUAUXBOILER (Auxiliary boiler)	13.31	natural gas	83.5	MMBTU/H	One natural gas fired auxiliary boiler rated at 83.5 MMBTU/hr fuel heat input	Volatile Organic Compounds (VOC)	Good combustion practices.	0.008	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME
Auxiliary Boiler B (EUAUXBOILERB)	13.31	natural gas	95	MMBTU/H	One natural gas-fired auxiliary boiler rated at 95 MMBtu/hr fuel heat input	Volatile Organic Compounds (VOC)	Good combustion practices	0.008	LB/MMBTU	TEST PROTOCOL
EUAUXBOILER: Auxiliary Boiler	13.31	Natural gas	99.9	MMBTU/H	A natural gas-fired auxiliary boiler, rated at 99.9 MMBTU/H to facilitate startup of the	Volatile Organic Compounds (VOC)	Good combustion practices	0.008	LB/MMBTU	HOURLY
FGAUXBOILERS: Two auxiliary boilers < 100 MMBTU/H heat input each	13.31	natural gas	100	MMBTU/H heat input each	There are two auxiliary boilers each rated at less than 100 MMBTU/H heat input. Fuel	Volatile Organic Compounds (VOC)	Efficient combustion; natural gas fuel.	0.008	LB/MMBTU	HEAT INPUT; TEST PROTOCOL WILL SPECIFY
HOT OIL HEATER S38	13.31	NATURAL GAS	84	MMBTU/H		Volatile Organic Compounds (VOC)	GOOD COMBUSTION PRACTICES	0.02	LB/MMBTU	
AMINE UNIT VOC CONTROL	13.31	NATURAL GAS	72	MMBTU/H		Volatile Organic Compounds (VOC)	THERMAL OXIDIZER	0.04	LB/MMBTU	
BOILER SN-26, GALVANIZING LINE	13.31	NATURAL GAS	53.7	MMBTU/HR		Volatile Organic Compounds (VOC)	COMBUSTION OF NATURAL GAS AND GOOD COMBUSTION PRACTICE	0.054	LB/MMBTU	
Commercial/Institutional Size Boilers (<100 MMBtu) – natural gas	13.31	natural gas	73.3	MMBTU/H		Volatile Organic Compounds (VOC)		4	PPM	1-HR AVG
Auxiliary Boiler	13.31	Natural Gas	80	MMBTU/H		Volatile Organic Compounds (VOC)	oxidation catalyst	11.8	PPMVD@3% O2	1 HR BLOCK AVG, DOES NOT APPLY DURING SS

Natural Gas Fired in-line Fuel Gas Heater PM - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Fuel pre-heater (EUFUELHTR)	13.31	natural gas	3.7	MMBTU/H	One natural gas-fired dew point heater for warming the natural gas fuel (EUFUELHTR).	Particulate matter, filterable (FPM)	Good combustion practices.	0.007	LB/MMBTU	TEST PROTOCOL
EUFUELHTR (Fuel pre-heater)	13.31	Natural gas	3.7	MMBTU/H	One natural gas fired dew point heater for warming the natural gas fuel (EUFUELHTR).	Particulate matter, filterable (FPM)	Good combustion practices.	0.007	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME
WATER HEATERS - UNITS NY037 AND NY038 AT NEW YORK - NEW YORK	13.31	NATURAL GAS	2	MMBTU/H	THE TWO UNITS ARE IDENTICAL RBI FUTURA III WATER HEATERS.THE	Particulate matter, filterable < 10 µ (FPM10)	LIMITING THE FUEL TO NATURAL GAS ONLY AND GOOD COMBUSTION PRACTICES	0.0075	LB/MMBTU	
Fuel pre-heater (EUFUELHTR)	13.31	natural gas	3.7	MMBTU/H	One natural gas-fired dew point heater for warming the natural gas fuel (EUFUELHTR).	Particulate matter, total < 10 µ (TPM10)	Good combustion practices	0.0075	LB/MMBTU	TEST PROTOCOL
Fuel pre-heater (EUFUELHTR)	13.31	natural gas	3.7	MMBTU/H	One natural gas-fired dew point heater for warming the natural gas fuel (EUFUELHTR).	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion pracitces.	0.0075	LB/MMBTU	TEST PROTOCOL
EUFUELHTR (Fuel pre-heater)	13.31	Natural gas	3.7	MMBTU/H	One natural gas fired dew point heater for warming the natural gas fuel (EUFUELHTR).	Particulate matter, total < 10 µ (TPM10)	Good combustion practices.	0.0075	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME
EUFUELHTR (Fuel pre-heater)	13.31	Natural gas	3.7	MMBTU/H	One natural gas fired dew point heater for warming the natural gas fuel (EUFUELHTR).	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion practices.	0.0075	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME.
FGAUXBOILERS	13.31	Natural gas	6	MMBTU/H	Two natural gas-fired auxiliary boilers, each rated at 6 MMBTU/H fuel heat input. The	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and low sulfur fuel (pipeline quality natural gas).	0.0075	LB/MMBTU	TEST PROTOCOL
FGAUXBOILERS	13.31	Natural gas	6	MMBTU/H	Two natural gas-fired auxiliary boilers, each rated at 6 MMBTU/H fuel heat input. The	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion practices and low sulfur fuel (pipeline quality natural gas).	0.0075	LB/MMBTU	TEST PROTOCOL

Natural Gas Fired in-line Fuel Gas Heater GHG - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Heaters (Gas-Fired)	13.31	Natural Gas	0		Numerous gas-fired heaters will be installed. The application requested that the	Carbon Dioxide Equivalent (CO2e)	Natural Gas Fuel	120	LB/MMBTU	
Startup Heater	13.31	natural gas	58.8	MMBTU/H	Limited to 5.76 MMCF of natural gas/yr	Carbon Dioxide	good operating practices & use of natural gas	117	LB/MMBTU	AVERAGE OF THREE (3) STACK TEST RUNS
Startup Heater	13.31	natural gas	58.8	MMBTU/H	Limited to 5.76 MMCF of natural gas/yr	Methane	good operating practices & use of natural gas	0.0023	LB/MMBTU	AVERAGE OF THREE (3) STACK TEST RUNS
Startup Heater	13.31	natural gas	58.8	MMBTU/H	Limited to 5.76 MMCF of natural gas/yr	Nitrous Oxide (N2O)	good operating practices & use of natural gas	0.0006	LB/MMBTU	AVERAGE OF THREE (3) STACK TEST RUNS
PREHEATER, GALVANIZING LINE SN-28	13.31	NATURAL GAS	78.2	MMBTU/HR		Carbon Dioxide	GOOD OPERATING PRACTICES	117	LB/MMBTU	
PREHEATER, GALVANIZING LINE SN-28	13.31	NATURAL GAS	78.2	MMBTU/HR		Methane	GOOD OPERATING PRACTICES	0.0022	LB/MMBTU	
PREHEATER, GALVANIZING LINE SN-28	13.31	NATURAL GAS	78.2	MMBTU/HR		Nitrous Oxide (N2O)	GOOD OPERATING PRACTICES	0.0002	LB/MMBTU	

Diesel Firewater Pump NO_X - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Emergency fire pump	17.21	ultra low sulfur diesel	460	hp		Nitrogen Oxides (NOx)	Compliance demonstrated with vendor emission certification and adherence to vendor-specified maintenance recommendations.	2.6	G/BHP-HR	1 H
Fire Pump	17.21	Diesel	0		The fire pump will be restricted to operate not more than 100 hr/yr.	Nitrogen Oxides (NOx)		2.6	G/BHP-HR	
Fire Pump Engine - 460 BHP	17.21	Diesel	0			Nitrogen Oxides (NOx)		2.6	G/BHP-HR	EXPRESSED AS NO2
FIRE PUMP	17.21		500	HP	OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES	2.83	G/BHP-HR	3-HR AVERAGE
RAW WATER PUMP	17.21	DIESEL, NO. 2	500	HP	OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES	2.83	G/BHP-HR	3-HR AVERAGE
FIRE PUMP	17.21		500	HP	OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES	2.83	G/BHP-HR	3-HR AVERAGE
RAW WATER PUMP	17.21	DIESEL, NO. 2	500	HP	OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES	2.83	G/BHP-HR	3-HR AVERAGE
Emergency Diesel Fire Pump	17.21	ULSD Fuel Oil #2	0		The Emergency Fire Pump is rated at 335 BHP and limited to 500 hr/yr (emergency	Nitrogen Oxides (NOx)		2.85	G/BHP-HR	
DIESEL-FIRED EMERGENCY WATER PUMP	17.21	NO. 2 FUEL OIL	481	BHP	ANNUAL OPERATION LIMITED TO 200 HR,	Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES	2.86	G/BHP-HR	3-HR AVERAGE
EUFPENGINE (Emergency engine--diesel fire pump)	17.21	Diesel	1.66	MMBTU/H	A 260 brake horsepower (bhp) diesel-fueled emergency engine manufactured in 2011	Nitrogen Oxides (NOx)	Good combustion practices and meeting NSPS Subpart IIII requirements.	3	G/BHP-HR	TEST PROTOCOL WILL SPECIFY AVG TIME
EUFPENGINE (South Plant): Fire pump engine	17.21	Diesel	300	HP	A 300 HP diesel-fired emergency fire pump engine with a model year of 2011 or	Nitrogen Oxides (NOx)	Good combustion practices and meeting NSPS Subpart IIII requirements.	3	G/BHP-HR	HOURLY
EUFPENGINE (North Plant): Fire pump engine	17.21	Diesel	300	HP	A 300 HP diesel-fired emergency fire pump engine with a model year of 2011 or	Nitrogen Oxides (NOx)	Good combustion practices and meeting NSPS Subpart IIII requirements.	3	G/BHP-HR	HOURLY
EUFIREPUMPENGS (2 emergency fire pump engines)	17.21	Diesel	250	BHP	EUFIREPUMPENGS - Two (2) diesel-fueled emergency fire pump engines rated at 250	Nitrogen Oxides (NOx)	Good combustion practices.	3	G/BHP-HR	HOURLY; EACH ENGINE (NMHC+NOX)
Firewater Pump Engines	17.21	Diesel	288	hp (each)		Nitrogen Oxides (NOx)	Complying with 40 CFR 60 Subpart IIII	3	G/BHP-HR	
Emergency Diesel Fire Pump, One 600 HP	17.21	ULSD	0			Nitrogen Dioxide (NO2)		3	G/BHP-HR	
TWO (2) FIREWATER PUMP DIESEL ENGINES	17.21	DIESEL	371	BHP, EACH	THE TWO FIREWATER PUMP ENGINES, IDENTIFIED AS FP01 AND FP02, EXHAUSTING	Nitrogen Oxides (NOx)	COMBUSTION DESIGN CONTROLS AND USAGE LIMITS	3	G/BHP-HR	3 HOURS
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRA-LOW SULFUR DIESEL	300	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Nitrogen Oxides (NOx)	EXCLUSIVE USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES, AND LIMITING THE HOURS OF OPERATION	3	G/BHP-HR	N/A
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRA LOW SULFUR DIESEL	477	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Nitrogen Oxides (NOx)	LIMITED OPERATING HOURS, USE OF ULTRA- LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	3	G/BHP-HR	
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRAL LOW SULFUR DIESEL	350	HP	40 CFR 60, SUBPART IIII, GOOD COMBUSTION PRACTICES	Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES, LIMITED HOURS OF OPERATION, AND EXCLUSIVE USE OF ULSD	3	G/BHP-HR	
5 EMERGENCY FIRE WATER PUMP ENGINES	17.21	ULTRA LOW SULFUR DIESEL	350	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES AND DESIGNED TO ACHIEVE EMISSION LIMIT	3	G/BHP-HR	NOX + NMHC
Fire Pump	17.21	Diesel	420	HP	Maximum operation was based on 500 hours per year.	Nitrogen Oxides (NOx)		3	G/BHP-HR	TEST PROTOCOL; BACT/SIP/NSPS
EU-FPENGINE: Diesel fuel fired emergency backup fire pump	17.21	diesel fuel	315	hp nameplate	This is a diesel fuel fired emergency backup fire mump. It has a capacity of 315 hp,	Nitrogen Oxides (NOx)	Proper combustion design and ultra low sulfur diesel fuel.	3	G/BHP-HR	TEST PROTOCOL WILL SPECIFY AVG. TIME.

Diesel Firewater Pump NO_X - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Emergency Engine --Diesel Fire Pump (EUFPENGINE)	17.21	Diesel	165	HP	A 165 hoursepower (hp) diesel-fueled emergency engine manufactured in 2013, iwth a	Nitrogen Oxides (NOx)	Good combustion practices	3	G/BHP-HR	TEST PROTOCOL
EUFPENGINE (Emergency engine--diesel fire pump)	17.21	diesel	500	H/YR	A 165 horsepower (hp) diesel-fueled emergency engine manufactured in 2016 with a	Nitrogen Oxides (NOx)	Good combustion practices.	3	G/BHP-HR	TEST PROTOCOL WILL SPECIFY AVG TIME
Compression ignition RICE emergency fire pump	17.21	Ultra-lowsulfur diesel (ULSD)	197	HP	One (1) compression ignition emergency fire pump engine, rated at 197 HP, which shall	Nitrogen Oxides (NOx)		3	G/BHP-HR	EXCLUDES STARTUP, SHUTDOWN & MALFUNCTION
Emergency Fire Water Pump	17.21	Ultra Low Sulfur Diesel	500	HR/YR	315 BHP	Nitrogen Oxides (NOx)	Good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	3	G/BHP-HR	
Fire Pump Engine	17.21	ULSD	2.7	MMBTU/H	≤ 300 hours of operation per 12-month rolling period S in ULSD: ≤0.0015% by weight	Nitrogen Oxides (NOx)		3	G/BHP-HR	1 HR BLOCK AVG
Fire pump engine	17.21	Ultra-low sulfur diesel	15	gal/hr		Nitrogen Oxides (NOx)		3	G/BHP-HR	
EMERGENCY FIREWATER PUMP ENGINE	17.21	DIESEL	288	HP		Nitrogen Oxides (NOx)	EQUIPPED W/ A TURBOCHARGER AND AN INTERCOOLER/AFTERCOOLER	3.4	G/BHP-HR	
EMERGENCY GENERATOR	17.21	ULTRA-LOW SULFUR DIESEL	1500	KW	40 CFR 60 SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Nitrogen Oxides (NOx)	EXCLUSIVE USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES, AND LIMITING THE HOURS OF OPERATION	4.8	G/BHP-HR	N/A
Airstrip Generator Engine	17.21	Ultra Low Sulfur Diesel	490	hp	One 490 hp Airstrip Generator Engine	Nitrogen Oxides (NOx)		4.8	G/BHP-HR	
Incinerator Generator Engine	17.21	Ultra Low Sulfur Diesel	102	hp	ULSD-fired 102 hp Incinerator Generator Engine	Nitrogen Dioxide (NO2)		4.9	G/BHP-HR	
Agitator Generator Engine	17.21	Ultra Low Sulfur Diesel	98	hp	ULSD-fired 98 hp Agitator Generator Engine	Nitrogen Oxides (NOx)		5.6	G/BHP-HR	
400-KW DIESEL EMERGENCY GENERATOR	17.21	#2 Oil	29.2	GAL/H		Nitrogen Oxides (NOx)		6.9	G/BHP-HR	
4 Diesel-fired quench pumps	17.21	Diesel fuel	252	HP	Each pump engine is 252 HP. They are limited to emergency use and subject to NSPS	Nitrogen Oxides (NOx)	Good combustion practices.	7.8	G/BHP-HR	QP1&QP2 EACH; TEST PROTOCOL
EMERGENCY FIRE PUMP ENGINE	17.21	DISTILLATE OIL	0		425 HP	Nitrogen Oxides (NOx)	GOOD COMBUSTION PRACTICES	9.5	G/BHP-HR	
Emergency Diesel Generators	17.21	Deisel	150	hp	2 units at 75 hp, 1 unit at 150 hp	Nitrogen Oxides (NOx)		14.06	G/BHP-HR	
FIRE PUMP DIESEL ENGINE	17.21	NO 2 DIESEL	214	kW		Nitrogen Oxides (NOx)	Meets EPA Tier 4 requirements	0.4	G / KWH	HR
Internal Combustion Engine - 450 bhp	17.21	diesel	450	bhp	Model qsx15-c- Cummins	Nitrogen Oxides (NOx)		1.8	G / KWH	
Firewater Pump Engine	17.21	distillate fuel oil	373	hp		Nitrogen Oxides (NOx)	Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7.	3.5	G / KWH	
Fire Pump Diesel Internal Combustion Engines	17.21	Diesel	252	hp	Three (3) 252 hp fire pump diesel internal combustion engines.	Nitrogen Oxides (NOx)	Good Combustion Practices	3.7	G / KWH	3-HOUR AVERAGE
Fire Pump	17.21	diesel fuel	14	GAL/H	rated @ 235 KW	Nitrogen Oxides (NOx)	good combustion practices	3.75	G / KWH	AVERAGE OF 3 STACK TEST RUNS
EMERGENCY FIREWATER PUMP ENGINE	17.21	DIESEL	135	KW	135 KW (182 hp) IC Diesel-fired Emergency Firewater Pump Engine	Nitrogen Oxides (NOx)	OPERATIONAL RESTRICTION OF 50 HR/YR, OPERATE AS REQUIRED FOR FIRE SAFETY TESTING	3.8	G / KWH	
Emergency fire pump engine, 300 HP	17.21	Diesel	29	MMBTU/H	Emergency engine. ULSD only. BACT limits equal NSPS IIII limits.	Nitrogen Oxides (NOx)	Low-emitting fuel and certified engine	4	G / KWH	NMHC + NOX (SUBPART IIII)

Diesel Firewater Pump NO_X - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
EMERGENCY IC ENGINE	17.21	DIESEL	182	HP	UNIT IS 135 KW.	Nitrogen Oxides (NOx)		4	G / KWH	3-HR AVG
250 Kw Emergency Generator	17.21	ULSD	0			Nitrogen Oxides (NOx)	Use of inherently clean ultra low sulfur distillate (ULSD) fuel oil and GCP	4	G / KWH	
FIRE PUMP ENGINE	17.21	DIESEL	235	KW	COMPRESSION IGNITION INTERNAL COMBUSTION (CI ICE)	Nitrogen Oxides (NOx)	TIER 3 ENGINE-BASED GOOD COMBUSTION PRACTICES (GCP)	4	G / KWH	NOX+NMHC
Emergency Diesel Engine Pump P-39A	17.21	Diesel Fuel	375	HP	Emergency Engine	Nitrogen Oxides (NOx)	Good combustion practices and NSPS IIII	4	G / KWH	
Emergency Diesel Engine Pump P-39B	17.21	Diesel Fuel	300	HP	Emergency Engine	Nitrogen Oxides (NOx)	Good combustion practices and NSPS Subpart IIII	4	G / KWH	
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRA-LOW SULFUR DIESEL	305	HP	40 CFR 60, SUBPART IIII, 40 CFR 63 SUBPART ZZZZ, ULTRA LOW-SULFURDIESEL FUEL, GOOD	Nitrogen Oxides (NOx)	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	4	G / KWH	
DIESEL-FIRED FIRE PUMP ENGINE	17.21	ULTRA-LOW SULFUR DIESEL	300	HP	ONE DIESEL-FIRED FIRE PUMP ENGINE, RATED AT A NOMINAL 300-HORSEPOWER. SUBJECT	Nitrogen Oxides (NOx)	EXCLUSIVE USE OF ULTRA LOW SULFUR DIESEL FUEL AND GOOD COMBUSTION PRACTICES	4	G / KWH	
EULIFESAFETYENG - One diesel-fueled emergency engine/generator	17.21	Diesel	500	KW	EULIFESAFETYENG - One (1) diesel-fueled emergency engine/generator rated at 500	Nitrogen Oxides (NOx)	Good combustion practices.	4	G / KWH	HOURLY; NMHC+NOX
EUFPENGINE: Fire pump engine	17.21	Diesel	399	BHP	A 399 brake HP diesel-fueled emergency fire pump engine with a model year of 2011 or	Nitrogen Oxides (NOx)	State of the art combustion design.	4	G / KWH	HOURLY
Emergency Fire Pump Engine (347 HP)	17.21	ULSD	8700	gal/year	Limits equal Subpart IIII limits	Nitrogen Oxides (NOx)	Operate and maintain the engine according to the manufacturer's written instructions	4	G / KWH	
Firewater Pump Engine	17.21	Ultra-Low Sulfur Diesel	420	horsepower	One engine will power the pump in the firewater system. The fuel must meet the	Nitrogen Oxides (NOx)		4	G / KWH	
FIRE PUMP	17.21	DIESEL	500	HP	THE CONSTRUCTION PERMIT AUTHORIZES THE CONSTRUCTION OF ONE (1)	Nitrogen Oxides (NOx)	PURCHASE OF CERTIFIED ENGINE BASED ON NSPS, SUBPART IIII.	4	G / KWH	
EMERGENCY GENERATOR	17.21	ULTRA-LOW SULFUR DIESEL	1490	HP	40 CFR 60 SUBPART IIII, 40 CFR 63 SUBPART ZZZZ ULTRA LOW-SULFUR DIESEL FUEL, GOOD	Nitrogen Oxides (NOx)	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	6.4	G / KWH	
DIESEL-FIRED AUXILIARY (EMERGENCY) ENGINES (TWO)	17.21	ULTRA-LOW SULFUR DIESEL	1500	KW	TWO DIESEL-FIRED AUXILIARY GENERATORS (EMERGENCY GENERATORS), EACH RATED AT	Nitrogen Oxides (NOx)	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	6.4	G / KWH	
EMERGENCY ENGINE 1 THRU 8	17.21	DIESEL	29	HP	THE CONSTRUCTION PERMIT AUTHORIZES THE CONSTRUCTION OF EIGHT (8)	Nitrogen Oxides (NOx)	PURCHASE OF CERTIFIED ENGINE.	7.5	G / KWH	
Emergency Diesel Generators	17.21	Diesel	250	hp	2 units	Nitrogen Oxides (NOx)		9.2	G / KWH	

Diesel Firewater Pump CO - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
EMERGENCY FIREWATER PUMP ENGINE	17.21	DIESEL	288	HP		Carbon Monoxide	EQUIPPED W/ A TURBOCHARGER AND AN INTERCOOLER/AFTERCOOLER	0.447	G/BHP-HR	
Fire pump engine	17.21	Ultra-low sulfur diesel	15	gal/hr		Carbon Monoxide		0.5	G/BHP-HR	
Fire Pump Engine - 460 BHP	17.21	Diesel	0			Carbon Monoxide		0.5	G/BHP-HR	
Fire Pump	17.21	Diesel	0		The fire pump will be restricted to operate not more than 100 hr/yr.	Carbon Monoxide		0.5	G/BHP-HR	
Emergency fire pump	17.21	ultra low sulfur diesel	460	hp		Carbon Monoxide	Compliance demonstrated with vendor emission certification and adherence to vendor-specified maintenance recommendations.	0.53	G/BHP-HR	1 H
EMERGENCY FIRE PUMP ENGINE	17.21	DISTILLATE OIL	0		425 HP	Carbon Monoxide	GOOD COMBUSTION PRACTICES	2.01	G/BHP-HR	
Airstrip Generator Engine	17.21	Ultra Low Sulfur Diesel	490	hp	One 490 hp Airstrip Generator Engine	Carbon Monoxide		2.6	G/BHP-HR	
Fire Pump Engine	17.21	ULSD	2.7	MMBTU/H	≤ 300 hours of operation per 12-month rolling period S in ULSD: ≤0.0015% by weight	Carbon Monoxide		2.6	G/BHP-HR	1 HR BLOCK AVG
Emergency Diesel Fire Pump, One 600 HP	17.21	ULSD	0			Carbon Monoxide		2.6	G/BHP-HR	
TWO (2) FIREWATER PUMP DIESEL ENGINES	17.21	DIESEL	371	BHP, EACH	THE TWO FIREWATER PUMP ENGINES, IDENTIFIED AS FP01 AND FP02, EXHAUSTING	Carbon Monoxide	COMBUSTION DESIGN CONTROLS AND USAGE LIMITS	2.6	G/BHP-HR	
EMERGENCY FIRE PUMP	17.21	DIESEL	350	HP		Carbon Monoxide	ULTRA LOW SULFUR DIESEL AND GOOD COMBUSTION PRACTICES	2.6	G/BHP-HR	LB/MM BTU
EMERGENCY GENERATOR	17.21	ULTRA-LOW SULFUR DIESEL	1500	KW	40 CFR 60 SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Carbon Monoxide	USE OF ULTRA LOW SULFUR DIESEL AND GOOD COMBUSTION PRACTICES	2.6	G/BHP-HR	N/A
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRA-LOW SULFUR DIESEL	300	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Carbon Monoxide	USE OF ULTRA LOW SULFUR DIESEL AND GOOD COMBUSTION PRACTICES	2.6	G/BHP-HR	N/A
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRA LOW SULFUR DIESEL	477	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Carbon Monoxide	USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES AND HOURS OF OPERATION LIMITED TO 100 HOURS PER YEAR	2.6	G/BHP-HR	
4 Diesel-fired quench pumps	17.21	Diesel fuel	252	HP	Each pump engine is 252 HP. They are limited to emergency use and subject to NSPS	Carbon Monoxide	Good combustion practices.	2.6	G/BHP-HR	EACH PUMP; TEST PROTOCOL
EU-FPENGINE: Diesel fuel fired emergency backup fire pump	17.21	diesel fuel	315	hp nameplate	This is a diesel fuel fired emergency backup fire mump. It has a capacity of 315 hp,	Carbon Monoxide	Proper combustion design and ultra low sulfur diesel fuel.	2.6	G/BHP-HR	TEST PROTOCOL WILL SPECIFY AVG. TIME.
EMERGENCY FIRE PUMP (267-HP DIESEL)	17.21	LOW SULFUR DIESEL	267	HP		Carbon Monoxide		2.6	G/BHP-HR	NSPS
DIESEL-FIRED WATER PUMP 376 bph (1)	17.21	DIESEL FUEL	0		FWP-1: 104.0 tons/year (12-month rolling total)	Carbon Monoxide	Good Combustion Practices/Maintenance	2.6	G/BHP-HR	HR
Emergency Fire Water Pump	17.21	Ultra Low Sulfur Diesel	500	HR/YR	315 BHP	Carbon Monoxide	good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	2.6	G/BHP-HR	
EUFPENGINE (South Plant): Fire pump engine	17.21	Diesel	300	HP	A 300 HP diesel-fired emergency fire pump engine with a model year of 2011 or	Carbon Monoxide	Good combustion practices and meeting NSPS Subpart IIII requirements.	2.6	G/BHP-HR	HOURLY
DIESEL-FIRED EMERGENCY WATER PUMP	17.21	NO. 2 FUEL OIL	481	BHP	ANNUAL OPERATION LIMITED TO 200 HR,	Carbon Monoxide	GOOD COMBUSTION PRACTICES	2.6	G/BHP-HR	3-HR AVERAGE
FIRE PUMP	17.21		500	HP	OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Carbon Monoxide	GOOD COMBUSTION PRACTICES	2.6	G/BHP-HR	3-HR AVERAGE

Diesel Firewater Pump CO - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
RAW WATER PUMP	17.21	DIESEL, NO. 2	500	HP	OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Carbon Monoxide	GOOD COMBUSTION PRACTICES	2.6	G/BHP-HR	3-HR AVERAGE
Emergency Diesel Fire Pump	17.21	ULSD Fuel Oil #2	0		The Emergency Fire Pump is rated at 335 BHP and limited to 500 hr/yr (emergency	Carbon Monoxide		2.6	G/BHP-HR	
FIRE PUMP	17.21		500	HP	OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Carbon Monoxide	GOOD COMBUSTION PRACTICES	2.6	G/BHP-HR	3-HR AVERAGE
RAW WATER PUMP	17.21	DIESEL, NO. 2	500	HP	OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Carbon Monoxide	GOOD COMBUSTION PRACTICES	2.6	G/BHP-HR	3-HR AVERAGE
EUFPENGINE (Emergency engine--diesel fire pump)	17.21	Diesel	1.66	MMBTU/H	A 260 brake horsepower (bhp) diesel-fueled emergency engine manufactured in 2011	Carbon Monoxide	Good combustion practices and meeting NSPS Subpart IIII requirements.	2.6	G/BHP-HR	TEST PROTOCOL WILL SPECIFY AVG. TIME
EUFPENGINE (North Plant): Fire pump engine	17.21	Diesel	300	HP	A 300 HP diesel-fired emergency fire pump engine with a model year of 2011 or	Carbon Monoxide	Good combustion practices and meeting NSPS Subpart IIII requirements.	2.6	G/BHP-HR	HOURLY
5 EMERGENCY FIRE WATER PUMP ENGINES	17.21	ULTRA LOW SULFUR DIESEL	350	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Carbon Monoxide	GOOD COMBUSTION PRACTICES AND DESIGNED TO MEET EMISSION LIMIT	3	G/BHP-HR	
Emergency Diesel Generators	17.21	Diesel	250	hp	2 units	Carbon Monoxide		3.08	G/BHP-HR	
Agitator Generator Engine	17.21	Ultra Low Sulfur Diesel	98	hp	ULSD-fired 98 hp Agitator Generator Engine	Carbon Monoxide		3.7	G/BHP-HR	
Incinerator Generator Engine	17.21	Ultra Low Sulfur Diesel	102	hp	ULSD-fired 102 hp Incinerator Generator Engine	Carbon Monoxide		3.7	G/BHP-HR	
Emergency Engine --Diesel Fire Pump (EUFPENGINE)	17.21	Diesel	165	HP	A 165 hoursepower (hp) diesel-fueled emergency engine manufactured in 2013, iwth a	Carbon Monoxide	Good combustion practices	3.7	G/BHP-HR	TEST PROTOCOL
EUFPENGINE (Emergency engine--diesel fire pump)	17.21	diesel	500	H/YR	A 165 horsepower (hp) diesel-fueled emergency engine manufactured in 2016 with a	Carbon Monoxide	Good combustion practices.	3.7	G/BHP-HR	TEST PROTOCOL WILL SPECIFY AVG TIME
Diesel Fire water pump 376 bhp	17.21	diesel	500	h/yr		Carbon Monoxide	good combustion practices	0.9	G / KWH	
EMERGENCY GEN. UNIT 3 - 300Kw - CU	17.21	FUEL OIL #2 (DIESEL)	300	KW		Carbon Monoxide		3	G / KWH	
Emergency Diesel Generators	17.21	Deisel	150	hp	2 units at 75 hp, 1 unit at 150 hp	Carbon Monoxide		3.08	G / KWH	
Fire Pump Diesel Internal Combustion Engines	17.21	Diesel	252	hp	Three (3) 252 hp fire pump diesel internal combustion engines.	Carbon Monoxide	Good Combustion Practices	3.3	G / KWH	3-HOUR AVERAGE
Emergency fire pump engine, 300 HP	17.21	Diesel	29	MMBTU/H	Emergency engine. ULSD only. BACT limits equal NSPS IIII limits.	Carbon Monoxide	Low-emitting fuel and certified engine	3.5	G / KWH	
Emergency Fire Pump Engine (422 hp)	17.21	ULSD	0		Limits equal Subpart IIII limits	Carbon Monoxide	Certified engine	3.5	G / KWH	
One 422-hp emergency fire pump engine	17.21	ULSD	0		BACT limits equal to NSPS Subpart IIII limits. Will use IIII certified engine.	Carbon Monoxide	Use of clean engine technology	3.5	G / KWH	
EMERGENCY FIREWATER PUMP ENGINE	17.21	DIESEL	135	KW	135 KW (182 hp) IC Diesel-fired Emergency Firewater Pump Engine	Carbon Monoxide	OPERATIONAL RESTRICTION OF 50 HR/YR, OPERATE AS REQUIRED FOR FIRE SAFETY TESTING	3.5	G / KWH	
EMERGENCY IC ENGINE	17.21	DIESEL	182	HP	UNIT IS 135 KW.	Carbon Monoxide		3.5	G / KWH	
250 Kw Emergency Generator	17.21	ULSD	0			Carbon Monoxide	Use of inherently clean ultra low sulfur distillate (ULSD) fuel oil and GCP	3.5	G / KWH	

Diesel Firewater Pump CO - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Fire Pump	17.21	diesel fuel	14	GAL/H	rated @ 235 KW	Carbon Monoxide	good combustion practices	3.5	G / KWH	AVERAGE OF 3 STACK TEST RUNS
Firewater Pump Engine	17.21	distillate fuel oil	373	hp		Carbon Monoxide	Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7.	3.5	G / KWH	
EMERGENCY GENERATOR	17.21	ULTRA-LOW SULFUR DIESEL	1490	HP	40 CFR 60 SUBPART IIII, 40 CFR 63 SUBPART ZZZZ ULTRA LOW-SULFUR DIESEL FUEL, GOOD	Carbon Monoxide	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	3.5	G / KWH	
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRA-LOW SULFUR DIESEL	305	HP	40 CFR 60, SUBPART IIII, 40 CFR 63 SUBPART ZZZZ, ULTRA LOW-SULFURDIESEL FUEL, GOOD	Carbon Monoxide	USE OF ULTRA LOW SULFUR DIESEL AND GOOD COMBUSTION PRACTICES	3.5	G / KWH	
DIESEL-FIRED AUXILIARY (EMERGENCY) ENGINES (TWO)	17.21	ULTRA-LOW SULFUR DIESEL	1500	KW	TWO DIESEL-FIRED AUXILIARY GENERATORS (EMERGENCY GENERATORS), EACH RATED AT	Carbon Monoxide	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	3.5	G / KWH	
DIESEL-FIRED FIRE PUMP ENGINE	17.21	ULTRA-LOW SULFUR DIESEL	300	HP	ONE DIESEL-FIRED FIRE PUMP ENGINE, RATED AT A NOMINAL 300-HORSEPOWER. SUBJECT	Carbon Monoxide	EXCLUSIVE USE OF ULTRA LOW SULFUR DIESEL FUEL AND GOOD COMBUSTION PRACTICES	3.5	G / KWH	
EUFPENGINE: Fire pump engine	17.21	Diesel	399	BHP	A 399 brake HP diesel-fueled emergency fire pump engine with a model year of 2011 or	Carbon Monoxide	State of the art combustion design.	3.5	G / KWH	HOURLY
Emergency Fire Pump Engine (347 HP)	17.21	ULSD	8700	gal/year	Limits equal Subpart IIII limits	Carbon Monoxide	Operate and maintain the engine according to the manufacturer's written instructions	3.5	G / KWH	
Firewater Pump Engine	17.21	Ultra-Low Sulfur Diesel	420	horsepower	One engine will power the pump in the firewater system. The fuel must meet the	Carbon Monoxide		3.5	G / KWH	
FIRE PUMP	17.21	DIESEL	500	HP	THE CONSTRUCTION PERMIT AUTHORIZES THE CONSTRUCTION OF ONE (1)	Carbon Monoxide	ENGINES CERTIFIED TO MEET NSPS, SUBPART IIII. HOURS OF OPERATION LIMITED TO 100 HOURS PER YEAR FOR MAINTENANCE AND TESTING.	3.5	G / KWH	
Emergency fire pump engine (300 HP)	17.21	USLD	29	MMBTU/H	Emergency engine. BACT = NSPS IIII.	Carbon Monoxide	Good combustion practice.	3.5	G / KWH	
FIRE PUMP DIESEL ENGINE	17.21	NO 2 DIESEL	214	kW		Carbon Monoxide	Meets EPA Tier 4 requirements	3.58	G / KWH	HR
FIRE BOOSTER PUMP	17.21	ULTRA LOW SULFUR DIESEL	40	KW	OPERATIONAL LIMITS 1 HR/DAY AND 500 HRS/YR FOR PM2.5 NAAQS.	Carbon Monoxide	ENGINE DESIGN AND OPERATION. 15 PPM SULFUR FUEL.	5	G / KWH	TEST METHOD
EMERGENCY ENGINE 1 THRU 8	17.21	DIESEL	29	HP	THE CONSTRUCTION PERMIT AUTHORIZES THE CONSTRUCTION OF EIGHT (8)	Carbon Monoxide	PURCHASE OF CERTIFIED ENGINE. HOURS OF OPERATION LIMITED TO 100 HOURS FOR MAINTENANCE AND TESTING.	5.5	G / KWH	

Diesel Firewater Pump VOC - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
EMERGENCY FIRE PUMP ENGINE	17.21	DISTILLATE OIL	0		425 HP	Volatile Organic Compounds (VOC)	GOOD COMBUSTION PRACTICES	0.05	G/BHP-HR	
Emergency fire pump	17.21	ultra low sulfur diesel	460	hp		Volatile Organic Compounds (VOC)	Compliance demonstrated with vendor emission certification and adherence to vendor-specified maintenance recommendations.	0.1	G/BHP-HR	1 H
Fire Pump	17.21	Diesel	0		The fire pump will be restricted to operate not more than 100 hr/yr.	Volatile Organic Compounds (VOC)		0.1	G/BHP-HR	
Fire Pump Engine - 460 BHP	17.21	Diesel	0			Volatile Organic Compounds (VOC)		0.1	G/BHP-HR	
Fire pump engine	17.21	Ultra-low sulfur diesel	15	gal/hr		Volatile Organic Compounds (VOC)		0.12	G/BHP-HR	
FIRE PUMP	17.21		500	HP	OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Volatile Organic Compounds (VOC)	GOOD COMBUSTION PRACTICES	0.141	G/BHP-HR	3-HR AVERAGE
RAW WATER PUMP	17.21	DIESEL, NO. 2	500	HP	OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Volatile Organic Compounds (VOC)	GOOD COMBUSTION PRACTICES	0.141	G/BHP-HR	3-HR AVERAGE
DIESEL-FIRED EMERGENCY WATER PUMP	17.21	NO. 2 FUEL OIL	481	BHP	ANNUAL OPERATION LIMITED TO 200 HR,	Volatile Organic Compounds (VOC)	GOOD COMBUSTION PRACTICES	0.141	G/BHP-HR	3-HR AVERAGE
FIRE PUMP	17.21		500	HP	OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Volatile Organic Compounds (VOC)	GOOD COMBUSTION PRACTICES	0.141	G/BHP-HR	3-HR AVERAGE
RAW WATER PUMP	17.21	DIESEL, NO. 2	500	HP	OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Volatile Organic Compounds (VOC)	GOOD COMBUSTION PRACTICES	0.141	G/BHP-HR	3-HR AVERAGE
Emergency Diesel Fire Pump	17.21	ULSD Fuel Oil #2	0		The Emergency Fire Pump is rated at 335 BHP and limited to 500 hr/yr (emergency	Volatile Organic Compounds (VOC)		0.15	G/BHP-HR	
Diesel-Fueled Fire Pump Engines	17.21	Ultra-Low Sulfur Distillate Fuel	300	HP	Operate for 100 hours maximum annually	Volatile Organic Compounds (VOC)	1. Good Combustion Practices.	0.15	G/BHP-HR	TOTAL FOR 3 ENGINES.
Cummins 6BTA 5.9F-1 Diesel Engine Fire Pump	17.21	No. 2 Fuel Oil	182	BHP		Volatile Organic Compounds (VOC)	utilize efficient combustion/design technology	0.77	G/BHP-HR	
EMERGENCY FIRE PUMP	17.21	DIESEL	350	HP		Volatile Organic Compounds (VOC)	ULTRA LOW SULFUR DIESEL AND GOOD COMBUSTION PRACTICES	1	G/BHP-HR	ANNUAL AVERAGE
Emergency Diesel Generators	17.21	Deisel	150	hp	2 units at 75 hp, 1 unit at 150 hp	Volatile Organic Compounds (VOC)		1.134	G/BHP-HR	
Emergency Diesel Generators	17.21	Diesel	250	hp	2 units	Volatile Organic Compounds (VOC)		1.134	G/BHP-HR	
Compression ignition RICE emergency fire pump	17.21	Ultra-lowsulfur diesel (ULSD)	197	HP	One (1) compression ignition emergency fire pump engine, rated at 197 HP, which shall	Volatile Organic Compounds (VOC)		1.14	G/BHP-HR	EXCLUDES STARTUP, SHUTDOWN & MALFUNCTION
5 EMERGENCY FIRE WATER PUMP ENGINES	17.21	ULTRA LOW SULFUR DIESEL	350	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Volatile Organic Compounds (VOC)	USE ONLY ULSD, GOOD COMBUSTION PRACTICES, AND DESIGNED TO ACHIEVE EMISSION LIMIT	3	G/BHP-HR	NOX + NMHC
DIESEL-FIRED WATER PUMP 376 bph (1)	17.21	DIESEL FUEL	0		FWP-1: 104.0 tons/year (12-month rolling total)	Volatile Organic Compounds (VOC)	Good Combustion Practices/Maintenance	3	G/BHP-HR	PER HR
Emergency Use Engine less than or equal to 500 HP	17.21	Diesel	0		One (1) 275-hp emergency generator, two (2) 176-hp firewater pump engines, and	Volatile Organic Compounds (VOC)	Good combustion practices, certified to meet EPA Tier 3 engine standards. Gen-1, FP-1, and FP-2 shall be limited to operate no more than 500 hr/yr.	3	G/BHP-HR	
EG7 - Diesel Emergency Electric Generator w/ tank	17.21	Diesel fuel oil	197	BHP	197 BHP / 147 KW; 1.38 MMBTU/hr (est. 125 KWe). Limited to 200 hours / year.	Volatile Organic Compounds (VOC)	NSPS engine [Tier 3 emergency engine]. EG7 Storage tank, conventional fuel oil storage tank, good operating practices; limiting leakage, spills. (FT01).	3.75	G/BHP-HR	NOX + NMHC HOURLY AVG., FOR EG7
FIRE PUMP DIESEL ENGINE	17.21	NO 2 DIESEL	214	kW		Volatile Organic Compounds (VOC)	Meets EPA Tier 4 requirements	0.19	G / KWH	HR

Diesel Firewater Pump VOC - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Fire Pump	17.21	diesel fuel	14	GAL/H	rated @ 235 KW	Volatile Organic Compounds (VOC)	good combustion practices	0.25	G / KWH	AVERAGE OF 3 STACK TEST RUNS
Firewater Pump Engine	17.21	distillate fuel oil	373	hp		Volatile Organic Compounds (VOC)	Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7.	0.4	G / KWH	
FIRE PUMP ENGINE	17.21	DIESEL	235	KW	COMPRESSION IGNITION INTERNAL COMBUSTION (CI ICE)	Volatile Organic Compounds (VOC)	TIER 3 ENGINE-BASED, GOOD COMBUSTION PRACTICES (GCP)	4	G / KWH	NOX+NMHC
Emergency Diesel Engine Pump P-39A	17.21	Diesel Fuel	375	HP	Emergency Engine	Volatile Organic Compounds (VOC)	Good combustion practices and NSPS Subpart IIII	4	G / KWH	
Emergency Diesel Engine Pump P-39B	17.21	Diesel Fuel	300	HP	Emergency Engine	Volatile Organic Compounds (VOC)	Good combustion practices and NSPS Subpart IIII	4	G / KWH	
FIRE PUMPS, FIRE1, FIRE2, FIRE3	17.21	DIESEL	211	KW	THREE (3) 211 KW/282 BHP (EACH) EMERGENCY DIESEL FIRE PUMPS THAT ARE	Volatile Organic Compounds (VOC)	BACT HAS BEEN DETERMINED TO BE COMPLIANCE WITH NSPS, SUBPART IIII, 40 CFR60.4202 AND 40 CFR60.4205.	4	G / KWH	
FIRE PUMP	17.21	DIESEL	500	HP	THE CONSTRUCTION PERMIT AUTHORIZES THE CONSTRUCTION OF ONE (1)	Volatile Organic Compounds (VOC)	CERTIFIED ENGINES THAT COMPLY WITH NSPS, SUBPART IIII. HOURS OF OPERATION LIMITED TO 100 HOURS PER YEAR FOR MAINTENANCE AND	4	G / KWH	
EMERGENCY ENGINE 1 THRU 8	17.21	DIESEL	29	HP	THE CONSTRUCTION PERMIT AUTHORIZES THE CONSTRUCTION OF EIGHT (8)	Volatile Organic Compounds (VOC)	PURCHASE OF CERTIFIED ENGINES. HOURS OF OPERATION LIMITED TO 100 HOURS FOR MAINTENANCE AND TESTING.	7.5	G / KWH	

Diesel Firewater Pump PM - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Emergency fire pump	17.21	ultra low sulfur diesel	460	hp		Particulate matter, filterable (FPM)	Compliance demonstrated with vendor emission certification and adherence to vendor-specified maintenance recommendations.	0.087	G/BHP-HR	1 H
Fire Pump	17.21	Diesel	0		The fire pump will be restricted to operate not more than 100 hr/yr.	Particulate matter, total < 10 µ (TPM10)		0.09	G/BHP-HR	
Fire Pump	17.21	Diesel	0		The fire pump will be restricted to operate not more than 100 hr/yr.	Particulate matter, total < 2.5 µ (TPM2.5)		0.09	G/BHP-HR	
Fire Pump Engine - 460 BHP	17.21	Diesel	0			Particulate matter, total < 10 µ (TPM10)		0.09	G/BHP-HR	
Fire Pump Engine - 460 BHP	17.21	Diesel	0			Particulate matter, total < 2.5 µ (TPM2.5)		0.09	G/BHP-HR	
Fire pump engine	17.21	Ultra-low sulfur diesel	15	gal/hr		Particulate matter, filterable (FPM)		0.11	G/BHP-HR	
Fire pump engine	17.21	Ultra-low sulfur diesel	15	gal/hr		Particulate matter, total < 10 µ (TPM10)		0.11	G/BHP-HR	
Fire pump engine	17.21	Ultra-low sulfur diesel	15	gal/hr		Particulate matter, total < 2.5 µ (TPM2.5)		0.11	G/BHP-HR	
Emergency diesel engine	17.21	diesel	750	KW	One (1) 1102 HP (750 KW) emergency diesel engine	Particulate matter, total < 2.5 µ (TPM2.5)	Low sulfur fuel oil (<15 ppm sulfur)	0.15	G/BHP-HR	
Emergency diesel engine	17.21	diesel	750	KW	One (1) 1102 HP (750 KW) emergency diesel engine	Particulate matter, total < 10 µ (TPM10)	Low sulfur fuel oil (<15 ppm sulfur)	0.15	G/BHP-HR	
Emergency diesel engine	17.21	diesel	750	KW	One (1) 1102 HP (750 KW) emergency diesel engine	Particulate matter, total (TPM)	Low sulfur fuel oil (<15 ppm sulfur)	0.15	G/BHP-HR	
FIRE PUMP	17.21		500	HP	OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Particulate matter, filterable (FPM)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE
FIRE PUMP	17.21		500	HP	OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Particulate matter, total < 10 µ (TPM10)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE
FIRE PUMP	17.21		500	HP	OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Particulate matter, total < 2.5 µ (TPM2.5)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE
RAW WATER PUMP	17.21	DIESEL, NO. 2	500	HP	OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Particulate matter, filterable (FPM)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE
RAW WATER PUMP	17.21	DIESEL, NO. 2	500	HP	OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Particulate matter, total < 10 µ (TPM10)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE
RAW WATER PUMP	17.21	DIESEL, NO. 2	500	HP	OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Particulate matter, total < 2.5 µ (TPM2.5)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE
5 EMERGENCY FIRE WATER PUMP ENGINES	17.21	ULTRA LOW SULFUR DIESEL	350	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Particulate matter, filterable (FPM)	EXCLUSIVE USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES AND DESIGNED TO ACHIEVE EMISSION LIMITS	0.15	G/BHP-HR	
EUFPENGINE (Emergency engine--diesel fire pump)	17.21	Diesel	1.66	MMBTU/H	A 260 brake horsepower (bhp) diesel-fueled emergency engine manufactured in 2011	Particulate matter, filterable (FPM)	Good combustion practices and meeting NSPS Subpart IIII requirements.	0.15	G/BHP-HR	TEST PROTOCOL WILL SPECIFY AVG TIME.
EUFPENGINE (South Plant): Fire pump engine	17.21	Diesel	300	HP	A 300 HP diesel-fired emergency fire pump engine with a model year of 2011 or	Particulate matter, filterable (FPM)	Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements.	0.15	G/BHP-HR	HOURLY
EUFPENGINE (North Plant): Fire pump engine	17.21	Diesel	300	HP	A 300 HP diesel-fired emergency fire pump engine with a model year of 2011 or	Particulate matter, filterable (FPM)	Diesel particulate filter, good combustion practices and meeting NSPS Subpart IIII requirements.	0.15	G/BHP-HR	HOURLY
DIESEL-FIRED EMERGENCY WATER PUMP	17.21	NO. 2 FUEL OIL	481	BHP	ANNUAL OPERATION LIMITED TO 200 HR,	Particulate matter, filterable (FPM)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE

Diesel Firewater Pump PM - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
DIESEL-FIRED EMERGENCY WATER PUMP	17.21	NO. 2 FUEL OIL	481	BHP	ANNUAL OPERATION LIMITED TO 200 HR,	Particulate matter, total < 10 µ (TPM10)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE
DIESEL-FIRED EMERGENCY WATER PUMP	17.21	NO. 2 FUEL OIL	481	BHP	ANNUAL OPERATION LIMITED TO 200 HR,	Particulate matter, total < 2.5 µ (TPM2.5)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE
FIRE PUMP	17.21		500	HP	OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Particulate matter, filterable (FPM)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE
FIRE PUMP	17.21		500	HP	OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Particulate matter, total < 10 µ (TPM10)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE
FIRE PUMP	17.21		500	HP	OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Particulate matter, total < 2.5 µ (TPM2.5)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE
RAW WATER PUMP	17.21	DIESEL, NO. 2	500	HP	OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Particulate matter, filterable (FPM)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE
RAW WATER PUMP	17.21	DIESEL, NO. 2	500	HP	OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Particulate matter, total < 10 µ (TPM10)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE
RAW WATER PUMP	17.21	DIESEL, NO. 2	500	HP	OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Particulate matter, total < 2.5 µ (TPM2.5)	GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	3-HR AVERAGE
Emergency diesel fire pump	17.21	Ultra Low Sulfur Distillate oil	0		The fire pump has a maximum heat input rate of 2.63 MMBtu/hr (approximately 250	Particulate matter, filterable (FPM)	Use of Ultra low sulfur distillate oil	0.15	G/BHP-HR	
Emergency diesel fire pump	17.21	Ultra Low Sulfur Distillate oil	0		The fire pump has a maximum heat input rate of 2.63 MMBtu/hr (approximately 250	Particulate matter, total < 10 µ (TPM10)	Use of ultra low sulfur distillate oil	0.15	G/BHP-HR	
Emergency diesel fire pump	17.21	Ultra Low Sulfur Distillate oil	0		The fire pump has a maximum heat input rate of 2.63 MMBtu/hr (approximately 250	Particulate matter, total < 2.5 µ (TPM2.5)	Use of Ultra low sulfur distillate oil	0.15	G/BHP-HR	
Emergency Diesel Fire Pump	17.21	ULSD Fuel Oil #2	0		The Emergency Fire Pump is rated at 335 BHP and limited to 500 hr/yr (emergency	Particulate matter, filterable (FPM)		0.15	G/BHP-HR	
Emergency Diesel Fire Pump	17.21	ULSD Fuel Oil #2	0		The Emergency Fire Pump is rated at 335 BHP and limited to 500 hr/yr (emergency	Particulate matter, total < 10 µ (TPM10)		0.15	G/BHP-HR	
Emergency Diesel Fire Pump	17.21	ULSD Fuel Oil #2	0		The Emergency Fire Pump is rated at 335 BHP and limited to 500 hr/yr (emergency	Particulate matter, total < 2.5 µ (TPM2.5)		0.15	G/BHP-HR	
Firewater Pump Engines	17.21	Diesel	288	hp (each)		Particulate matter, total < 10 µ (TPM10)	Complying with 40 CFR 60 Subpart IIII	0.15	G/BHP-HR	
Firewater Pump Engines	17.21	Diesel	288	hp (each)		Particulate matter, total < 2.5 µ (TPM2.5)	Complying with 40 CFR 60 Subpart IIII	0.15	G/BHP-HR	
Emergency Fire Water Pump	17.21	Ultra Low Sulfur Diesel	500	HR/YR	315 BHP	Particulate matter, total < 10 µ (TPM10)	good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	0.15	G/BHP-HR	
Emergency Fire Water Pump	17.21	Ultra Low Sulfur Diesel	500	HR/YR	315 BHP	Particulate matter, total < 2.5 µ (TPM2.5)	good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	0.15	G/BHP-HR	
Emergency Diesel Fire Pump, One 600 HP	17.21	ULSD	0			Particulate matter, total (TPM)		0.15	G/BHP-HR	
TWO (2) FIREWATER PUMP DIESEL ENGINES	17.21	DIESEL	371	BHP, EACH	THE TWO FIREWATER PUMP ENGINES, IDENTIFIED AS FP01 AND FP02, EXHAUSTING	Particulate matter, filterable (FPM)	COMBUSTION DESIGN CONTROLS AND USAGE LIMITS	0.15	G/BHP-HR	
TWO (2) FIREWATER PUMP DIESEL ENGINES	17.21	DIESEL	371	BHP, EACH	THE TWO FIREWATER PUMP ENGINES, IDENTIFIED AS FP01 AND FP02, EXHAUSTING	Particulate matter, filterable < 10 µ (FPM10)	COMBUSTION DESIGN CONTROLS AND USAGE LIMITS	0.15	G/BHP-HR	
TWO (2) FIREWATER PUMP DIESEL ENGINES	17.21	DIESEL	371	BHP, EACH	THE TWO FIREWATER PUMP ENGINES, IDENTIFIED AS FP01 AND FP02, EXHAUSTING	Particulate matter, filterable < 2.5 µ (FPM2.5)	COMBUSTION DESIGN CONTROLS AND USAGE LIMITS	0.15	G/BHP-HR	3 HOURS

Diesel Firewater Pump PM - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
EMERGENCY FIRE PUMP	17.21	DIESEL	350	HP		Particulate matter, total < 10 µ (TPM10)	ULTRA LOW SULFUR DIESEL AND GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	ANNUAL AVERAGE
EMERGENCY FIRE PUMP	17.21	DIESEL	350	HP		Particulate matter, total < 2.5 µ (TPM2.5)	ULTRA LOW SULFUR DIESEL AND GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	ANNUAL AVERAGE
EMERGENCY GENERATOR	17.21	ULTRA-LOW SULFUR DIESEL	1500	KW	40 CFR 60 SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Particulate matter, filterable (FPM)	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	N/A
EMERGENCY GENERATOR	17.21	ULTRA-LOW SULFUR DIESEL	1500	KW	40 CFR 60 SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Particulate matter, total < 10 µ (TPM10)	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	N/A
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRA-LOW SULFUR DIESEL	300	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Particulate matter, filterable (FPM)	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	N/A
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRA-LOW SULFUR DIESEL	300	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Particulate matter, total < 10 µ (TPM10)	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	0.15	G/BHP-HR	N/A
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRA LOW SULFUR DIESEL	477	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Particulate matter, filterable (FPM)	EXCLUSIVE USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES, LIMITED HOURS OF OPERATION, AND DESIGNED TO ACHIEVE EMISSION LIMITS	0.15	G/BHP-HR	
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRA LOW SULFUR DIESEL	477	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Particulate matter, total < 10 µ (TPM10)	EXCLUSIVE USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES, LIMITED HOURS OF OPERATION, AND DESIGNED TO ACHIEVE EMISSION LIMITS	0.15	G/BHP-HR	
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRA LOW SULFUR DIESEL	477	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Particulate matter, total < 2.5 µ (TPM2.5)	EXCLUSIVE USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES, LIMITED HOURS OF OPERATION, AND DESIGNED TO ACHIEVE EMISSION LIMITS	0.15	G/BHP-HR	
Fire Pump	17.21	Diesel	420	HP	Maximum operation was based on 500 hours per year.	Particulate matter, filterable (FPM)		0.15	G/BHP-HR	TEST PROTOCOL; BACT/SIP/NSPS
EU-FPENGINE: Diesel fuel fired emergency backup fire pump	17.21	diesel fuel	315	hp nameplate	This is a diesel fuel fired emergency backup fire mump. It has a capacity of 315 hp,	Particulate matter, filterable (FPM)	Proper combustion design and ultra low sulfur diesel fuel.	0.15	G/BHP-HR	TEST PROTOCOL WILL SPECIFY AVG. TIME
FIRE WATER PUMP	17.21	diesel (ultra low sulfur)	1.86	MMBTU/H	500 H/Yr operation	Particulate matter, total < 10 µ (TPM10)	Clean burning ULSD fuel and good combusion practices	0.15	G/BHP-HR	
FIRE WATER PUMP	17.21	diesel (ultra low sulfur)	1.86	MMBTU/H	500 H/Yr operation	Particulate matter, total < 2.5 µ (TPM2.5)	Clean burning ULSD fuel and good combustion practices.	0.15	G/BHP-HR	
Compression ignition RICE emergency fire pump	17.21	Ultra-lowsulfur diesel (ULSD)	197	HP	One (1) compression ignition emergency fire pump engine, rated at 197 HP, which shall	Particulate matter, total (TPM)		0.15	G/BHP-HR	EXCLUDES STARTUP, SHUTDOWN & MALFUNCTION
Compression ignition RICE emergency fire pump	17.21	Ultra-lowsulfur diesel (ULSD)	197	HP	One (1) compression ignition emergency fire pump engine, rated at 197 HP, which shall	Particulate matter, total < 10 µ (TPM10)		0.15	G/BHP-HR	EXCLUDES STARTUP, SHUTDOWN & MALFUNCTION
Compression ignition RICE emergency fire pump	17.21	Ultra-lowsulfur diesel (ULSD)	197	HP	One (1) compression ignition emergency fire pump engine, rated at 197 HP, which shall	Particulate matter, total < 2.5 µ (TPM2.5)		0.15	G/BHP-HR	EXCLUDES STARTUP, SHUTDOWN & MALFUNCTION
Fire Pump Engine	17.21	ULSD	2.7	MMBTU/H	≤ 300 hours of operation per 12-month rolling period S in ULSD: ≤0.0015% by weight	Particulate matter, total < 10 µ (TPM10)		0.15	G/BHP-HR	1 HR BLOCK AVERAGE
Fire Pump Engine	17.21	ULSD	2.7	MMBTU/H	≤ 300 hours of operation per 12-month rolling period S in ULSD: ≤0.0015% by weight	Particulate matter, total < 2.5 µ (TPM2.5)		0.15	G/BHP-HR	1 HR BLOCK AVERAGE
Airstrip Generator Engine	17.21	Ultra Low Sulfur Diesel	490	hp	One 490 hp Airstrip Generator Engine	Particulate matter, filterable < 10 µ (FPM10)		0.15	G/BHP-HR	
Airstrip Generator Engine	17.21	Ultra Low Sulfur Diesel	490	hp	One 490 hp Airstrip Generator Engine	Particulate matter, filterable < 2.5 µ (FPM2.5)		0.15	G/BHP-HR	
EMERGENCY FIRE PUMP ENGINE	17.21	DISTILLATE OIL	0		425 HP	Particulate matter, filterable (FPM)	GOOD COMBUSTION PRACTICES	0.16	G/BHP-HR	
EMERGENCY FIRE PUMP ENGINE	17.21	DISTILLATE OIL	0		425 HP	Particulate matter, total < 10 µ (TPM10)	GOOD COMBUSTION PRACTICES	0.16	G/BHP-HR	

Diesel Firewater Pump PM - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
5 EMERGENCY FIRE WATER PUMP ENGINES	17.21	ULTRA LOW SULFUR DIESEL	350	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Particulate matter, total < 10 µ (TPM10)	EXCLUSIVE USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES AND DESIGNED TO ACHIEVE EMISSION LIMITS	0.17	G/BHP-HR	
5 EMERGENCY FIRE WATER PUMP ENGINES	17.21	ULTRA LOW SULFUR DIESEL	350	HP	40 CFR 60, SUBPART IIII, ULTRA LOW-SULFUR DIESEL FUEL, GOOD COMBUSTION	Particulate matter, total < 2.5 µ (TPM2.5)	EXCLUSIVE USE OF ULSD FUEL, GOOD COMBUSTION PRACTICES AND DESIGNED TO ACHIEVE EMISSION LIMITS	0.17	G/BHP-HR	
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRAL LOW SULFUR DIESEL	350	HP	40 CFR 60, SUBPART IIII, GOOD COMBUSTION PRACTICES	Particulate matter, total < 10 µ (TPM10)	GOOD COMBUSTION PRACTICES, LIMITED HOURS OF OPERATION, AND EXCLUSIVE USE OF ULSD	0.17	G/BHP-HR	FILTERABLE + CONDENSIBLE
EMERGENCY GENERATOR	17.21	ULTRA-LOW SULFUR DIESEL	1490	HP	40 CFR 60 SUBPART IIII, 40 CFR 63 SUBPART ZZZZ ULTRA LOW-SULFUR DIESEL FUEL, GOOD	Particulate matter, total < 10 µ (TPM10)	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES.	0.18	G/BHP-HR	
EMERGENCY GENERATOR	17.21	ULTRA-LOW SULFUR DIESEL	1490	HP	40 CFR 60 SUBPART IIII, 40 CFR 63 SUBPART ZZZZ ULTRA LOW-SULFUR DIESEL FUEL, GOOD	Particulate matter, total < 2.5 µ (TPM2.5)	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AN DGOOD COMBUSTION PRACTICES	0.18	G/BHP-HR	
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRA-LOW SULFUR DIESEL	305	HP	40 CFR 60, SUBPART IIII, 40 CFR 63 SUBPART ZZZZ, ULTRA LOW-SULFURDIESEL FUEL, GOOD	Particulate matter, total < 10 µ (TPM10)	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES.	0.18	G/BHP-HR	
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRA-LOW SULFUR DIESEL	305	HP	40 CFR 60, SUBPART IIII, 40 CFR 63 SUBPART ZZZZ, ULTRA LOW-SULFURDIESEL FUEL, GOOD	Particulate matter, total < 2.5 µ (TPM2.5)	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	0.18	G/BHP-HR	
DIESEL-FIRED AUXILIARY (EMERGENCY) ENGINES (TWO)	17.21	ULTRA-LOW SULFUR DIESEL	1500	KW	TWO DIESEL-FIRED AUXILIARY GENERATORS (EMERGENCY GENERATORS), EACH RATED AT	Particulate matter, total < 10 µ (TPM10)	USE OF ULTRA LOW SULFUR DIESEL AND GOOD COMBUSTION PRACTICES.	0.18	G/BHP-HR	
DIESEL-FIRED FIRE PUMP ENGINE	17.21	ULTRA-LOW SULFUR DIESEL	300	HP	ONE DIESEL-FIRED FIRE PUMP ENGINE, RATED AT A NOMINAL 300-HORSEPOWER. SUBJECT	Particulate matter, total < 10 µ (TPM10)	EXCLUSIVE USE OF ULTRA LOW SULFUR DIESEL FUEL AND GOOD COMBUSTION PRACTICES	0.18	G/BHP-HR	
Emergency fire pump engine (300 HP)	17.21	USLD	29	MMBTU/H	Emergency engine. BACT = NSPS IIII.	Particulate matter, total (TPM)	Good combustion practice	0.2	G/BHP-HR	
Emergency Engine --Diesel Fire Pump (EUFPENGINE)	17.21	Diesel	165	HP	A 165 hoursepower (hp) diesel-fueled emergency engine manufactured in 2013, iwth a	Particulate matter, filterable (FPM)	Good combustion practices	0.22	G/BHP-HR	TEST PROTOCOL
EUFPENGINE (Emergency engine--diesel fire pump)	17.21	diesel	500	H/YR	A 165 horsepower (hp) diesel-fueled emergency engine manufactured in 2016 with a	Particulate matter, filterable (FPM)	Good combustion practices.	0.22	G/BHP-HR	TEST PROTOCOL WILL SPECIFY AVG TIME
Incinerator Generator Engine	17.21	Ultra Low Sulfur Diesel	102	hp	ULSD-fired 102 hp Incinerator Generator Engine	Particulate matter, filterable < 10 µ (FPM10)		0.22	G/BHP-HR	
Incinerator Generator Engine	17.21	Ultra Low Sulfur Diesel	102	hp	ULSD-fired 102 hp Incinerator Generator Engine	Particulate matter, filterable < 2.5 µ (FPM2.5)		0.22	G/BHP-HR	
Cummins 6BTA 5.9F-1 Diesel Engine Fire Pump	17.21	No. 2 Fuel Oil	182	BHP		Particulate matter, total < 10 µ (TPM10)	utilize efficient combustion/design technology	0.25	G/BHP-HR	
Cummins 6BTA 5.9F-1 Diesel Engine Fire Pump	17.21	No. 2 Fuel Oil	182	BHP		Particulate matter, total (TPM)	utilize efficient combustion/design technology	0.25	G/BHP-HR	
DIESEL-FIRED WATER PUMP 376 bph (1)	17.21	DIESEL FUEL	0		FWP-1: 104.0 tons/year (12-month rolling total)	Particulate matter, total < 10 µ (TPM10)	Ultra Low Sulfur Diesel/Fuel (15 ppm max)	0.3	G/BHP-HR	PER HR
DIESEL-FIRED WATER PUMP 376 bph (1)	17.21	DIESEL FUEL	0		FWP-1: 104.0 tons/year (12-month rolling total)	Particulate matter, total < 2.5 µ (TPM2.5)	Ultra Low Sulfur Diesel/Fuel (15 ppm max)	0.3	G/BHP-HR	HR
Agitator Generator Engine	17.21	Ultra Low Sulfur Diesel	98	hp	ULSD-fired 98 hp Agitator Generator Engine	Particulate matter, filterable < 10 µ (FPM10)		0.3	G/BHP-HR	
Agitator Generator Engine	17.21	Ultra Low Sulfur Diesel	98	hp	ULSD-fired 98 hp Agitator Generator Engine	Particulate matter, filterable < 2.5 µ (FPM2.5)		0.3	G/BHP-HR	
4 Diesel-fired quench pumps	17.21	Diesel fuel	252	HP	Each pump engine is 252 HP. They are limited to emergency use and subject to NSPS	Particulate matter, filterable (FPM)	Good combustion practices.	0.4	G/BHP-HR	QP1&QP2 EACH, TEST PROTOCOL
4 Diesel-fired quench pumps	17.21	Diesel fuel	252	HP	Each pump engine is 252 HP. They are limited to emergency use and subject to NSPS	Particulate matter, total < 10 µ (TPM10)	Good combustion practices.	0.4	G/BHP-HR	QP1&QP2, EACH; TEST PROTOCOL

Diesel Firewater Pump PM - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
4 Diesel-fired quench pumps	17.21	Diesel fuel	252	HP	Each pump engine is 252 HP. They are limited to emergency use and subject to NSPS	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion practices	0.4	G/BHP-HR	QP1&QP2 EACH; TEST PROTOCOL
Emergency Fire Water Pump	17.21	Ultra Low Sulfur Diesel	500	HR/YR	315 BHP	Particulate matter, filterable (FPM)	good combustion practices and the use of ultra low sulfur diesel (S15 ULSD) fuel oil with a maximum sulfur content of 15 ppmw.	15	G/BHP-HR	
emergency engines	17.21	ULSD	0			Particulate matter, filterable (FPM)	good operating practices	0	G / KWH	
FIRE PUMP DIESEL ENGINE	17.21	NO 2 DIESEL	214	kW		Particulate matter, total < 10 µ (TPM10)	Meets EPA Tier 4 requirements	0.02	G / KWH	HR
FIRE PUMP DIESEL ENGINE	17.21	NO 2 DIESEL	214	kW		Particulate matter, total < 2.5 µ (TPM2.5)	Meets EPA Tier 4 requirements	0.02	G / KWH	HR
Firewater Pump Engine	17.21	distillate fuel oil	373	hp		Particulate matter, filterable (FPM)	Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7.	0.1	G / KWH	
Firewater Pump Engine	17.21	distillate fuel oil	373	hp		Particulate matter, total < 10 µ (TPM10)	Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7.	0.1	G / KWH	
Firewater Pump Engine	17.21	distillate fuel oil	373	hp		Particulate matter, total < 2.5 µ (TPM2.5)	Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7.	0.1	G / KWH	
Fire Pump Diesel Internal Combustion Engines	17.21	Diesel	252	hp	Three (3) 252 hp fire pump diesel internal combustion engines.	Particulate matter, total (TPM)	Clean Fuel and Good Combustion Practices	0.19	G / KWH	3-HOUR AVERAGE
Fire Pump Diesel Internal Combustion Engines	17.21	Diesel	252	hp	Three (3) 252 hp fire pump diesel internal combustion engines.	Particulate matter, total < 10 µ (TPM10)	Clean Fuel and Good Combustion Practices	0.19	G / KWH	3-HOUR AVERAGE
Fire Pump Diesel Internal Combustion Engines	17.21	Diesel	252	hp	Three (3) 252 hp fire pump diesel internal combustion engines.	Particulate matter, total < 2.5 µ (TPM2.5)	Clean Fuel and Good Combustion Practices	0.19	G / KWH	3-HOUR AVERAGE
Emergency fire pump engine, 300 HP	17.21	Diesel	29	MMBTU/H	Emergency engine. ULSD only. BACT limits equal NSPS IIII limits.	Particulate matter, total (TPM)	Low-emitting fuel and certified engine	0.2	G / KWH	
Emergency Fire Pump Engine (422 hp)	17.21	ULSD	0		Limits equal Subpart IIII limits	Particulate matter, filterable (FPM)	Certified engine	0.2	G / KWH	
One 422-hp emergency fire pump engine	17.21	ULSD	0		BACT limits equal to NSPS Subpart IIII limits. Will use IIII certified engine.	Particulate matter, total (TPM)	Use of clean fuel	0.2	G / KWH	
Combustion	17.21	ULSD	493	hp	Engines less than 500 hp	Particulate matter, total < 2.5 µ (TPM2.5)	Good combustion and operating practices.	0.2	G / KWH	
EMERGENCY FIREWATER PUMP ENGINE	17.21	DIESEL	135	KW	135 KW (182 hp) IC Diesel-fired Emergency Firewater Pump Engine	Particulate matter, total (TPM)	OPERATIONAL RESTRICTION OF 50 HR/YR, OPERATE AS REQUIRED FOR FIRE SAFETY TESTING	0.2	G / KWH	
EMERGENCY FIREWATER PUMP ENGINE	17.21	DIESEL	135	KW	135 KW (182 hp) IC Diesel-fired Emergency Firewater Pump Engine	Particulate matter, total < 2.5 µ (TPM2.5)	OPERATIONAL RESTRICTION OF 50 HR/YR, OPERATE AS REQUIRED FOR FIRE SAFETY TESTING	0.2	G / KWH	
EMERGENCY IC ENGINE	17.21	DIESEL	182	HP	UNIT IS 135 KW.	Particulate matter, total (TPM)	USE ULTRA LOW SULFUR FUEL	0.2	G / KWH	
EMERGENCY IC ENGINE	17.21	DIESEL	182	HP	UNIT IS 135 KW.	Particulate matter, total < 10 µ (TPM10)	USE ULTRA LOW SULFUR FUEL	0.2	G / KWH	
EMERGENCY IC ENGINE	17.21	DIESEL	182	HP	UNIT IS 135 KW.	Particulate matter, total < 2.5 µ (TPM2.5)	USE ULTRA LOW SULFUR FUEL	0.2	G / KWH	
250 Kw Emergency Generator	17.21	ULSD	0			Particulate matter, total (TPM)	Use of inherently clean ultra low sulfur distillate (ULSD) fuel oil and GCP & demonstrate compliance in accordance with the procedures given in 40 CFR	0.2	G / KWH	
Fire Pump	17.21	diesel fuel	14	GAL/H	rated @ 235 KW	Particulate matter, total < 2.5 µ (TPM2.5)	good combustion practices	0.2	G / KWH	AVERAGE OF 3 STACK TEST RUNS

Diesel Firewater Pump PM - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Fire Pump	17.21	diesel fuel	14	GAL/H	rated @ 235 KW	Particulate matter, total < 10 µ (TPM10)	good combustion practices	0.2	G / KWH	AVERAGE OF 3 STACK TEST RUNS
Fire Pump	17.21	diesel fuel	14	GAL/H	rated @ 235 KW	Particulate matter, total (TPM)	good combustion practices	0.2	G / KWH	AVERAGE OF 3 STACK TEST RUNS
FIRE PUMP ENGINE	17.21	DIESEL	235	KW	COMPRESSION IGNITION INTERNAL COMBUSTION (CI ICE)	Particulate Matter (PM)	TIER 3 ENGINE-BASED, GOOD COMBUSTION PRACTICES (GCP)	0.2	G / KWH	
EMERGENCY GENERATOR	17.21	ULTRA-LOW SULFUR DIESEL	1490	HP	40 CFR 60 SUBPART IIII, 40 CFR 63 SUBPART ZZZZ ULTRA LOW-SULFUR DIESEL FUEL, GOOD	Particulate matter, filterable (FPM)	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	0.2	G / KWH	
EMERGENCY DIESEL ENGINE FOR FIRE WATER PUMP	17.21	ULTRA-LOW SULFUR DIESEL	305	HP	40 CFR 60, SUBPART IIII, 40 CFR 63 SUBPART ZZZZ, ULTRA LOW-SULFURDIESEL FUEL, GOOD	Particulate matter, filterable (FPM)	EXCLUSIVE USE OF ULTRA LOW SULFUR FUEL AND GOOD COMBUSTION PRACTICES	0.2	G / KWH	
DIESEL-FIRED AUXILIARY (EMERGENCY) ENGINES (TWO)	17.21	ULTRA-LOW SULFUR DIESEL	1500	KW	TWO DIESEL-FIRED AUXILIARY GENERATORS (EMERGENCY GENERATORS), EACH RATED AT	Particulate matter, filterable (FPM)	USE OF ULTRA LOW SULFUR DIESEL AND GOOD COMBUSTION PRACTICES	0.2	G / KWH	
DIESEL-FIRED FIRE PUMP ENGINE	17.21	ULTRA-LOW SULFUR DIESEL	300	HP	ONE DIESEL-FIRED FIRE PUMP ENGINE, RATED AT A NOMINAL 300-HORSEPOWER. SUBJECT	Particulate matter, filterable (FPM)	EXCLUSIVE USE OF ULTRA LOW SULFUR DIESEL FUEL AND GOOD COMBUSTION PRACTICES	0.2	G / KWH	
EUFPENGINE: Fire pump engine	17.21	Diesel	399	BHP	A 399 brake HP diesel-fueled emergency fire pump engine with a model year of 2011 or	Particulate matter, filterable (FPM)	State of the art combustion design	0.2	G / KWH	HOURLY
Emergency Fire Pump Engine (347 HP)	17.21	ULSD	8700	gal/year	Limits equal Subpart IIII limits	Particulate matter, filterable (FPM)	Operate and maintain the engine according to the manufacturer's written instructions	0.2	G / KWH	
Firewater Pump Engine	17.21	Ultra-Low Sulfur Diesel	420	horsepower	One engine will power the pump in the firewater system. The fuel must meet the	Particulate matter, total (TPM)		0.2	G / KWH	
FIRE BOOSTER PUMP	17.21	ULTRA LOW SULFUR DIESEL	40	KW	OPERATIONAL LIMITS 1 HR/DAY AND 500 HRS/YR FOR PM2.5 NAAQS.	Particulate matter, total (TPM)	ENGINE DESIGN AND OPERATION. 15 PPM SULFUR FUEL.	0.4	G / KWH	TEST METHOD
Emergency Diesel Generators	17.21	Diesel	250	hp	2 units	Particulate matter, filterable (FPM)		0.54	G / KWH	
Emergency Diesel Generators	17.21	Deisel	150	hp	2 units at 75 hp, 1 unit at 150 hp	Particulate matter, filterable (FPM)		1.34	G / KWH	
Emergency Diesel Generators	17.21	Deisel	150	hp	2 units at 75 hp, 1 unit at 150 hp	Particulate matter, filterable < 10 µ (FPM10)		1.34	G / KWH	
Emergency Diesel Generators	17.21	Diesel	250	hp	2 units	Particulate matter, filterable < 10 µ (FPM10)		1.34	G / KWH	

Diesel Firewater Pump GHG - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Fire Pump	17.21	diesel fuel	14	GAL/H	rated @ 235 KW	Carbon Dioxide	good combustion practices	1.55	G / KWH	AVERAGE OF 3 STACK TEST RUNS
Compression ignition RICE emergency fire pump	17.21	Ultra-lowsulfur diesel (ULSD)	197	HP	One (1) compression ignition emergency fire pump engine, rated at 197 HP, which shall	Carbon Dioxide		2.6	G/BHP-HR	EXCLUDES STARTUP, SHUTDOWN & MALFUNCTION
FIRE PUMP	17.21		500	HP	OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Carbon Dioxide	GOOD COMBUSTION PRACTICES	527.4	G/BHP-HR	3-HR AVERAGE
RAW WATER PUMP	17.21	DIESEL, NO. 2	500	HP	OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Carbon Dioxide	GOOD COMBUSTION PRACTICES	527.4	G/BHP-HR	3-HR AVERAGE
DIESEL-FIRED EMERGENCY WATER PUMP	17.21	NO. 2 FUEL OIL	481	BHP	ANNUAL OPERATION LIMITED TO 200 HR,	Carbon Dioxide	GOOD COMBUSTION PRACTICES	527.4	G/BHP-HR	3-HR AVERAGE
FIRE PUMP	17.21		500	HP	OPERATION LIMITED TO 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Carbon Dioxide	GOOD COMBUSTION PRACTICES	527.4	G/BHP-HR	3-HR AVERAGE
RAW WATER PUMP	17.21	DIESEL, NO. 2	500	HP	OPERATION NOT TO EXCEED 500 HOURS PER YEAR. INSIGNIFICANT ACTIVITY, WILL	Carbon Dioxide	GOOD COMBUSTION PRACTICES	527.4	G/BHP-HR	3-HR AVERAGE
EMERGENCY FIRE PUMP	17.21	DIESEL	350	HP		Carbon Dioxide	PROPER OPERATION AND GOOD COMBUSTION PRACTICES	163	LB/MMBTU	
Black Start Generator (P007)	17.21	Diesel fuel	158	HP	Black start generator, 158 HP diesel engine.	Carbon Dioxide Equivalent (CO2e)	Tier IV engine Good combustion practices	181.7	LB/H	
Fire Pump Engine	17.21	Diesel	251	HP	Limited to 100 Hours/year.	Carbon Dioxide Equivalent (CO2e)		309	LB/H	
FWP1-STK DIESEL FIRED FIRE WATER PUMP	17.21	DIESEL	617	HP	617 HP diesel fired Fire Water Pump.	Carbon Dioxide Equivalent (CO2e)	Best Work practice	7027.8	LB/H	30-DAY ROLLING AVERAGE
Fire Pump Engine	17.21	ULSD	2.7	MMBTU/H	≤ 300 hours of operation per 12-month rolling period S in ULSD: ≤0.0015% by weight	Carbon Dioxide Equivalent (CO2e)		162.85	LB/MMBTU	
Emergency diesel-fueled fire pump (P006)	17.21	Diesel fuel	250	HP	250 hp emergency diesel-fueled fire pump	Carbon Dioxide Equivalent (CO2e)	Equipment design and maintenance requirements	163.6	LB/MMBTU	
Fire Pump	17.21	diesel fuel	14	GAL/H	rated @ 235 KW	Methane	good combustion practices	0.0001	G / KWH	AVERAGE OF 3 STACK TEST RUNS
EMERGENCY FIRE PUMP	17.21	DIESEL	350	HP		Methane	PROPER OPERATION AND GOOD COMBUSTION PRACTICES	0.0061	LB/MMBTU	
EMERGENCY FIRE PUMP	17.21	DIESEL	350	HP		Nitrous Oxide (N2O)	PROPER OPERATION AND GOOD COMBUSTION PRACTICES	0.0014	LB/MMBTU	

Fugitive Component Leaks VOC - RBLC Dataset

FACILITY_DESCRIPTION	PERMIT_NOTES	PROCESS_NAME	PROCCESS_TYPE	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
990 MW COMBINED-CYCLE NATURAL GAS-FIRED POWER PLANTNOTE: PARTICULATE MATTER FACILITYWIDE EMISSIONS ARE PARTICULATE MATTER (FILTERABLE)	NOTE: PARTICULATE MATTER FACILITYWIDE EMISSIONS ARE PARTICULATE MATTER (FILTERABLE). THE FACILITY INCLUDES A WET MECHANICAL DRAFT COOLING TOWER (12 CELL) with 0.0005% RECIRCULATING WATER FLOW.	EQUIPMENT LEAKS	99.999	NATURAL GAS PIPELINE COMPONENTS, INCLUDING VALVES, CONNECTORS, FLANGES, PUMP SEALS AND PRESSURE RELIEF VALVES WITHIN THE FACILITY BOUNDARY	Volatile Organic Compounds (VOC)		0		
735 MW COMBINED-CYCLE NATURAL GAS-FIRED POWER PLANT NOTE: PARTICULATE MATTER FACILITYWIDE EMISSIONS ARE PARTICULATE MATTER (FILTERABLE)	NOTE: PARTICULATE MATTER FACILITYWIDE EMISSIONS ARE PARTICULATE MATTER (FILTERABLE)	FUEL OIL STORAGE TANKS	99.999	THE STORAGE TANKS SHALL BE HORIZONTAL, FIXED-ROOF TANKS OR INTEGRAL WITH ENGINE GENERATOR BASE FRAME.	Volatile Organic Compounds (VOC)	PERIODIC MAINTENANCE ON THE TANKS TO MINIMIZE FUGITIVE EMISSIONS	0.1	TON	12-MONTH ROLLING AVG

Fugitive Component Leaks GHG - RBLC Dataset

FACILITY_DESCRIPTION	PERMIT_NOTES	PROCESS_NAME	PROCCESS_TYPE	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
725 MW COMBINED-CYCLE NATURAL GAS-FIRED POWER PLANTFACILITY-WIDE PM10 EMISSION LIMIT = 96.6 TONS/YR	FACILITY-WIDE PM10 EMISSION LIMIT = 96.6 TONS/YR FACILITY-WIDE SAM EMISISON LIMIT < 7.0	FUGITIVE GHG EMISSIONS	99.999		Carbon Dioxide Equivalent (CO2e)	IMPLEMENTATION OF AN AUDIO, VISUAL AND OLFACTORY (AVO) PROGRAM ON A WEEKLY BASIS	72.7	TONS	ANNUAL
735 MW COMBINED-CYCLE NATURAL GAS-FIRED POWER PLANT NOTE: PARTICULATE MATTER FACILITYWIDE	NOTE: PARTICULATE MATTER FACILITYWIDE EMISSIONS ARE PARTICULATE MATTER (FILTERABLE)	EQUIPMENT LEAKS	99.999	NATURAL GAS PIPELINE COMPONENTS, INCLUDING VALVES, CONNECTORS, FLANGES, PUMP SEALS	Carbon Dioxide Equivalent (CO2e)	IMPLEMENTATION OF AN AUDIO, VISUAL AND OLFACTORY (AVO) PROGRAM ON FILE AT POWER PLANT SITE FOR REVIEW UPON	0		
Authorizes FGE to construct a new combined cycle electric generating plant (FGETP) in Mitchell County, Texas. FGETP	The Texas Commission on Environmental Quality is the permitting authority for the non-	SF6 Fugitive Emission Sources	99.999		Carbon Dioxide Equivalent (CO2e)		0		
Authorizes FGE to construct a new combined cycle electric generating plant (FGETP) in Mitchell County, Texas. FGETP	The Texas Commission on Environmental Quality is the permitting authority for the non-	Natural Gas Fugitive Emission Sources	99.999		Carbon Dioxide Equivalent (CO2e)		0		
GSEC proposes to construct a gas turbine to expand capacity at an existing power plant (Antelope Elk Energy Center)	TCEQ is the permitting authority for the non-GHG emissions. See: CN602667787 and RN105862510	Fugitive Emissions from SF6 Circuit Breakers	99.999	The circuit breakers associated with the proposed units will be insulated with SF6. The capacity of the circuit	Carbon Dioxide Equivalent (CO2e)		0		WORK PRACTICE
GSEC proposes to construct a gas turbine to expand capacity at an existing power plant (Antelope Elk Energy Center)	TCEQ is the permitting authority for the non-GHG emissions. See: CN602667787 and RN105862510	Fugitive Emissions from SF6 Circuit Breakers	99.999	The circuit breakers associated with the proposed units will be insulated with SF6. The capacity of the circuit	Carbon Dioxide Equivalent (CO2e)		0		WORK PRACTICE
GPP proposes to add two (2) new gas-fired simple-cycle combustion turbines of 227 MW (nominal) electric generating	The Texas Commission on Environmental Quality is the permitting authority for the non-	Fugitive SF6 Circuit Breaker Emissions	99.999	The circuit breakers associated with the proposed units will be insulated with SF6. The capacity of the circuit	Carbon Dioxide Equivalent (CO2e)		0		
GPP proposes to add two (2) new gas-fired simple-cycle combustion turbines of 227 MW (nominal) electric generating	The Texas Commission on Environmental Quality is the permitting authority for the non-	Components Fugitive Leak Emissions	99.999	Emissions from piping components (valves and flanges) associated with this project consist of methane (CH4)	Carbon Dioxide Equivalent (CO2e)		0		
Indeck proposes to construct a peaking power plant, the Indeck Wharton Energy Center, generally located south of	The Texas Commission on Environmental Quality is the permitting authority for the non-	Fugitive SF6 Circuit Breaker Emissions	99.999	The circuit breakers associated with the proposed units will be insulated with SF6. The capacity of the circuit	Carbon Dioxide Equivalent (CO2e)		0		
Indeck proposes to construct a peaking power plant, the Indeck Wharton Energy Center, generally located south of	The Texas Commission on Environmental Quality is the permitting authority for the non-	Components Fugitive Leak Emissions	99.999	Fugitive emissions from piping components (valves and flanges) associated with this project consist of	Carbon Dioxide Equivalent (CO2e)		0		
Invenergy proposes to construct a 330 MW peak power plant (known as the Ector County Energy Center Plant (ECEC)),	Texas Commission on Environmental Quality is the permitting authority for the non-	Fugitive SF6 Circuit Breaker Emissions	99.999		Carbon Dioxide Equivalent (CO2e)		0		
simple cycle electric generation		Sulfur hexafluoride (SF6) insulated Electrical Equipment	99.999	The facility will consist of Four SF6 insulated circuit breakers.	Carbon Dioxide Equivalent (CO2e)	The use of circuit breakers with totally enclosed insulation systems equipped with a low pressure alarm and low pressure lockout is BACT	34.4	T/YR	
simple cycle electric generation		Natural Gas Fugitives	99.999		Carbon Dioxide Equivalent (CO2e)	weekly checks for leaks using audio, visual, and olfactory (AVO) sensing for natural gas leaks	693.3	T/YR	
The proposed project will be a new, nominal 1,600 MW combined-cycle electrical power generating facility		GAS PIPING COMPONENTS-FUGITIVE LEAKS	99.999		Carbon Dioxide Equivalent (CO2e)	Audible/visual/olfactory (AVO) monitoring and leak repair	0		

Natural Gas Fired Simple Cycle Turbine PM_{10} LAER - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
COMBUSTION TURBINES (NORMAL OPERATION)	15.11	NATURAL GAS	300	MW	Three simple cycle combustion turbine generators (CTG). Each CTG rated at 100 MW (nominal	Particulate matter, total < 10 µ (TPM10)	PUC-QUALITY NATURAL GAS	0.0065	LB/MMBTU (HHV)	AT LOADS OF 80% OR HIGHER
Combustion Turbines (GEN1 and GEN2)	15.11	Natural Gas	2217	MMBtu/hr	Each combustion turbine rated at 214 MW, with a maximum heat input rate of 2,217	Particulate matter, total < 10 µ (TPM10)	Clean fuel and good combustion practices	0.0048	LB/MMBTU	TEST AVERAGE
Two Simple Cycle Combustion Turbines	15.11	Natural Gas	190	MW	Two simple cycle combustion turbines used for peaking purposes and fired primarily	Particulate matter, total < 10 µ (TPM10)	turbine design and good combustion practices	0.005	LB/MMBTU	3-HOUR BLOCK AVERAGE
PRATT & TWIN-PAC SIMPLE CYCLE TURBINES	15.11	NATURAL GAS	270.9	MMBTU/H	NO. 2 DIESEL OIL BACKUP FUEL	Particulate matter, filterable < 10 µ (FPM10)	USE NATURAL GAS AS PRIMARY FUEL; GOOD COMBUSTION PRACTICES	0.0066	LB/MMBTU	3-HR AVG FOR NATURAL GAS
Combustion turbine wih duct burner and heat recovery steam generator	15.11	Natural Gas	0	Three 40.6 MW turbines	Three (3) General Electric Frame 6B NG fired turbine with duct burners and heat	Particulate matter, total < 10 µ (TPM10)		0.0066	LB/MMBTU	
2 COMBUSTION TURBINES	15.11	NATURAL GAS	130	MW	TWO GENERAL ELECTRIC (GE) FRAME 7EA COMBUSTION TURBINES (CTS) WITH A	Particulate matter, total < 10 µ (TPM10)	EXCLUSIVE USE OF FACILITY PROCESS FUEL GAS OR PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	0.007	LB/MMBTU	3 STACK TEST RUN AVERAGE, EXCEPT SU/SD
Gas turbines (9 units)	15.11	natural gas	1069	mm btu/hr		Particulate matter, total < 10 µ (TPM10)	good combustion practices and fueled by natural gas	0.0076	LB/MMBTU	THREE ONE-HOUR TEST AVERAGE
Combined cycle combustion turnbine with HRSG and duct firing	15.11	Natural gas pipeline quality	849	MW	Two CT with HRSGs with duct burner Max fuel input for CTs and HRSGs 6,714 mmBtu/hr	Particulate matter, total < 10 µ (TPM10)	Combust only pipeline quality natural gas	0.0088	LB/MMBTU	THREE(3) HOUR ROLLING AVERAGE
ELECTRICAL GENERATION	15.11	NATURAL GAS	170	MW	BOSQUE POWER COMPANY IS SEEKING TO AMEND THEIR EXISTING PERMIT TO	Particulate Matter (PM)	BACT IS THE USE OF PIPELINE-QUALITY NATURAL GAS AND THE APPLICATION OF GOOD COMBUSTION CONTROLS. WITH THIS METHOD OF	0.01	LB/MMBTU	3 HR ROLLING PERIOD
Turbines (4), simple cycle, natural gas	15.11	NATURAL GAS	15020	H/YR	Hours per year for all 4 turbines	Particulate matter, filterable < 10 µ (FPM10)		0.013	LB/MMBTU	ACTUAL HEAT INPUT
SIMPLE CYCLE, NATURAL GAS FIRED COMBUSTION TURBINES	15.11	NATURAL GAS	80	MW		Particulate matter, filterable < 10 µ (FPM10)	GOOD COMBUSTION PRACTICES	5	LB/HR	EACH TURBINE
(2) 60-MW SIMPLE CYCLE COMBUSTION TURBINES, FIRING NATURAL GAS	15.11	NATURAL GAS	120	MW	(2) 60-MEGAWATT PRATT & WHITNEY GAS TURBINE GENERATOR PACKAGE	Particulate matter, total < 10 µ (TPM10)	GOOD COMBUSTION PRACTICES AND USE OF NATURAL GAS	5	LB/HR	3 STACK TEST RUNS
COMBUSTION TURBINES, SIMPLE CYCLE , ROLLS ROYCE, 8	15.11	NATURAL GAS	603	MMBTU/H	EIGHT (8) IDENTICAL ROLLS ROYCE TRENT 60WLE (64 MW) SIMPLE CYCLE COMBUSTION	Particulate matter, filterable < 10 µ (FPM10)	BURNING CLEAN FUELS, NATURAL GAS AND ULTRA LOW SULFUR DISTILLATE OIL WITH SULFUR CONTENT OF 15 PPM.	5	LB/HR	
SIMPLE CYCLE (NO WASTE HEAT RECOVERY)(>25 MW)	15.11	NATURAL GAS	5000	MMFT3/YR	THE PROCESS CONSISTS OF ONE NEW TRENT 60 SIMPLE CYCLE COMBUSTION TURBINE.	Particulate matter, filterable < 10 µ (FPM10)	USE OF CLEAN BURNING FUELS; NATURAL GAS AS PRIMARY FUEL AND ULTRA LOW SULFUR DISTILLATE OIL WITH 15 PPMSULFUR BY WEIGHT AS BACKUP	5	LB/HR	AVERAGE OF THREE TESTS
Simple Cycle Stationary Turbines firing Natural gas	15.11	Natural Gas	2143980	MMBTU/YR	The Siemens/Rolls Royce Trent 60 wet low emissions (WLE) combustion turbine generators	Particulate matter, total < 10 µ (TPM10)	Use of Natural gas a clean burning fuel	5	LB/HR	AV OF THREE ONE H STACK TESTS EVERY 5 YR
Normal Mode (without Power Augmentation)	15.11	natural gas	0			Particulate matter, filterable < 10 µ (FPM10)	Good Combustion Practices as described in the permit.	5.4	LB/HR	HOURLY
Power Augmentation	15.11	natural gas	0		Increase power output by lowering the outlet air temperatur through water	Particulate matter, filterable < 10 µ (FPM10)	Good combustion practices as defined in the permit.	5.4	LB/HR	HOURLY
GE LM6000PC SPRINT Simple cycle combustion turbine	15.11	Pipeline quality natural gas	405.3	MMBTU/hr		Particulate matter, total < 10 µ (TPM10)	fire only pipeline quality natural gas	6	LB/HR	AT FULL OAD
SIMPLE CYCLE TURBINE	15.11	Natural Gas	8940000	MMBtu/year (HHV)	Throughput <= 8.94xE6 MMBtu/year (HHV) combined for all six gas turbines. The 6	Particulate matter, total < 10 µ (TPM10)	Good combustion practice, Use of Clean Burning Fuel: Natural gas	6	LB/HR	AVERAGE OF THREE TESTS
CTG01 CO - Simple-Cycle Combustion Turbine 1 (Commissioning) [SCN0005]	15.11	Natural Gas	2201	MM BTU/hr	Commissioning is a one-time event which occurs after construction and is not	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
CTG02 CO - Simple-Cycle Combustion Turbine 2 (Commissioning) [SCN0006]	15.11	natural gas	2201	MM BTU/hr	Commissioning is a one-time event which occurs after construction and is not	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
CTG01 SUSD - Simple-Cycle Combustion Turbine 1 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0019]	15.11	Natural Gas	2201	MM BTU/hR	Limited to 600 hr/yr	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM

Natural Gas Fired Simple Cycle Turbine PM_{10} LAER - RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
CTG02 SUSD - Simple-Cycle Combustion Turbine 2 (Startup/Shutdown/ Maintenance/Tuning/Runback) [EQT0020]	15.11	Natural Gas	2201	MM BTU/hr	limited to 600 hr/yr	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
CTG01 NO - Simple-Cycle Combustion Turbine 1 (Normal Operations) [EQT0017]	15.11	Natural Gas	2201	MM BTU/hr	Normal operations are based on 7000 hrs/yr	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
CTG02 NO - Simple-Cycle Combustion Turbine 2 (Normal Operations) [EQT0018]	15.11	Natural Gas	2201	MM BTU/hr	Normal operations are based on 7000 hours per year	Particulate matter, total < 10 µ (TPM10)	Good combustion practices and the use of low sulfur fuels (pipeline quality natural gas)	6.3	LB/HR	HOURLY MAXIMUM
Three simple cycle combustion turbines	15.11	natural gas	799.7	MMBTU/H	Three GE, LMS100PA, natural gas-fired, simple cycle CTG rated at 799.7 MMBtu per	Particulate matter, total < 10 µ (TPM10)	Use of pipeline quality natural gas and good combustor design	6.6	LB/HR	AVE OVER STACK TEST LENGTH
Combustion Turbine	15.11	Natural gas	986	MMBTU/H	Turbine is a GE Model PG 7121 (7EA) used as a peaking unit.	Particulate matter, total < 10 µ (TPM10)	Good Combustion Practices	7.3	LB/HR	AVERAGE OF 3 TEST RUNS
Simple Cycle Combustion Turbines (SCCT1 to SCCT3)	15.11	Natural Gas	927	MM BTU/h		Particulate matter, total < 10 µ (TPM10)	Exclusive Combustion of Fuel Gas and Good Combustion Practices, Including Proper Burner Design.	8	LB/HR	3 HOUR AVERAGE
SIMPLE CYCLE COMBUSTION TURBINE - ELECTRIC GENERATING PLANT	15.11	NATURAL GASE	1530	MW	THE PROCESS USES FUEL OIL FOR BACKUP AT THE RATE OF 2129 MMBUT/H	Particulate matter, total < 10 µ (TPM10)	GOOD COMBUSTION PRACTICES PIPELINE QUALITY NATURAL GAS, ULTRA LOW SULFUR DISTILLATE FUEL	9.1	LB/HR	3 HOUR AVERAGE/CONDITION 3.3.23
GE LMS-100 combustion turbines, simple cycle with water injection	15.11	natural gas	1690	MMBTU/H		Particulate matter, total < 10 µ (TPM10)	Utilize only natural gas or ULSD fuel; Limit the time in startup or shutdown.	9.1	LB/HR	6-HR AVERAGE ON NG
Combined Cycle Combustion Turbine without Duct Burner Firing Natural Gas	15.11	Natural Gas	28169501	MMBTU/YR	Natural Gas Usage: <=28,169,501 MMBtu/year which includes maximum ultra	Particulate matter, total < 10 µ (TPM10)	Use of natural gas a clean burning fuel	14.4	LB/HR	AV OF THREE ONE H STACK TESTS
TURBINE EXHAUST STACK NO. 1 & NO. 2	15.11	NATURAL GAS	1900	MM BTU/H EACH		Particulate matter, total < 10 µ (TPM10)	USE OF PIPELINE NATURAL GAS	17	LB/HR	HOURLY MAXIMUM
GE 7FA Simple Cycle Combustion Turbine	15.11	Pipeline quality natural gas	1780	MMBTU/HR		Particulate matter, total < 10 µ (TPM10)	will fire only pipeline quality natural gas	18	LB/HR	
Combined Cycle Combustion Turbine with Duct Burner firing natural gas	15.11	Natural Gas	0			Particulate matter, total < 10 µ (TPM10)	Use of natural gas a clean burning fuel	22.6	LB/HR	AV OF THREE ONE H STACK TESTS
Five 200-MW combustion turbines	15.11	Natural gas	2100	MMBtu/hr (approx)	Five simple cycle GE 7F.05 turbines. Max of 3390 hours per year per turbine. Of the	Particulate matter, total < 10 µ (TPM10)	Clean fuel prevents PM formation	2	GR. S / 100 SCF GAS	FUEL RECORD KEEPING
Combustion Turbines	15.11	Natural gas	2262.4	MMBtu/hr gas	Two GE 7F.05 turbines, approximately 200 MW each. Natural-gas is primary fuel.	Particulate matter, total < 10 µ (TPM10)	Use of clean fuels	2	GR. S / 100 SCF GAS	FOR NATURAL GAS
TWO SIMPLE CYCLE COMBUSTION TURBINE - MODEL 7FA	15.11	NATURAL GAS	170	MW	BACKUP FUEL: ULTRA LOW SULFUR DIESEL WITH A MAXIMUM SULFUR CONTENT	Particulate matter, total < 10 µ (TPM10)		10	% OPACITY	6-MINUTE BLOCK BY EPA METHOD 9

Natural Gas Fired in-line Fuel Gas Heater PM_{10} LAER - RBLC Dataset

PROCESS_NAME	PROCCESS_ TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_U NIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_ UNIT	EMISSION_LIMIT_1_AVG_T IME_CONDITION
Heaters (Gas-Fired)	13.31	Natural Gas	0		Numerous gas-fired heaters will be installed. The application requested that the	Carbon Dioxide Equivalent (CO2e)	Natural Gas Fuel	120	LB/MMBTU	
Startup Heater	13.31	natural gas	58.8	MMBTU/H	Limited to 5.76 MMCF of natural gas/yr	Carbon Dioxide	good operating practices & use of natural gas	117	LB/MMBTU	AVERAGE OF THREE (3) STACK TEST RUNS
Startup Heater	13.31	natural gas	58.8	MMBTU/H	Limited to 5.76 MMCF of natural gas/yr	Methane	good operating practices & use of natural gas	0.0023	LB/MMBTU	AVERAGE OF THREE (3) STACK TEST RUNS
Startup Heater	13.31	natural gas	58.8	MMBTU/H	Limited to 5.76 MMCF of natural gas/yr	Nitrous Oxide (N2O)	good operating practices & use of natural gas	0.0006	LB/MMBTU	AVERAGE OF THREE (3) STACK TEST RUNS
PREHEATER, GALVANIZING LINE SN-28	13.31	NATURAL GAS	78.2	MMBTU/HR		Carbon Dioxide	GOOD OPERATING PRACTICES	117	LB/MMBTU	
PREHEATER, GALVANIZING LINE SN-28	13.31	NATURAL GAS	78.2	MMBTU/HR		Methane	GOOD OPERATING PRACTICES	0.0022	LB/MMBTU	
PREHEATER, GALVANIZING LINE SN-28	13.31	NATURAL GAS	78.2	MMBTU/HR		Nitrous Oxide (N2O)	GOOD OPERATING PRACTICES	0.0002	LB/MMBTU	

Diesel Firewater Pump PM_{10} LAER- RBLC Dataset

PROCESS_NAME	PROCCESS_TYPE	PRIMARY_FUEL	THROUGHPUT	THROUGHPUT_UNIT	PROCESS_NOTES	POLLUTANT	CONTROL_METHOD_DESCRIPTION	EMISSION_LIMIT_1	EMISSION_LIMIT_1_UNIT	EMISSION_LIMIT_1_AVG_TIME_CONDITION
Incinerator Generator Engine	17.21	Ultra Low Sulfur Diesel	102	hp	ULSD-fired 102 hp Incinerator Generator Engine	Particulate matter, filterable < 10 µ (FPM10)		0.22	G/BHP-HR	
Incinerator Generator Engine	17.21	Ultra Low Sulfur Diesel	102	hp	ULSD-fired 102 hp Incinerator Generator Engine	Particulate matter, filterable < 2.5 µ (FPM2.5)		0.22	G/BHP-HR	
Agitator Generator Engine	17.21	Ultra Low Sulfur Diesel	98	hp	ULSD-fired 98 hp Agitator Generator Engine	Particulate matter, filterable < 10 µ (FPM10)		0.3	G/BHP-HR	
Agitator Generator Engine	17.21	Ultra Low Sulfur Diesel	98	hp	ULSD-fired 98 hp Agitator Generator Engine	Particulate matter, filterable < 2.5 µ (FPM2.5)		0.3	G/BHP-HR	
Emergency Diesel Generators	17.21	Deisel	150	hp	2 units at 75 hp, 1 unit at 150 hp	Particulate matter, filterable (FPM)		1.34	G / KWH	
Emergency Diesel Generators	17.21	Deisel	150	hp	2 units at 75 hp, 1 unit at 150 hp	Particulate matter, filterable < 10 µ (FPM10)		1.34	G / KWH	

Texas Commission on Environmental Quality

Gas Turbines Rated 20 MW and Greater Electric Output

7/5/2019

This is a list of natural gas-fired turbine projects authorized by TCEQ that generate 20 megawatts (MW) or more greater electric output. It shows their permit numbers, turbine models, number of turbines, power output per turbine and site wide in MW, emissions controls, mode of operation (simple cycle [SC], combined cycle [CC], or cogeneration), and BACT emission concentrations for NOx and CO.

Pending Air NSR Permits for Criteria or GHG Pollutants — GHG Pollutant Permits

Permit No.	PSD	NA/S/HAP	Received	Issue Date	Company Name	City	County	Turbine Model	Number of CTs	MW per CT	Project MW	NOx (1)	Control Method	CO (1)	SC/CC	Permit No.	Issue Date
157256		S	7/5/19	Pending	Avocet Power Center	Lufkin	Angelina	LM6000	3	50	150	25	SCR	24	SC	NA	NA

(1) BACT, LAER or Std Permit limit (ppmvd @ 15% O2)

Issued Permits — GHG Permits

Permit No.	PSD	NA/S/HAP	Received	Issue Date	Company Name	City	County	Turbine Model	Number of CTs	MW per CT	Project MW	NOx (1)	Control Method	CO (1)	SC/CC	Permit No.	Issue Date
157171		S	6/4/19	6/13/2019	Goodalta Power Center LLC	Kerens	Navarro	LM6000	3	50	150	25	SCR	24	SC	NA	NA
156710		S	5/1/19	5/21/2019	Altajac Power Center LLC	Jacksonville	Cherokee	LM6000	3	50	150	25	SCR	24	SC	NA	NA
155895		S	3/7/19	3/18/2019	SJRR Power LLC	Houston	Harris	LM6000	4	50	200						
155736		S	2/25/19	3/11/2019	ProEnergy Services LLC	Texas City	Galveston	LM6000	10	50	500	4	SCR +CO+W	9	SC	NA	NA
155312		S	1/24/19	3/13/2019	NGO Industrial Holdings LLC	Palestine	Anderson	LM6000	4	50	200	25	SCR	20	SC	NA	NA
155311		S	1/24/19	3/17/2019	NGO Industrial Holdings LLC	Sealy	Austin	LM6000	4	50	200	25	SCR	20	SC	NA	NA
154703		S	12/6/18	12/20/2018	ProEnergy Services LLC	Texas City	Galveston	LM6000	8	50	400	4	SCR +CO+W	9	SC	NA	NA
154682		S	12/4/18	12/20/2018	ProEnergy Services LLC	Jacksonville	Cherokee	LM6000	8	50	400	4	SCR +CO+W	9	SC	NA	NA
154626		S	11/30/18	12/12/2018	ProEnergy Services LLC	Iowa Colony	Brazoria	LM6000	4	50	200	4	SCR +CO+W	9	SC	NA	NA
154565		S	11/28/18	12/19/2018	ProEnergy Services LLC	Santa Fe	Gavleston	LM6000	6	50	300	4	SCR +CO+W	9	SC	NA	NA
154465		S	11/16/18	12/4/2018	ProEnergy Services LLC	Thompsons	Fort Bend	LM6000	8	50	400	4	SCR +CO+W	9	SC	NA	NA
153484		S	9/7/18	9/17/2018	ProEnergy Services LLC	Houston	Harris	LM6000 PC	6	40	240	2	SCR + CO + W	2	SC	NA	NA
152697		S	7/11/18	8/10/2018	Castleman Power Development LLC	Victoria	Victoria	LM6000	2	50	100	25	SCR	20	SC	NA	NA
152680		S	7/10/18	8/10/2018	Friendswood Energy Genco LLC	Houston	Harris	Siemens W501D	1	129	129	3.4	DLN+ SCR	25	SC	NA	NA
143912	1510	N256	11/14/16	3/27/2018	Entergy Texas Inc	Willis	Montgomery	Mitsubishi M501GAC	2	368	993 - CC	2	DLN + SCR + CO	2	CC	163	3/27/2018†
146823		S	5/12/17	6/9/2017	Victoria City Power LLC	Victoria	Victoria	LM6000	2	50	100	4	DLN + SCR	20	SC	na	na
146805		S	5/12/17	6/15/2017	Victoria Port Power LLC	Victoria	Victoria	LM6000	2	50	100	4	DLN + SCR	20	SC	na	na
138152	1492 Withdrawn 7/5/2017	N246 Withdrawn 7/5/2017	12/16/15	2/26/2018	AES Gen Dev LLC	Pasadena	Harris	GE 7FA	2	224	448	5	DLN	9	SC	153	Withdrawn 7/5/2017
121917	1422		7/14/14	2/2/2018	Southern Pwr Co (Jackson Gen Fac)	Ganado	Jackson	Siemens F(5)	4	230	920	9	DLN	9	SC	118	6/30/2017†
72579	1080		12/22/15	4/11/2012, 8/16/2017	Golden Spread El. Coop Mustang	Denver City	Yoakum	GE F7FA	1	168	168	9	DLN	9	SC	138	8/16/17
135322	1470		8/24/15	4/28/2017	Southwestern Public Svc Co (Xcel Energy)	Seminole	Gaines	SGT6-5000F5	4	227 -SC 426 - CC	910 - SC 1706 - CC	9 -15 SC 2 - CC	DLN - SC DLN+SCR+CO - CC	9 -20 SC 2 CC	SC/CC	141	4/28/17
140763	1500		5/18/16	4/17/2017	Formosa Plastics Corporation, Texas (Split CTs 7 & 8 from Pmt 19166 onto own permit)	Point Comfort	Calhoun	SGT6-2000E	2	117	234	2	DLN + SCR + CO	4	CC/COG	na	na
131316	1454		10/10/16	2/14/2017	FGE Eagle Pines, LLC (Different turbines, Alstoms no longer available)	New Summerfield	Cherokee	GE 7HA / Siemens 5000F	6 / 9	346 / 242	3,408	2	DLN + SCR + CO	2	CC	133*	11/4/15
123117	1460	N204	8/29/14	2/10/2017	INEOS USA (Chocolate Bayou, NRG Tx Pwr LLC)	Alvin	Brazoria	GE LM6000	2	50	100	2.5	DLN + SCR + CO	4	CC/COG	135	2/10/17
110025	1364		8/8/16	12/16/2016	FGE Texas (FGE Power, Different Turbines)	Westbrook	Mitchell	SGT6-5000F	4 CTs Iss. 3/14	242	1,448	2	DLN + SCR + CO	2	CC	36	12/12/16
107569	1432		8/19/14	3/8/2016	DeCordova II Pwr Co LLC (Luminant)	Granbury	Hood	Add stm turb	CTs Iss. 8/29/13		310-350	-	-	-	CC	124	10/3/16
117026	1390	N194	1/27/14	6/18/2015	Eagle Mtn Pwr Co LLC (Luminant)	Fort Worth	Tarrant	GE 7FA.05 or S GT6-5000F	2	210 or 231	730 or 812	2	DLN + SCR + CO	2	CC	115	7/19/16
130051	1450		2/9/15	4/7/2016	Brazos Electric	Grandview	Hill	GE FA.03, 04, or 05 or SGT6F5ee	4	154 - 232	616 - 928	9	DLN	9	SC	131	4/7/16
122003	1424		7/18/14	2/9/2015	Rockwood Energy Center LLC	Garwood	Colorado	GE F.05 or H.01 MHI 501GAC,or S SCC6-8000F	2	234 - 343	748 - 915	2	DLN + SCR + CO	2	CC	122	3/18/16
138452		S	1/27/16	3/4/2016	Castleman Pwr Systems Int'l LLC	Houston	Harris	GE LM6000	2	50	100	4	DLN + SCR	20	SC	na	na
111393	1368		6/27/13	11/20/2014	Southern Power Company	Trinidad	Henderson	Mitsubishi J model	1	450	530	2	DLN+SCR+CO	4	CC	125	3/1/16
77679	1061M1		1/15/14	10/14/2015	Nacogdoches Pwr LLC (Southern Co.)	Cushing	Nacogdoches	Siemens F5	1	232	232	9	DLN	9	SC	116	3/1/16
121051	1418		6/23/14	10/27/2015	Navasota North Peakers Op Co LLC	Van Alstyne	Grayson	GE 7FA.04	3	183	550	9	DLN	9	SC	119	1/13/16
120973	1420		6/23/14	12/9/2015	Navasota South Peakers Op Co LLC	Nixon	Wilson	GE 7FA.04	3	183	550	9	DLN	9	SC	117	12/16/15

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Permit No.	PSD	NA/S/HAP	Received	Issue Date	Company Name	City	County	Turbine Model	Number of CTs	MW per CT	Project MW	NOx (1)	Control Method	CO (1)	SC/CC	Permit No.	Issue Date
122733			8/14/14	12/8/2015	Halyard Energy Henderson LLC	LaRue	Henderson	GE F.03 or.05 or S F5ee	2	193-232	386-464	9	DLN	9	SC	na	na
125963	1442		11/25/14	10/9/2015	Shawnee Energy Center (repermit w/o SCR)	Abbott	Hill	S GT6-5000F	4	230	920	9	DLN	9	SC	126	11/10/15
120849	1414		6/18/14	5/8/2015	Navasota South Peakers Op Co LLC	Seguin	Guadalupe	GE 7FA.04	3	183	550	9	DLN	9	SC	120	11/10/15
135738		S	9/15/15	11/6/2015	Powersite LLC	Wink	Winkler	R-R Trent 60	4	58	372	2.5	DLN + SCR	3	CC	na	na
132827			5/26/15	11/5/2015	NTE Texas LLC (rev. 117537)	Blackwell	Nolan	GE FA.04	2	184	328	9	DLN	9	SC	na	na
131316	1454		3/27/15	11/4/2015	FGE Eagle Pines, LLC	New Summerfld	Cherokee	Alstom GT36	6	318	3,408	2	DLN + SCR + CO	2	CC	133*	11/4/15
130017			2/9/15	10/15/2015	Luminant Gen Co LLC - Permian Basin Sta.	Monahans	Ward	GE FA.05 or S F5ee	2	210 or 231	420 or 632	9	DLN	7.5 4	SC	na	na
129329			12/22/14	10/9/2015	Halyard Energy Wharton LLC	El Campo	Wharton	GE F.03 or.05 or S F5ee	2	193-232	388-464	9	DLN	9	SC	na	na
102731	1294		5/10/12	12/19/2014	NRG Texas Pwr LLC SR Bertron	La Porte	Harris	GE 7FA-05 or Siemens F(5) or M 501GAC	2	255	823	2	DLN+SCR+CO	2	SC/CC	104	9/15/15
105810	1308		9/12/12	8/29/2014	NRG Texas Pwr LLC (Cedar Bayou)	Baytown	Chambers	GE 7FA-05 or Siemens F(5) or M 501GAC	2	255-264	728	2	DLN+SCR+CO	2	CC	102	9/15/15
128432			12/23/14	9/10/2015	Valley NG Pwr Co LLC (Luminant)	Savoy	Fannin	GE FA.05 or S F5ee	2	210 or 231	420 or 632	9	DLN	7.5 4	SC	na	na
133367		S	6/15/15	7/3/2015	Castleman Pwr Systems Int'l LLC	Point Comfort	Calhoun	GE LM6000	2	50	100	4	DLN + SCR	20	SC	na	na
109148	1358M1		7/15/14	5/12/2015	Golden Spread El. Coop. - Antelope Elk Sta.	Abernathy	Hale	GE 7FA.05	3	202	600	9	DLN	9	SC	41M1	5/20/15
131873		S	4/15/15	5/8/2015	NET Power, LLC (demo project)	LaPorte	Harris	Toshiba CO2	1	25	25	*	oxyfired	*	CO2	na	na
118549			3/28/14	5/5/2015	Wharton County Gen LLC (GDF Suez NA)	Boling	Wharton	GE 7FA.05	1	230	230	9	DLN	9	SC	na	na
119365	1410		4/18/14	4/1/2015	Colorado Bend Energy Center (Exelon)	Wharton	Wharton	GE 7HA.02	2	330	1,160	2	DLN + SCR + CO	4	CC	112	4/1/15
48106	1012M2		9/13/13	3/20/2015	City of Austin - Sand Hill En. Ctr.	Del Valle	Travis	GE 7FA.04	1	173.9	173.9	2	DLN+SCR+CO	2	CC	1012M2GHG	9/29/14
111724	1374		6/18/13	2/2/2015	Indeck Wharton, LLC	Danevang	Wharton	GE 7FA or Siemens 5000F	3	220	650	9	DLN	9	SC	1374GHG	5/12/14
108411	1350		2/22/13	4/29/2014	Tenaska Brownsville Partners LLC	Brownsville	Cameron	MHI 501GAC	1 or 2	275	400-800	2	DLN+SCR+CO	2	CC	1350GHG	1/23/15
117537			2/13/14	12/19/2014	NTE Texas LLC	Blackwell	Nolan	MHI 501GAC	1	273	273	9	DLN	9	SC	na	na
124811		S	10/29/14	12/3/2014	Shawnee Energy Center	Abbott	Hill	S GT6-5000F	4	230	920	4	DLN + SCR	2	SC	na	na
108819	1354		2/22/13	12/2/2014	M & G Resins USA, LLC	Corpus Christi	Nueces	GE LM6000	1	38	38	2	DLN+SCR+CO	2	CC	1354GHG	11/18/14
108258	1348		2/14/13	12/1/2014	Victoria WLE LP	Victoria	Victoria	GE 7FA.04 or equivalent	1	275	450-460	2	DLN+SCR+CO	2	CC	1348GHG	10/8/14
117857			2/27/14	10/27/2014	Lake Creek 3 Pwr Co LLC (Luminant)	Riesel	McLennan	GE 7FA.05 or S GT6-5000F(5)	2	225 or 230	460	9	DLN	9	SC	na	na
114698	1378		10/25/13	9/22/2014	Tenaska Roans Prairie Partners, LLC	Shiro	Grimes	GE 7FA.05, 7FA.04, or S GT6-5000F(5)	3	169 - 231	507 - 694	9	DLN	9	SC	1378GHG	8/1/14
122777		S	8/18/14	9/17/2014	Powersite LLC	Perrin	Jack	R-R Trent 60 DLE ISI	4	60.55	372	3	DLN+SCR+CO	3	CC	na	na
19166	760		12/21/12	8/8/2014	Formosa Plastics (add CTs 7&8)	Point Comfort	Calhoun	GE F7E	2	80		2	DLN + SCR	25	CC/COG	1389GHG	8/1/14
110423	1366		5/13/13	8/1/2014	Invenergy Thermal Dev LLC Ector Co En Ctr	Goldsmith	Ector	GE 7FA.03	2	165-193	330-386	9	DLN	9	SC	1366GHG	8/1/14
104840	1302		7/20/12	7/16/2014	Freeport LNG Development, LP	Quintana	Brazoria	GE F7E	1	87	87	2	DLN+SCR+CO	4	CC	na	na
120681		S	6/11/14	7/15/2014	Optim En. Twin Oaks (repowering)	Bremond	Robertson	GE 7FA.05 or S GT-5000F	2	225 or 230	668	5	DLN+SCR+CO	5	CC	na	na
108182			2/6/13	5/20/2014	NRG Tx Pwr LLC (PH Robinson Sta)	Bacliff	Galveston	GE F7E	6	65	390	15	DLN	25	SC	na	na
109148	1358		4/1/13	4/22/2014	Golden Spread El. Coop. - Antelope Elk Sta.	Abernathy	Hale	GE 7FA.05	1	190	190	9	DLN	9	SC	1358GHG	6/2/14
118876		S	4/7/14	4/11/2014	Apex Bethel En Ctr LLC (reissue)	Tenn. Colony	Anderson	D-R EA-418 (CA	2	158	317	2.5	W+SCR+CO	5	CAES	104511GHG	3/13/14
110025	1364		5/6/13	3/24/2014	FGE Power, LLC	Westbrook	Mitchell	Alstom GT24	4	231	1600	2	DLN+SCR+CO	2	CC	1364GHG	4/28/14
110357			5/23/13	2/7/2014	Tradinghouse Pwr Co LLC (Luminant)	Waco	McLennan	GE 7FA.05 or S GT6-5000F(5)	2	225-230	450-460	9	DLN	9	SC	na	na
115851		S	12/13/13	1/27/2014	Powersite LLC	Kenedy	Karnes	R-R Trent 60 DLE ISI	4	60.55	372	3	DLN+SCR+CO	3	CC	na	na
102294	1290		4/20/12	1/21/2014	El Paso Electric (Reissued as S No. 123471)	El Paso	El Paso	GE LMS100	4	100	400	2.5	W+SCR+CO	4	SC	1290GHG	3/15/14
103839	1298		6/22/12	11/12/2013	Pinecrest Energy Center LLC	Lufkin	Angelina	GE 7FA.05 or S GT6-5000F	2	183-225	637-721	2	DLN+SCR+CO	2	CC	1298GHG	7/31/14
106011	1310		9/24/12	10/2/2013	Guadalupe Power Partners LP	Marion	Guadalupe	GE 7FA.03/.04 /.05 or S5000F	2	192-227	383-454	9	DLN	9	SC	1310GHG	12/2/14
107569			12/27/12	8/29/2013	DeCordova II Pwr Co LLC (Luminant)	Granbury	Hood	GE 7FA.05 or S GT6-5000F(5)	2	225-230	450-460	9	DLN	9	SC	na	na
108130		S	2/5/13	2/27/2013	Chamisa CAES at Tulia LLC	Tulia	Swisher	D-R (CAES)	2	135	270		SCR+CO		CAES	108130	3/21/14
101542	1288		3/15/12	2/7/2013	La Paloma Energy Center	Harlingen	Cameron	GE 7FA.04 or SGT6-5000F	2	183-232	637-735	2	DLN+SCR+CO	2	CC	1288GHG	11/16/13

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Permit No.	PSD	NA/S/HAP	Received	Issue Date	Company Name	City	County	Turbine Model	Number of CTs	MW per CT	Project MW	NOx (1)	Control Method	CO (1)	SC/CC	Permit No.	Issue Date
98664	1268	N138	9/19/11	12/21/2012	Petra Nova Parish Holdings (aka NRG Tx, WA Parish CO_2 proj)	Thompson	Fort Bend	GE F7EA	1	80	80	2	DLN+SCR	9	SC/COG	na	na
42179	955M1	N021M1	11/3/11	10/15/2012	Calpine - Channel Energy Center LLC	Pasadena	Harris	Siemens 501F	1	180	180	2	DLN+SCR	8	CC	955M1	11/29/12
105567		S	8/24/12	9/28/2012	Texas En Dev Svcs LLC (CO_2)	Point Comfort	Calhoun	GE LMS100	1	116	250	3.4	DLN+SCR		CC	no no.	not @TCEQ
45642	979M2	N036M2	9/1/11	9/26/2012	Calpine - Deer Park Energy Center LLC	Deer Park	Harris	Siemens 501F	1	180	180	2	DLN+SCR	8	CC	979M2	11/29/12
96336	1256		5/27/11	9/12/2012	Calhoun Port Authority - ES Joslin	Point Comfort	Calhoun	GE F7FA	3	185	887	2	DLN+SCR	9	CC	no no.	not @TCEQ
103230		S	5/29/12	6/27/2012	Friendswood En. Genco LLC	Houston	Harris	W 501D5	1	128	128	3.4	DLN+SCR	9	SC	na	na
98073			8/15/11	4/30/2012	Xcel/SWPSC Jones 4	Lubbock	Lubbock	S GT6-5000F	1	175	175	9	DLN	9	SC	na	na
93938	1244		10/29/10	9/1/2011	LCRA - TC Ferguson Pwr Plant	Horseshoe Bay	Llano	GE F7FA	2	175	550	2	DLN+SCR+CO	4	CC	1244GHG	11/10/11
92156			3/26/10	11/1/2010	Xcel/SWPSC Jones 3	Lubbock	Lubbock	S GT6-5000F	1	175	175	9	DLN	9	SC	†Separate GHG Permit	
87153	877		1/2/09	3/15/2010	Gregory Power (repermit/renew)	Gregory	San Patricio	GE F7FA	2	168	336	9	DLN	20	SC		
83638	1110		12/7/07	3/3/2010	Wolf Hollow II Pwr LLC (Exelon)	Granbury	Hood	GE 7HA.02	2	330	1,160	2	DLN + SCR + CO	4	CC		
87225	1198		12/22/08	2/3/2010	Panda Sherman Power LLC	Sherman	Grayson	S GT6-5000F	2	200	600	2/9	DLN+SCR	4/15	CC		
83801	1117		1/4/08	11/17/2008	Brazos Electric Power Coop Inc	Bridgeport	Jack	GE F7FA	2	172	663	2	DLN+SCR	11	CC		
83503	1111		12/3/07	10/10/2008	Panda Temple Power LLC	Temple	Bell	S GT6-5000F	4	200	1000	2	DLN+SCR	9	CC		
48106	1012M1		11/29/07	9/24/2008	City of Austin - Sand Hill Units 6 & 7	Del Valle	Travis	GE LM6000	2	48	96	5	DLN+SCR	9	SC		
81903	1095		5/14/07	9/5/2008	City Public Service	Elmendorf	Bexar	GE LM6000	4	50	200	5	DLN+SCR+CO	9	SC		
46189	1103	N71	10/4/07	7/29/2008	Thermal Energy (TECO) CHP 1 & 2	Houston	Harris	GE LM6000	2	50	100	2	DLN+SCR	29	SC		
83550			12/6/07	7/24/2008	East TX Electric Coop Inc	Kountze	Hardin	GE F7EA	2	73	146	9	DLN	25	SC		
4415			3/7/08	6/30/2008	City of Bryan - Dansby Power Plant	Bryan	Brazos	GE LM6000	1	50	50	5	W+SCR+CO	9	SC		
83551			12/6/07	6/26/2008	East TX Electric Coop Inc	Shepherd	San Jacinto	GE F7EA	2	73	146	9	DLN	25	SC		
1467	1090		4/4/07	5/22/2008	El Paso Electric Co - Unit 6A-6B	El Paso	El Paso	GE F7EA	2	70	288	3	DLN+SCR+CO	25	CC		
83475		S	11/28/07	12/28/2007	LCRA - Winchester	Winchester	Fayette	GE LM6000	4	50	200	5	DLN+SCR	25	SC		
81593	1093		4/10/07	12/18/2007	Barney M. Davis LP	Corpus Christi	Nueces	GE F7FA	2	172	700	5	DLN+SCR+CO	5	CC		
81594	1091		4/10/07	12/18/2007	Nueces Bay WLE LP	Corpus Christi	Nueces	GE F7FA	2	172	700	5	DLN+SCR+CO	5	CC		
82519		S	7/30/07	8/17/2007	Laredo WLE, LP	Laredo	Webb	GE LMS1000	2	100	200	5	DLN+SCR	9	SC		
80289	1082		10/31/06	7/26/2007	NRG Texas - Cedar Bayou Unit 4	Eldon	Chambers	S GT6-5000F	2	200	600	3	DLN + SCR	15	CC		
80878		S	1/11/07	2/2/2007	Nucoastal Energy	Victoria	Victoria	MHI M501F	1	285	323	5	DLN+SCR	19	CC		
76990	1059		9/26/05	2/14/2006	Navasota Odessa Energy Partners LP	Odessa	Ector	GE F7EA	4	75	550	5	DLN+SCR	27	CC		
77039	1060		10/3/05	2/9/2006	Navasota Wharton Energy Partners LP	Wharton	Wharton	GE F7EA	4	75	550	5	DLN+SCR	27	CC		
72579			7/2/04	1/10/2005	Golden Spread El. Coop Mustang Unit 4	Denver City	Yoakum	GE F7FA	1	168	168	9	DLN	9	SC		
46306	986M1	N59	4/13/04	12/2/2004	Dow Chemical GT96 (Calpine owner)	Freeport	Brazoria	W 501F	1	180	236	5/3	DLN+SCR	25	CC		
55627		S	6/26/03	9/8/2003	Brownsville PUB Silas Ray Unit 10	Brownsville	Cameron	GE LM6000	1	50	50	5	SCR	32	SC		
52756	1026		9/25/02	7/23/2003	Brazos Elec Pwr (Duke Energy)	Jacksboro	Jack	GE F7FA	2	170	620	5	SCR	20	CC		
53284	1027		10/15/02	6/27/2003	City Public Service Leon Creek	San Antonio	Bexar	GE LM6000	4	48	180	5	SCR+CO	12	SC		
54162		S	2/4/03	3/28/2003	City of Bryan - Dansby Power Plant	Bryan	Brazos	GE LM6000PC	1	50	50	5	SCR	32	SC		
7647B	276		11/10/00	12/20/2002	OxyVinyls, LP - Unit 3	La Porte	Harris	GE F7EA	1	87	87	4	DLN+SCR	25	COG		
48106	1012		5/30/01	4/12/2002	City of Austin - Sand Hill Energy Center	Del Valle	Travis	GE LM6000 GE F7FA	4 1	48 164	500	5 5	SCR	9 17.5	SC CC		
48070	1011		5/24/01	1/17/2002	South Texas Electric Coop, Inc	Nursery	Victoria	GE LM6000	3	45	180	5	SCR	15	CC		
45642	979	N036	9/5/00	8/22/2001	Calpine - Deer Park Energy Ctr	Deer Park	Harris	W 501F	4	180	1060	2.5	SCR	24	CC		
46042	981		10/16/00	7/12/2001	BP Amoco Corp	Texas City	Galveston	GE F7FA	3	167	550	3.5	SCR	25	CC		
45360	977		8/16/00	5/23/2001	Entergy Power Ventures LP	Marshall	Harrison	GE F7FA	2	170	570	5	SCR	25	CC		
19166	760M5		4/20/00	5/3/2001	Formosa Plastics - Add Unit 6	Point Comfort	Calhoun	GE F7EA	1	83	80	9	DLN	25	CC/COG		
21878			8/30/00	12/19/2000	Air Products, Inc.	La Porte	Harris	GE F6B (Pkg)	4	44	176	15	DLN	15	COG		
43890	965		3/20/00	12/15/2000	Cottonwood Energy Co. LP	Deweyville	Newton	GE F7FA	4	170	1200	5	SCR	17.6	CC		
43965	966	N026	3/24/00	10/17/2000	Calpine - Brazos Valley (Avista-Steag)	Thompsons	Fort Bend	GE F7FA	2	175	670	3.5	SCR	25	CC		
42734	958		11/4/99	7/14/2000	Wise County Power Co LLC	Bridgeport	Wise	W 501G	2	230	560	5	SCR+CO	9	CC		
41249	940		4/30/99	3/28/2000	Calpine - Freestone Energy Center	Fairfield	Freestone	GE F7FA	4	175	1070	9	D	20	CC		
41941	948		7/28/99	3/22/2000	Coastal Power Company	Bastrop	Bastrop	GE F7FA	2	170	550	9	D	20	CC		
42179	955	N021	8/26/99	3/22/2000	Calpine - Channel Energy Center	Pasadena	Harris	W 501F	3	180	740	3.5	SCR	25/15	CC/COG		
41953	951		7/29/99	3/6/2000	Next Era - Forney Plt (Cobisa-Forney)	Forney	Kaufman	GE F7FA	6	170	1774	9	D	15	CC		
40803	935		3/9/99	2/23/2000	City of Garland	Nevada	Collin	GE F7EA	1	85	85	9	D	25	SC		
41996	953	N020	8/2/99	2/11/2000	Calpine - Baytown Energy Center	Baytown	Chambers	W 501F	3	180	750	3.5	D + SCR	15	CC/COG		
41166	939		4/22/99	2/7/2000	Exelon Wolf Hollow 1 (AES Aurora)	Granbury	Hood	M 501G	2	254	807	9	SCR	25	CC		
41500	943		5/28/99	2/4/2000	Calpine - Corpus Christi En Ctr	Corpus Christi	Nueces	GE F7FA	2	166	500	9	D	15	CC		
40620	931		2/11/99	12/20/1999	Calpine - Bosque En Ctr (Mirant, SEI)	Whitney	Bosque	GE F7FA	3	170	650	9	D	9	CC		
40363	927		1/21/99	12/15/1999	Ennis-Tractebel Power Co., Inc.	Ennis	Ellis	W 501G	1	250	350	9	SCR	20	CC		
41775	946	N017	7/6/99	12/9/1999	Reliant Energy Channelview LP	Channelview	Harris	W 501F	4	183	820	3	D + SCR	23	CC		
40867	938		3/17/99	12/3/1999	Rio Nogales Power Project LP	Seguin	Guadalupe	GE F7FA	3	170	780	9	D	7.4	CC		
38191	906M1		7/1/99	11/24/1999	GDF Suez/Midlothian En (add #5 & #6)	Midlothian	Ellis	ABB GT24 OTC	2	250	550	5	SCR	25	CC		
39842	919		11/12/98	11/19/1999	Eastman Cogen LP (Eastex Cogen)	Longview	Harrison	GE F7FA	2	168	460	9	D	7	CC/COG		
41008	936		4/5/99	11/19/1999	Odessa-Ector Pwr Partners LP	Odessa	Ector	GE F7FA	4	170	1000	9	D	9	CC		
38481	921		5/29/98	10/20/1999	Union Carbide	Seadrift	Calhoun	GE F6B	1	39	39	9	D	25	COG		
41437	941		5/21/99	9/30/1999	GenTex Power Corp & Calpine	Bastrop	Bastrop	W 501F	2	183	500	5	SCR	10/25	CC		
40496	929		2/1/99	6/22/1999	SRW Cogen LP (El DuPont)	Orange	Orange	GE F7FA	2	170	440	6	SCR	15	CC/COG	C56	
40040	923		12/2/98	6/8/1999	GDF Suez - Hays Energy Project	San Marcos	Hays	ABB GT24 OTC	4	175	1080	5	D/SCR	5 (25)	CC		

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40039	925		12/2/98	5/7/1999	Tenaska Gateway	Minden	Rusk	GE F7FA	3	164	888	9	D	25	CC		
36644	903	N007	10/12/98	4/21/1999	Fina/BASF Amd - Cogen for Blr	Port Arthur	Jefferson	GE F6B	2	39	78	9	D/SCR	25	COG		
38659	922		6/24/98	2/15/1999	Guadalupe Power Partners	Marion	Guadalupe	GE F7FA	4	170	1000	9	D	15	CC		
37894	918		3/19/98	1/8/1999	Lubbock Power & Light	Lubbock	Lubbock	GE LM6000PC	2	42	128	15	SCR	25	CC		
38284	909		5/1/98	12/31/1998	Calpine - Magic Valley Gen Sta	Edinburg	Hidalgo	W 501G	2	230	700	12/9	SCR	25	CC		
38599	914		6/15/98	12/22/1998	Calpine - Hidalgo En Ctr (Duke En)	Edinburg	Hidalgo	GE F7FA	2	175	520	9/12	D	20	CC		
38326	916		5/7/98	10/28/1998	Next Era - Lamar Plt (Panda Paris)	Paris	Lamar	GE F7FA	4	170	1000	9	D	18	CC		
38183	907		4/20/98	10/14/1998	City Public Service	Elmendorf	Bexar	GE F7FA	2	170	500	9	SCR	25	CC		
38191	906		4/13/98	10/2/1998	GDF Suez - Midlothian En (Venus)	Midlothian	Ellis	ABB GT24 OTC	4	275	1080	5	SCR	25	CC		
31914	857		12/10/97	9/30/1998	Sweeny Cogen Ltd. Part. Unit 4	Old Ocean	Brazoria	W 501D5A	1	121	121	25/15	D	10	COG		
37283	915	N015	12/18/97	9/30/1998	Calpine - Pasadena Plant	Pasadena	Harris	W 501F	1	160	500	9/6	SCR	25	CC/COG		
37391	897		1/13/98	8/7/1998	Tenaska Frontier Partners	Shiro	Grimes	GE F7FA	3	183	830	15	D	13	CC		
37613	900		2/12/98	7/31/1998	Frontera Generating LP	Mission	Hidalgo	GE F7FA	2	165	440	15	D	15	CC		
735B	908		12/8/97	6/26/1998	BASF - Cogen 15-2-1	Freeport	Brazoria	GE F7EA	1	83	83	15	D	25	COG		
36889			10/29/97	4/1/1998	Sabine Cogen (was HI Pwr Gen)	Orange	Orange	GE F6B	2	40	110	9/5	SCR+CO Cat	15	CC/COG		
32881	875		12/31/96	7/17/1997	Golden Spread El. Coop. - Mustang (LS Pwr)	Denver City	Yoakum	GE F7FA	2	180	550	15	D	15	CC		
32096	867		3/11/96	2/5/1997	QUIXX Corp (SPS)	Borger	Hutchison	W 501D5A	2	121	242	15	D + SCR	20	COG		
32263	866		4/1/96	12/4/1996	Calpine - Pasadena Cogen LLC	Pasadena	Harris	W 501F	1	180	240	12	S,SCR	20	CC/COG		
31914	857		2/12/96	9/9/1996	Sweeny Cogen Ltd. Part.	Old Ocean	Brazoria	W 501D5A	3	121	363	25/15	D	10	COG		
9910	731		12/30/94	9/14/1995	Exxon Chemicals GT/HRSG 4	Baytown	Harris	Siem. V82.2	1	100	100	9	D	15	COG		
25738	840		7/15/94	4/21/1995	Brownsville Public Utility Board	Brownsville	Cameron	W 251B	1	45	70	15	D + SCR	10	CC		
25034			5/16/94	1/26/1995	Union Carbide	Texas City	Galveston	GE F6	1	38	38	15	D	25	COG		
25384	839		6/20/94	12/6/1994	Tenaska IV Power Partners Ltd	Cleburne	Johnson	W 501F	2	171	500	9	SCR	25	CC		
22043	818		11/9/92	7/5/1994	Equistar Chemical (Quantum)	Deer Park	Harris	GE F6	2	36	96	15	D	25	CC/COG		
9629			11/13/92	5/12/1994	E. I. DuPont - SRW Cogen Unit	Orange	Orange	GE F7E	1	80	105	42	S	10	CC/COG		
9241A	493M1		11/5/92	11/8/1993	Optim En. Altura (Cogen Lyondell) CT #6	Channelview	Harris	GE F7EA	1	80	80	15	D	25	COG		
22038	815		11/5/92	8/9/1993	Shell Oil Company	Deer Park	Harris	GE F7E	2	75	150	15	D (SCR retro)	25	COG		
21394	806		3/3/92	6/16/1993	Brazos Electric Power Coop	Gordon	Palo Pinto	W 501D5	2	104	208	25	W	25	SC		
21587	807		5/15/92	5/27/1993	NRG San Jac Station (Hou Ind Inc)	LaPorte	Harris	GE F7EA	2	81	162	15	D	25	COG		
1467			11/2/92	5/7/1993	El Paso Electric (Newman #4 Upgrade)	El Paso	El Paso	W 501-B6	2	70	240	42	W (82 FO)		CC		
21592			5/14/92	11/12/1992	NRG (Upgrade THWharton 3 + 4) (H Ind Inc)	Satsuma	Harris	GE F7E (Hybrid)	8	57	564	25	D	25	CC		
21429			3/11/92	9/14/1992	Air Liquide P Neches ASU Cogen (Big Three)	Port Neches	Jefferson	GE F6	1	37	37	9	LPM+SCR	15	COG		
20862	799		5/20/91	5/26/1992	Exxon Mobil Oil - refinery cogen	Beaumont	Jefferson	GE F6	1	37	37	9	S+SCR	10	COG		
20869	800		6/3/91	5/20/1992	Dow - Oyster Creek Ltd.	Freeport	Brazoria	GE F7EA	3	85	435	15	D	25	CC/COG		
20065	780		4/11/90	8/7/1991	Huntsman (P#20065 consol to P#16909)	Port Neches	Jefferson	GE F6	2	37	74	25	LPM	25	COG		
20250			7/24/90	4/23/1991	Praxair	Texas City	Galveston	GE F6	1	37	37	25	S	46	COG		
19764			10/16/89	4/6/1990	Niject Services Co.	Hawkins	Wood	GE LM2500	1	26	26	25	S		COG		
19166	760		11/7/88	10/13/1989	Formosa Plastics CTs #1-5 ('93 AMD)	Point Comfort	Calhoun	GE F7MNQC	5	80	475	25	S	25	CC/COG		
18846			5/2/88	8/3/1988	Lubbock Pwr & Light (Tx Tech Cogen)	Lubbock	Lubbock	GE LM2500	1	21	21	25	S		COG		
18358	732		9/30/87	7/5/1988	Equistar Chemical, LP	Corpus Christi	Nueces	GE F6	1	37	37	42	S		COG		
18049	725		4/15/87	6/14/1988	Ticona Polymers, Inc (Celanese)	Bishop	Nueces	GE F6	1	37		42	S		COG		
18394	739		10/15/87	5/19/1988	Direct En. Paris Gen. (orig. Tenaska)	Paris	Lamar	GE F7	2	80	244	42	S		CC/COG		
9910	731		8/29/85	3/7/1988	Exxon Chemicals	Baytown	Harris	GE F6	3	37		42	S		COG		
17625	704		9/17/86	8/26/1987	Koch Refining Co.	Corpus Christi	Nueces	GE F6	1	37		42	S		COG		
16840	688		11/22/85	5/1/1987	Fina Oil	Port Arthur	Jefferson	GE F6	2	37		50	S/W		COG		
17369	713		5/29/86	10/27/1986	Exxon	Baytown	Harris	W 251B8	2	43		75	S		COG		
17411	720M3		7/7/86	9/29/1986	Power Resources	Big Spring	Howard	GE F7EA	2	80	200	51	S		CC/COG		
16750	685		10/17/85	6/10/1986	Wichita Falls Energy	Wichita Falls	Wichita	GE LM2500	3	20	77	75	S		CC		
17030	699		2/12/86	5/29/1986	Formosa Plastics	Point Comfort	Calhoun	GE F6	1	37		94	S		CC/COG		
9664	662		3/28/85	2/12/1986	TU Electric - DeCordova SES	Granbury	Hood	GE F7EA	4	65	260	96	W		SC		
9560			11/26/84	2/11/1986	Invista S.ar.l (orig. E. I. DuPont)	Victoria	Victoria	GE F7	1	80		100	S (SCR retro to 10)		COG		
9668	661		3/28/85	1/29/1986	TU Electric - Morgan Creek SES	Colorado City	Mitchell	GE F7EA	6	65	390	96	W		SC		
9659	663		3/28/85	1/29/1986	TU Electric - Permian Basis SES	Monahans	Ward	GE F7EA	5	65	325	96	W		SC		
9629			3/6/85	9/27/1985	E. I. DuPont	Orange	Orange	GE F7	1	80		42	S	10	COG		
9609A			2/5/85	8/2/1985	Union Carbide	Seadrift	Calhoun	GE F6	2	37		75	S		COG		
9570	650		12/10/84	6/21/1985	Calpine - Texas City Cogen LP	Texas City	Galveston	W 501D5	3	100	400	75	S		CC/COG		
9463	649		5/3/84	4/11/1985	Amoco Oil Company	Texas City	Galveston	GE F7	2	80		75	S		COG		
9517	642		8/28/84	3/12/1985	Ineos USA (orig. Amoco) V 2/09 reiss 95	Alvin	Brazoria	GE F6	1	37		75	S		COG		
9322	621		4/15/83	2/8/1985	University of Texas	Austin	Travis	W 251	1	40		75	S		COG		
9492B	639		6/20/84	11/26/1984	Occidental Chemical (V - 2005)	Deer Park	Harris	GE F7	1 (retired)	80		75	S		COG		
9340			7/15/83	6/11/1984	Central & Southwest	Newgulf	Wharton	GE F7	1	80		75	S		SC		
9378	619		10/12/83	3/1/1984	Amoco Chemicals	Texas City	Galveston	GE F6	1	37		75	S		COG		
9344	243M2		7/20/83	2/29/1984	Coastal Refining & Marketing	Corpus Christi	Nueces	GE F5	2	25		112	D		COG	C57	
9346	612M2		7/25/83	2/7/1984	Air Liquide (origin. Bayou Cogen)	La Porte	Harris	GE F7	4	80	320	75	S		COG		

Issued Permits GHG Permits

Permit No.	PSD	NA/S/HAP	Received	Issue Date	Company Name	City	County	Turbine Model	Number of CTs	MW per CT	Project MW	NOx (1)	Control Method	CO (1)	SC/CC	Permit No.	Issue Date
9241A	493M4		7/22/83	10/13/1983	Optim En. Altura (Cogen Lyondell/ARCO)	Channelview	Harris	GE F7	5	75	500	36 - 24	S		CC		
9292A	605M2		3/4/83	8/10/1983	Calpine - Clear Lake Cogen. Ltd.	Pasadena	Harris	W 501D	3	100	400	75	W		CC		
9244			12/14/82	2/7/1983	Motiva Enterprises (Texaco)	Port Arthur	Jefferson	GE F6	1	37		NC			COG		
9044			3/10/82	6/7/1982	Dow Chemical	Freeport	Brazoria	GE F7	3 (1 retired)	70		NC	DLN (2)		CC/COG		
9045			3/10/82	6/7/1982	Dow Chemical	Freeport	Brazoria	W 501D	2 (retired)	100		NC			CC/COG		
9046			3/10/82	6/7/1982	Dow Chemical	Freeport	Brazoria	W 501D	2 (retired)	100		NC			CC/COG		
9047			3/10/82	6/7/1982	Dow Chemical	Freeport	Brazoria	W 501D	1 (retired)	100		NC			CC/COG		
7647B			5/22/79	12/6/1979	Oxy (orig. Diamond Shamrock)	La Porte	Harris	GE F7	2	80		NC	DLN (2)		CC/COG		
5409			6/2/77	8/17/1977	El Paso Electric	El Paso	El Paso	W 501B4	1	72	72	135	W		SC		
3941			12/10/75	2/9/1976	Dow Chemical	Freeport	Brazoria	W501A	2	45		NC			COG		
3914			11/21/75	1/23/1976	Dow Chemical	Freeport	Brazoria	GE F7C	1	63		NC	DLN (2)		COG		
2894					HL&P Greens Bayou	Houston	Harris	BB 11D5 (Trbdn)	6	60	362	55	W		SC		
2094			2/25/74	3/26/1974	HL&P TH Wharton	Houston	Harris	GE F7C	6	57	342	55	W		SC		
1467					El Paso Electric Unit S4-1/S4-2	El Paso	El Paso	W501B2	2	60	225	55	W		CC		
445			11/1/72	12/7/1972	HL&P TH Wharton (now #21592)	Houston	Harris	GE F7B	2	57	STAG 300	55	W		CC		

CODES: Permit information - N# = Nonattainment area permit; S = Standard Permit; HAP = Haz Air Poll. Turbine Model - Pkg = Peaking. FO = Fuel Oil. (CO_2) - CO_2 capture
Control info - NC = No Controls, W or S = Water or Steam Injection, D or DLN = Dry Low NOx, LPM = Lean Pre-mix, SCR = Selective Catalytic Reduction, CO = CO Catalyst
(1) BACT, LAER or Std Permit limit (ppmvd @ 15% O2) (2) Retrofit for ozone SIP (MECT)
Cycle: Combined Cycle (CC); Simple Cycle (SC); Process steam cogeneration (COG); Compressed air energy storage (CAES); CO2 - closed supercritical CO2 Brayton
*** <0.14 lb NOx/MWh and <132 ppmvd CO @ 15%O2**

Projects Voided, Withdrawn, Expired, Consolidated or Reissued GHG Permits

Permit No.	PSD	NA/S/HAP	Received	Issue Date	Company Name	City	County	Turbine Model	Number of CTs	MW per CT	Project MW	NOx (1)	Control Method	CO (1)	SC/CC	Permit No.	Issue Date
110357	1452	W	3/16/15	PSD Withdrawn 3/4/2019	Tradinghouse Pwr Co LLC (Luminant, switching to CC)	Waco	McLennan	GE FA.05 or S F5ee	4	210 or 231	1,440 or 1,624	2	DLN + SCR + CO	2	CC	132	Withdrawn 3/4/2019
118611			3/28/14	V 5/2/2018	Coleto Creek Power LP (GDF Suez NA)	Fannin	Goliad	GE 7FA.05	1	230	230	9	DLN	9	SC	na	na
116603		S	1/10/14	V 6/13/18	TXP Winkler, LLC	Wink	Winkler	GE LM6000	3	51.3	154	4	DLN + SCR		SC	na	na
116605		S	1/10/14	V 6/13/18	TXP Sealy, LLC	Sealy	Austin	GE LM6000	3	51.3	154	4	DLN + SCR		SC	na	na
116607		S	1/10/14	V 6/13/18	TXP Reeves, LLC	Coyanosa	Reeves	GE LM6000	3	51.3	154	4	DLN + SCR		SC	na	na
122987		S	8/18/14	V 6/13/18	TXP Ricebird LLC	El Campo	Wharton	GE LM6000	3	51	152	4	DLN + SCR	8	SC	na	na
114911	1380		11/12/13	V 11/7/2017	Lon C. Hill LP	Corpus Christi	Nueces	GE 7FA.05, 7FA.04, or S SCC6-5000F, SST6-5000	2	195-240	625-740	2	DLN+SCR+CO	2	CC	1380GHG	10/28/14
122401	1428		8/4/14	3/24/2016	Apex Tx Pwr LLC - Neches Station	Cuney	Cherokee	F Class	4 SC or 2 CC		930 SC 794 CC	9 SC or 2 CC	DLN SC DLN + SCR + CO CC	9 SC or 4 CC	SC/CC	111	3/24/16
135021	1468		8/12/15	V 5/9/2017	Panda Sherman Power LLC	Sherman	Grayson	GE H.02 MHI 501JAC or S	1	287 - 330	470 - 540	2	DLN + SCR + CO	2	CC	144	Void
35335	880M1		8/27/15	1/8/1998	Occidental Chemical (Ingleside): Amend project withdrawn 3/31/2017	Gregory	San Patricio	GE FA.04 or S SGT6-5000F4	1	185	260	2	DLN + SCR	4	CC/COG	142	Withdrawn 3/31/2017
107055		S	11/26/12	2/6/2013	Apex Matagorda En Ctr	Clemville	Matagorda	D-R EA-418 (CA	2	158	317	2.5	W+SCR+CO	5	CAES	107055	4/14/14
99181			10/25/11	V 4/25/2016	NRG Tx Pwr LLC - WA Parish Gen Sta	Thompson	Fort Bend	GE F7EA	1	80	80	5	DLN	25	SC	na	na
71739	1043		4/2/04	V 9/23/2015	Cobisa-Greenville LLP (EXP)	Greenville	Hunt	GE F7FA or W 501F/G	6 or 4	170 - 230	1800	2	SCR	25	CC	na	na
99691			11/21/11	V	Golden Spread El. Coop Mustang Unit 6	Denver City	Yoakum	GE F7FA	1	168	168	9	DLN	8	SC	na	na
84289	1125	N75	3/7/08	8/5/2010	Pondera Dev LLC - King Pwr Station (EXP)	Houston	Harris	GE 7FA.07 or HA.01	2	230	900	2	DLN+SCR+CO	2	CC	na	na
82426	1100	N69	7/19/07	1/12/2011	Exelon/EXTEX LaPorte Ltd P (EXP)	Dallas	Dallas	S GT6-5000F	2	194	395	2.5	DLN+SCR+CO	8	SC	no no.	not @TCEQ
87222	1200	HAP53	12/29/08	WD	MyPower Corp - Lakeside En Ctr (WD)	Fairfield	Freestone	S GT6-5000F	2	193.5	640	2	DLN+SCR	9			
104511		S	7/18/12	9/1/2012	Apex Bethel En Ctr LLC (EXP) reiss. 118876	Tenn. Colony	Anderson	D-R EA-418 (CA	2	158	317	2.5	W+SCR+CO	5			
83207	1106		10/25/07	6/22/2009	Lamar Power Partners II LLC (EXP)	Paris	Lamar	GE F7FA or M 501G	2	170 or 200	620 or 910	2	DLN+SCR	15			
110577		S	6/4/13	7/8/2013	Frame Switch En Inc (proj chg to RICE)	Hutto	Williamson	P&W FT4000	2	60	120	3.5	SCR+CO	12.3			
109147	1356		4/1/13	WD	Golden Spread El. Coop. - Floydada Sta.	Floydada	Floyd	GE 7FA.05	1	190	190	9	DLN	9			
100129	1284	N152	12/20/11	WD	Freeport LNG Development, L.P. (WD)	Freeport	Brazoria	GE 7EA	1	90	90	2	DLN+SCR+CO	4			
17740	716		11/17/86	12/16/1987	Luminant (Encogen One)(decomm)	Sweetwater	Nolan	GE F7E (2), F6	3	80,37		42	S				
86013	1163	N94 HAP33	9/2/08	V	NRG S.R. Bertron IGCC (CO_2)	La Porte	Harris	Gasification Units	2		550						
85862	1153		8/13/08	V	Grimes County En Ctr, LLC	Singleton	Grimes	GE 7FA	4	170	1160	2	DLN+SCR	12			
85534	1143		6/27/08	WD	Navarro Generating LLC (WD)	Richland	Navarro	F Class	2	232	780	2	DLN+SCR+CO	5			
84248	1128	N79	2/28/08	WD	NRG Power - SR Bertron	La Porte	Harris	F Class	4	200	1300	3	DLN+SCR+CO	5			
83784	1116	N73	1/4/08	5/19/2009	Entergy Lewis Creek Plant (EXP)	Willis	Montgomery	GE F7FA	2	167	500	2	DLN+SCR	12			
83690	1113		12/21/07	V	Pin Oak Creek Energy LLC	Richland	Navarro	F Class	4	200	1400	2	DLN + SCR	2			
83642	1115		12/13/07	6/17/2009	Pattillo Branch Pwr (LS Pwr) (EXP)	Savoy	Fannin	F Class	4	200	1400	2	DLN+SCR+CO	2			
83390	1108		11/16/07	10/30/2008	NRG - Cedar Bayou (Unit 5) (EXP)	Eldon	Chambers	F, G, or 7FB	2	200	700	2	DLN+SCR	18			
83378	1105		10/31/07	8/18/2009	Madison Bell Partners LP (EXP)	Madisonville	Madison	GE F7E	4	75	550	2	DLN+SCR	17.5			
82244	1098		6/21/07	4/18/2008	NavasotaWhartonCol Bend Unit 3(EXP)	Wharton	Wharton	GE F7EA	2	75	225	2	DLN+SCR	27			
82303	1099		6/21/07	4/18/2008	Navasota Odessa Unit 3 (EXP)	Odessa	Ector	GE F7EA	2	75	225	2	DLN+SCR	27			

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Issued Permits GHG Permits

Permit No.	PSD	NA/S/HAP	Received	Issue Date	Company Name	City	County	Turbine Model	Number of CTs	MW per CT	Project MW	NOx (1)	Control Method	CO (1)	SC/CC	Permit No.	Issue Date
81853	1092		5/4/07	WD	Occidental Energy Ventures Corp	Denver City	Yoakum	????	3	???	700	2	DLN + SCR	15			
95	854M2		1/3/07	WD	Ineos USA LLC (deleted from flex P proj)	Alvin	Brazoria	Solar 130S	2	15	30	5	SCR	32			
45642	979M1	N036M1	11/10/06	12/21/2007	Calpine Deer Park - Units 5, 6 (EXP)	Deer Park	Harris	SW 501F	2	180	530	2.5	SCR	24			
80546		S	12/11/06	12/22/2006	NRG S.R. Bertron(peakers) (EXP)	La Porte	Harris	GE LM6000	4	50	200	5	W + SCR	25			
80289	1082		10/31/06	7/26/2007	NRG - Cedar Bayou (peakers) (EXP)	Eldon	Chambers	GE LM6000	8	50	400	5	W + SCR	25			
79335			6/30/06	9/22/2006	Wise County Pwr Co LP (EXP)	Poolville	Wise	GE F7EA	4	81	324	9	DLN	25			
79133		S	6/6/06	7/6/2006	GoldenSpread Unit 5 (V) Cons in 72579	Denver City	Yoakum	GE 7FA (PKg)	1	168	168	9	DLN	9			
77679	1061		12/22/05	3/1/2007	Nacogdoches Pwr (deleted from proj)	Sacul	Nacogdoches	SW 501F	1	190	330	5	DLN+SCR	21			
45642	979M1	N036M1	3/30/04	WD	Calpine Deer Park En (add 2 units)	Deer Park	Harris	W 501F	2	180	360	2.5	SCR	24			
55629		S	6/26/03	9/12/2003	Brownsville PUB (V)	Brownsville	Cameron	GE LM6000	1	50	50	5	SCR	32			
54114	1031	N055	1/9/03	10/20/2003	Bayport Energy Center LP (EXP)	Pasadena	Harris	GE F6B	2	40	80	3.5	SCR	17.2			
49293	1015		9/21/01	12/6/2002	Steag - Sterne Elec Gen Fac (EXP)	Sacul	Nacogdoches	SW 501F	3	190	1000	5	SCR	21			
48500	1013		7/16/01	WD	STEAG Power LLC (WD)	Ennis	Ellis	W 501G	4	200	1400	5	SCR	35			
46603			4/26/01	5/15/2002	Ridge En Storage & Grid Servs (EXP)	Clemville	Matagorda	DR T6-EA418	4	134	538	9	SCR	25			
47318	1009		3/7/01	7/5/2002	Hartburg Power LP (EXP)	Deweyville	Newton	GE F7FA	3	277	800	5	SCR	15			
46665	1003		12/14/00	3/24/2003	Ennis Tractebel II LP (V 05/19/04)	Ennis	Ellis	W 501G	2	230	815	5	SCR	9			
46536			11/22/00	WD	Texas Bayou En Ctr (WD-PBR)	Texas City	Galveston	GE LM2500	1	25	25	4.2	SCR	25			
46532			11/21/00	No Turbines	Celanese, Ltd (Turbines Deleted)	Pasadena	Harris	GE LM6000	6	47	284	5	SCR + CO	5			
46470	990		11/17/00	AV & V	STEAG Power LLC (AV & V)	Ferris	Ellis	GE F7FA	4	175	1200	3.5	SCR	20			
46192	983		10/24/00	3/24/2003	Innovene (was BP, Amoco) (EXP)	Alvin	Brazoria	GE F6B	2	35	70	3.5	SCR	25	COG		
42179	955	N021	11/16/00	WD	Channel Energy (Add 4th Cogen) (V)	Pasadena	Harris	W 501F	1	180	180	3.5	SCR	25			
46426	999		11/13/00	10/8/2003	Texas Petrochemicals, LP (not built)	Houston	Harris	GE F7EA	2	81	581	5	SCR	25			
43965	966	N026	11/6/00	12/31/2002	Steag/Brazos V. add 2 CCTs (EXP)	Thompsons	Fort Bend	GE F7FA	2	170	660	3.5	SCR	25			
45843	982	N037	10/2/00	3/26/2002	Calpine Amelia En Ctr (EXP)	Amelia	Jefferson	W 501F	3	180	1030	3.5	SCR	22			
44174	968	N028	4/13/00	6/20/2001	MC Energy Partners, LP (V)	Montgomery	Montgomery	GE F7FA	2	170	660	3	SCR	25			
44175	969	N029	4/13/00	12/21/2000	Cedar Power Partners, LP(EXP)	Dayton	Liberty	GE F7FA	2	175	800	3	SCR	25			
43178	962		12/30/99	12/15/2000	Westvaco Texas LP (Expired)	Evadale	Jasper	GE LM6000PC	2	42	84	5	SCR + CO	22			
42905	961	N023	11/24/99	WD	Texas Industrial Power (WD)	Mt. Belvieu	Chambers	W 501FD	1	177	193	5	SCR	25			
42774	960		11/10/99	7/28/2000	West Texas Energy Ltd Part (EXP)	El Paso	El Paso	ABB-GT24	2	180	500	3.5	SCR	5			
42169	954		8/25/99	3/14/2000	Duke Energy Jack, LP (EXP)	Jacksboro	Jack	GE F7FA	2	170	620	5	SCR	20			
42086	952		8/16/99	8/18/2000	Palestine Generation LLC (EXP)	Palestine	Anderson	GE F7FA	6	170	1600	5	SCR	15			
41802	947	N019	7/12/99	8/31/2000	Chambers Energy Facility (V)	Houston	Harris	ABB GT24 OTC	8	180	2200	3.5	D + SCR + CO	20			
41774	945		7/6/99	3/20/2000	Gateway Power Project, LP (EXP)	Gilman	Upshur	GE F7FA	3	170	800	5	SCR	7.4			
41606	944		6/14/99	2/4/2000	Duke Energy Bell LP (EXP)	Temple	Bell	GE F7FA	2	170	520	5	SCR	20			
41472	942		5/27/99	1/31/2000	Kaufman Cogen, LP (EXP)	Mesquite	Kaufman	GE F7FA	2	170	620	5	SCR	20			
41013	937		4/5/99	1/13/2000	Archer Power Partners LP (EXP)	Lakeside City	Archer	GE F7FA	4	170	1000	5	SCR	9			
9241A	493M4		3/4/99	11/5/1999	Cogen Lyondell (Turbine #7) (EXP)	Channelview	Harris	W 501F (Pkng)	1	160	160	25	D	25			
40699	932		2/23/99	3/14/2000	ExxonMobil (Cons into 19566)	Beaumont	Jefferson	GE F7FA	3	170	740	5	SCR	10/25			
40619	933		2/11/99	3/11/2002	Mirant Parker LLC (SEI) (EXP)	Weatherford	Parker	GE F7FA/F7EA	2/2	170/82	650	9/9	D	9/25			
38484	911	N013	5/29/98	WD	Air Products, Inc (V)	La Porte	Harris	W 501F	1	168	240	9/5	SCR	20			
37302	895		12/29/97	8/18/1998	Edinburg Energy (EXP)	Edinburg	Hidalgo	ABB GT-24	4	180	815	15	D	10			
37227	894	N005	12/12/97	9/22/1998	Air Liquide America Corp (V)	La Porte	Harris	GE F7EA	3	81	243	9/5	SCR	25			
34824	877		5/9/97	3/19/1998	Gregory Pwr (V)(failed to renew)	Gregory	San Patricio	GE F7FA	2	168	336	15	D	20			
35335	880		4/18/97	1/8/1998	Occidental Chem (V)(failed to renew)	Gregory	San Patricio	GE F7FA	2	170	500	15	D	20			
33166	870		7/22/96	12/20/1996	Longview Generating, LP (EXP)	Longview	Gregg	GE F7FA	1	180	180	9	D	8			
23962	837		12/3/93	5/2/1994	West Campus Cogeneration (EXP)	College Stn.	Brazos	GE F6	2	37	75	9-14	D				
19566	932		2/23/99	3/14/2000	ExxonMobil (originally 40699) (Cons into 49138, 11/24/09)	Beaumont	Jefferson	GE F7FA	3	170	740	5	SCR	10/25	CC/COG		
9910	731M2		10/4/02	6/13/2003	ExxonMobil Corp - Baytown (Cons into 3452, 8/24/05)	Baytown	Harris	GE F7FA	1	170	170	3	SCR	7.4	COG		

CODES: V = Void, AV = Admin Void, EXP = Expired, WD = Withdrawn, DEL = Deleted, Cons = Consolidated, S = Standard Permit, PBR = Permit by Rule

(1) BACT (ppmvd @ 15% O2)

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Recently Issued and Approved BACT from Recently Issued NSR Permits for Relevant Equipment

Facility	Location	Permit Date	Equipment Description	Control Description	Pollutant	Emission Rate	Units
Abengoa Bioenergy Biomass of Kansas	Hugoton, Kansas	1/1/2014	Emergency Fire Pump	Good Combustion Practices	CO	0.0011	lb/hp-hr
				Good Combustion Practices	Nox	0.006	lb/hp-hr
				Good Combustion Practices	VOC	0.0002	lb/hp-hr
				Low Sulfur Fuels	SO2	0.00059	lb/hp-hr
				combustion Control/Low Ash Fuels	PM	0.0002	lb/hp-hr
					CO2e	163.6	lb/MMBtu
FGE Texas Project	Mitchell County, Texas	5/1/2013	Fugitives	Daily AVO Inspections	CO2e	10	tpy
					CH4	0.1	tpy
					CO2	209	tpy
FGE Texas Project			Firewater Pump Engine	Appropriate operation of the engines and low annual hours of operation are selected as BACT for the Proposed Engine	CO2	73.96	kg/mmBtu
					CH4	3.00E-03	kg/mmBtu
					N2O	6.00E-04	kg/mmBtu
Kings Mountain Energy Center	Kings Mountain, North Carolina	7/1/2014	Firewater Pump Engine	40 CFR Part 60 Subpart IIII	CO	40 CFR Part 60 Subpart IIII	
					Nox		
					VOC		
					SO2		
					PM		
					CO2e		
Pleasants Energy Facility	Waverly, West Virginia	9/1/2015	Simple Cycle Combustion Turbines	Low Nox Burners while combusting Natural Gas Water injection while combusting fuel oil	NOx	9	ppm
				Good Combustion Practices	CO	9	ppm
				Use of low ash and low sulfur fuels, inlet air filtration, and good combustion control practices	PM	20	lb/hr
				Use of natural gas as a fuel and efficient turbine design	GHG	1,570	lb CO2/MW-hr
Gaines County Power Plant	Seminole, Texas	4/28/2017	Simple Cycle Combustion Turbines	Dry low NOx Burners	NOx	9	ppm
				Dry low NOx Burners and good combustion practices	CO	9	ppm
				Good Combustion Practices and Maintenance Procedures	VOC	2	ppm
				Pipeline Quality Natural Gas	PM/PM10/PM2.5		
				Low Carbon intensity fuel, efficient SCCT Technology, good combustion and operating/maintenance practices	CO2e	1300	lb/MWh
				Limit duration of MSS events	MSS		
Gaines County Power Plant			Fire Pump Engine	limit hours of operation to 100 hours per year and comply with 40 CFR Part 60 Subpart IIII and use ultra-low sulfur diesel fuel	CO	40 CFR Part 60 Subpart IIII	
					Nox		
					VOC		
					SO2		
					PM		
					CO2e		
Gaines County Power Plant			SF6 Electrical Equipment	Use state-of-art enclosed SF6 cirtuit breakers with low pressure alarm	SF6		
Gaines County Power Plant			Fugitive Emissions	Periodic AVO inspections and repairing any found leaks	VOC		
					CO2e		
Jackson County Generating Facility	Ganado, Texas	2/2/2018	Simple Cycle Turbine	energy efficiency designs, practices, and procedures, CT inlet air cooling, periodic CT burner maintenance and tuning, reduction in heat loss, i.e., insulation of the CT, instrumentation and controls	CO2e	1316	lb/MWh

Recently Issued and Approved BACT from Recently Issued NSR Permits for Relevant Equipment

Facility	Location	Permit Date	Equipment Description	Control Description	Pollutant	Emission Rate	Units
Jackson County Generating Facility			Natural Gas Fired Fuel Gas Heaters	Low carbon intensity fuel, good operating and maintenance practices, Efficient Design, low annual capacity	CO2e		
Jackson County Generating Facility			Fugitive Emissions	Weekly AVO inspections	CH4		
Jackson County Generating Facility			Firewater Pump Engine	Good operating and maintenance Procedures, efficient design, low annual capacity	CO2e		
Jackson County Generating Facility			SF6 Electrical Equipment	totally enclosed insulation systems equipped with a low pressure alarm and low pressure lockout is BACT	SF6		
Montgomery County Power Station	Willis, Texas	3/27/2018	Fire Pump Engine	limit hours of operation to 100 hours per year and comply with 40 CFR Part 60 Subpart IIII and use ultra-low sulfur diesel fuel	CO Nox VOC SO2 PM CO2e		
Montgomery County Power Station			Fugitive Emissions	Weekly AVO inspections	VOC CH4		

Appendix D. PI-1 General Application Workbook

Texas Commission on Environmental Quality
Form PI-1 General Application
General

Date: ____________
Permit #: ____________
Company: ____________

I. Applicant Information	
I acknowledge that I am submitting an authorized TCEQ application workbook and any necessary attachments. Except for inputting the requested data and adjusting row height and column width, I have not changed the TCEQ application workbook in any way, including but not limited to changing formulas, formatting, content, or protections.	I agree
A. Company Information	
Company or Legal Name:	El Paso Electric Company
Permits are issued to either the facility owner or operator, commonly referred to as the applicant or permit holder. List the legal name of the company, corporation, partnership, or person who is applying for the permit. We will verify the legal name with the Texas Secretary of State at (512) 463-5555 or at:	
https://www.sos.state.tx.us	
Texas Secretary of State Charter/Registration Number (if given):	1073400
B. Company Official Contact Information: must not be a consultant	
Prefix (Mr., Ms., Dr., etc.):	Mr.
First Name:	Daniel
Last Name:	Perez
Title:	Supervisor, Environmental Compliance
Mailing Address:	P.O. Box 982
Address Line 2:	
City:	El Paso
State:	Texas
ZIP Code:	79901
Telephone Number:	915-543-4166
Fax Number:	
Email Address:	Daniel.perez@epelectric.com
C. Technical Contact Information: This person must have the authority to make binding agreements and representations on behalf of the applicant and may be a consultant. **Additional technical contact(s) can be provided in a cover letter.**	
Prefix (Mr., Ms., Dr., etc.):	Mr.
First Name:	Bill
Last Name:	Jamieson
Title:	Director, Air Quality
Company or Legal Name:	SWCA Environmental Consultants
Mailing Address:	20 E Thomas Rd
Address Line 2:	Suite 1700
City:	Phoenix
State:	Arizona
ZIP Code:	85012
Telephone Number:	800-828-8517
Fax Number:	
Email Address:	bjamieson@swca.com
D. Assigned Numbers The CN and RN below are assigned when a Core Data Form is initially submitted to the Central Registry. The RN is also assigned if the agency has conducted an investigation or if the agency has issued an enforcement action. If these numbers have not yet been assigned, leave these questions blank and include a Core Data Form with your application submittal. See Section VI.B. below for additional information.	
Enter the CN. The CN is a unique number given to each business, governmental body, association, individual, or other entity that owns, operates, is responsible for, or is affiliated with a regulated entity.	CN600352819

Enter the RN. The RN is a unique agency assigned number given to each person, organization, place, or thing that is of environmental interest to us and where regulated activities will occur. The RN replaces existing air account numbers. The RN for portable units is assigned to the unit itself, and that same RN should be used when applying for authorization at a different location.	RN100211309

II. Delinquent Fees and Penalties

Does the applicant have unpaid delinquent fees and/or penalties owed to the TCEQ? This form will not be processed until all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ are paid in accordance with the Delinquent Fee and Penalty Protocol. For more information regarding Delinquent Fees and Penalties, go to the TCEQ Web site at:	No

https://www.tceq.texas.gov/agency/financial/fees/delin

III. Permit Information

A. Permit and Action Type **(multiple may be selected, leave no blanks)**

Additional information regarding the different NSR authorizations can be found at:
https://www.tceq.texas.gov/permitting/air/guidance/authorize.html

Select from the drop-down the type of action being requested for each permit type. **If that permit type does not apply, you MUST select "Not applicable".**

Provide all assigned permit numbers relevant for the project. Leave blank if the permit number has not yet been assigned.

Permit Type	Action Type Requested **(do not leave blank)**	Permit Number (if assigned)
Minor NSR (can be a Title V major source): *Not applicable, Initial, Amendment, Renewal, Renewal Certification, Renewal/Amendment, Relocation/Alteration, Change of Location, Alteration, Extension to Start of Construction*	Not applicable	
Special Permit: *Not applicable, Amendment, Renewal, Renewal Certification, Renewal/Amendment, Alteration, Extension to Start of Construction*	Not applicable	
De Minimis: *Not applicable, Initial*	Not applicable	
Flexible: *Not applicable, Initial, Amendment, Renewal, Renewal Certification, Renewal/Amendment, Alteration, Extension to Start of Construction*	Not applicable	
PSD: *Not applicable, Initial, Major Modification*	Major Modification	1467 and PSDTX1090
Nonattainment: *Not applicable, Initial, Major Modification*	Major Modification	1467 and PSDTX1090
HAP Major Source [FCAA § 112(g)]: *Not applicable, Initial, Major Modification*	Not applicable	
PAL: *Not applicable, Initial, Amendment, Renewal, Renewal/Amendment, Alteration*	Not applicable	
GHG PSD: *Not applicable, Initial, Major Modification, Voluntary Update*	Major Modification	1467 and PSDTX1090

GHG projects: List the non-GHG applications (pending or being submitted) that are associated with the project. Note: All preconstruction authorizations (including authorization for emissions of greenhouse gases, if applicable) must be obtained prior to start of construction.	

B. MSS Activities

How are/will MSS activities for sources associated with this project be authorized?	This permit

C. Consolidating NSR Permits

Will this permit be consolidated into another NSR permit with this action?	No
Will NSR permits be consolidated into this permit with this action?	No

D. Incorporation of Standard Permits, Standard Exemptions, and/or Permits By Rule (PBR)

To ensure protectiveness, previously issued authorizations (standard permits, standard exemptions, or PBRs) including those for MSS, are incorporated into a permit either by consolidation or by reference. At the time of renewal and/or amendment, consolidation (in some cases) may be voluntary and referencing is mandatory. More guidance regarding incorporation can be found in 30 TAC § 116.116(d)(2), 30 TAC § 116.615(3) and in this memo:

https://www.tceq.texas.gov/assets/public/permitting/air/memos/pbr_spc06.pdf

Are there any standard permits, standard exemptions, or PBRs to be incorporated by reference?	Yes
If yes, list any PBR, standard exemptions, or standard permits that need to be referenced:	45606;114528
Are there any PBR, standard exemptions, or standard permits associated to be incorporated by consolidation? **Note:** Emission calculations, a BACT analysis, and an impacts analysis must be attached to this application at the time of submittal for any authorization to be incorporated by consolidation.	No

E. Associated Federal Operating Permits

Is this facility located at a site required to obtain a **site operating permit (SOP)** or **general operating permit (GOP)?**	Yes
Is a **SOP** or **GOP** review pending for this source, area, or site?	No
If required to obtain a **SOP** or **GOP**, list all associated permit number(s). If no associated permit number has been assigned yet, enter "TBD":	O80

IV. Facility Location and General Information	
A. Location	
County: Enter the county where the facility is physically located.	El Paso
TCEQ Region	Region 6
County attainment status as of Sept. 23, 2019	Part of this county is Moderate PM10 nonattainment.
Street Address:	4900 Stan Roberts Sr. Avenue
City: If the address is not located in a city, then enter the city or town closest to the facility, even if it is not in the same county as the facility.	El Paso
ZIP Code: Include the ZIP Code of the physical facility site, not the ZIP Code of the applicant's mailing address.	79934
Site Location Description: If there is no street address, provide written driving directions to the site. Identify the location by distance and direction from well-known landmarks such as major highway intersections.	
Use USGS maps, county maps prepared by the Texas Department of Transportation, or an online software application such as Google Earth to find the latitude and longitude.	
Latitude (in degrees, minutes, and nearest second (DDD:MM:SS)) for the street address or the destination point of the driving directions. Latitude is the angular distance of a location north of the equator and will always be between 25 and 37 degrees north (N) in Texas.	31:58:56 N
Longitude (in degrees, minutes, and nearest second (DDD:MM:SS)) for the street address or the destination point of the driving directions. Longitude is the angular distance of a location west of the prime meridian and will always be between 93 and 107 degrees west (W) in Texas.	106:25:50 W
Is this a project for a lead smelter, concrete crushing facility, and/or a hazardous waste management facility?	No
B. General Information	
Site Name:	Newman Power Station
Area Name: Must indicate the general type of operation, process, equipment or facility. Include numerical designations, if appropriate. Examples are Sulfuric Acid Plant and No. 5 Steam Boiler. Vague names such as Chemical Plant are not acceptable.	Simply Cycle Combustion Turbine Unit 7
Are there any schools located within 3,000 feet of the site boundary?	No

Date: ____________
Permit #: ____________
Company: ____________

C. Portable Facility	
Permanent or portable facility?	Permanent
D. Industry Type	
Principal Company Product/Business:	Electric Services
A list of SIC codes can be found at: https://www.naics.com/sic-codes-industry-drilldown/	
Principal SIC code:	4911
NAICS codes and conversions between NAICS and SIC Codes are available at: https://www.census.gov/eos/www/naics/	
Principal NAICS code:	221112
E. State Senator and Representative for this site	
This information can be found at (note, the website is not compatible to Internet Explorer): https://wrm.capitol.texas.gov/	
State Senator:	Jose Rodriguez
District:	29
State Representative:	Joseph E Moody
District:	78

V. Project Information

A. Description	
Provide a brief description of the project that is requested. (Limited to 500 characters).	Install a new simple cycle gas-fired turbine, an emergency firewater pump engine, forced draft line heater, and associated fugitive emission components.
B. Project Timing	
Authorization must be obtained for many projects before beginning construction. Construction is broadly interpreted as anything other than site clearance or site preparation. Enter the date as "Month Date, Year" (e.g. July 4, 1776).	
Projected Start of Construction:	July 1, 2021
Projected Start of Operation:	May 1, 2023
C. Enforcement Projects	
Is this application in response to, or related to, an agency investigation, notice of violation, or enforcement action?	No
D. Operating Schedule	
Will sources in this project be authorized to operate 8760 hours per year?	Yes

VI. Application Materials

All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. (30 TAC § 116.116)

A. Confidential Application Materials	
Is confidential information submitted with this application?	No

B. Is the Core Data Form (Form 10400) attached?	No
https://www.tceq.texas.gov/assets/public/permitting/centralregistry/10400.docx	
C. Is a current area map attached?	Yes
Is the area map a current map with a true north arrow, an accurate scale, the entire plant property, the location of the property relative to prominent geographical features including, but not limited to, highways, roads, streams, and significant landmarks such as buildings, residences, schools, parks, hospitals, day care centers, and churches?	Yes
Does the map show a 3,000-foot radius from the property boundary?	Yes
D. Is a plot plan attached?	Yes
Does your plot plan clearly show a north arrow, an accurate scale, all property lines, all emission points, buildings, tanks, process vessels, other process equipment, and two bench mark locations?	Yes
Does your plot plan identify all emission points on the affected property, including all emission points authorized by other air authorizations, construction permits, PBRs, special permits, and standard permits?	Yes
Did you include a table of emission points indicating the authorization type and authorization identifier, such as a permit number, registration number, or rule citation under which each emission point is currently authorized?	Yes
E. Is a process flow diagram attached?	Yes
Is the process flow diagram sufficiently descriptive so the permit reviewer can determine the raw materials to be used in the process; all major processing steps and major equipment items; individual emission points associated with each process step; the location and identification of all emission abatement devices; and the location and identification of all waste streams (including wastewater streams that may have associated air emissions)?	Yes
F. Is a process description attached?	Yes
Does the process description emphasize where the emissions are generated, why the emissions must be generated, what air pollution controls are used (including process design features that minimize emissions), and where the emissions enter the atmosphere?	Yes
Does the process description also explain how the facility or facilities will be operating when the maximum possible emissions are produced?	Yes
G. Are detailed calculations attached? Calculations must be provided for each source with new or changing emission rates. For example, a new source, changing emission factors, decreasing emissions, consolidated sources, etc. You do not need to submit calculations for sources which are not changing emission rates with this project. Please note: the preferred format is an electronic workbook (such as Excel) with all formulas viewable for review. It can be emailed with the submittal of this application workbook.	Yes
Are emission rates and associated calculations for planned MSS facilities and related activities attached?	Yes
H. Is a material balance (Table 2, Form 10155) attached?	N/A

I. Is a list of MSS activities attached?	Yes
Are the MSS activities listed and discussed separately, each complete with the authorization mechanism or emission rates, frequency, duration, and supporting information if authorized by this permit?	Yes
J. Is a discussion of state regulatory requirements attached, addressing 30 TAC Chapters 101, 111, 112, 113, 115, and 117?	Yes
For all applicable chapters, does the discussion include how the facility will comply with the requirements of the chapter?	Yes
For all not applicable chapters, does the discussion include why the chapter is not applicable?	Yes
K. Are all other required tables, calculations, and descriptions attached?	Yes

VII. Signature

The owner or operator of the facility must apply for authority to construct. The appropriate company official (owner, plant manager, president, vice president, or environmental director) must sign all copies of the application. The applicant's consultant cannot sign the application. **Important Note: Signatures must be original in ink, not reproduced by photocopy, fax, or other means, and must be received before any permit is issued.**

The signature below confirms that I have knowledge of the facts included in this application and that these facts are true and correct to the best of my knowledge and belief. I further state that to the best of my knowledge and belief, the project for which application is made will not in any way violate any provision of the Texas Water Code (TWC), Chapter 7; the Texas Health and Safety Code, Chapter 382; the Texas Clean Air Act (TCAA); the air quality rules of the Texas Commission on Environmental Quality; or any local governmental ordinance or resolution enacted pursuant to the TCAA. I further state that I understand my signature indicates that this application meets all applicable nonattainment, prevention of significant deterioration, or major source of hazardous air pollutant permitting requirements. The signature further signifies awareness that intentionally or knowingly making or causing to be made false material statements or representations in the application is a criminal offense subject to criminal penalties.

Name:	Steven Buraczyk
Signature:	
	Original signature is required.
Date:	

V. Nonattainment Permits	
Complete the offsets section of the Federal Applicability sheet of this workbook.	Yes
Does the application contain a detailed LAER analysis? (attachment or as notes on the BACT sheet of this workbook)	Yes
Does the application contain an analysis of alternative sites, sizes, production processes, and control techniques for the proposed source? The analysis must demonstrate that the benefits of the proposed location and source configuration significantly outweigh the environmental and social costs of that locati+A124on.	Yes

VIII. Federal Regulatory Questions	
Indicate if any of the following requirements apply to the proposed facility. Note that some federal regulations apply to minor sources. Enter all applicable Subparts.	
A. Title 40 CFR Part 60	
Do NSPS subpart(s) apply to a facility in this application?	Yes
List applicable subparts you will demonstrate compliance with (e.g. Subpart M)	Subpart A, Subpart IIII, Subpart KKKK, Subpart TTTT
B. Title 40 CFR Part 61	

Do NESHAP subpart(s) apply to a facility in this application?	No
C. Title 40 CFR Part 63	
Do MACT subpart(s) apply to a facility in this application?	Yes
List applicable subparts you will demonstrate compliance with (e.g. Subpart VVVV)	Subpart ZZZZ

IX. Emissions Review	
A. Impacts Analysis	
Any change that results in an increase in off-property concentrations of air contaminants requires an air quality impacts demonstration. Information regarding the air quality impacts demonstration must be provided with the application and show compliance with all state and federal requirements. Detailed requirements for the information necessary to make the demonstration are listed on the Impacts sheet of this workbook.	
Does this project require an impacts analysis?	Yes
B. Disaster Review	
If the proposed facility will handle sufficient quantities of certain chemicals which, if released accidentally, would cause off-property impacts that could be immediately dangerous to life and health, a disaster review analysis may be required as part of the application. Contact the appropriate NSR permitting section for assistance at (512) 239-1250. Additional Guidance can be found at: https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/disrev-factsheet.pdf	
Does this application involve any air contaminants for which a disaster review is required?	No
C. Air Pollutant Watch List	
Certain areas of the state have concentrations of specific pollutants that are of concern. The TCEQ has designated these portions of the state as watch list areas. Location of a facility in a watch list area could result in additional restrictions on emissions of the affected air pollutant(s) or additional permit requirements. The location of the areas and pollutants of interest can be found at: https://www.tceq.texas.gov/toxicology/apwl/apwl.html	
Is the proposed facility located in a watch list area?	Yes
Does this application include a pollutant of concern for the applicable area on the APWL?	No
D. Mass Emissions Cap and Trade	
Is this facility located at a site within the Houston/Galveston nonattainment area (Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties)?	No

Texas Commission on Environmental Quality
Form PI-1 General Application
Unit Types - Emission Rates

Date: ____________
Permit #: ____________
Company: ____________

Permit primary industry (must be selected for workbook to function)	Combustion

Action Requested (only 1 action per FIN)	Include these emissions in annual (tpy) summary?	Facility ID Number (FIN)	Emission Point Number (EPN)	Source Name	Pollutant	Current Short-Term (lb/hr)	Current Long-Term (tpy)	Consolidated Current Short-Term (lb/hr)	Consolidated Current Long-Term (tpy)	Proposed Short-Term (lb/hr)	Proposed Long-Term (tpy)	Short-Term Difference (lb/hr)	Long-Term Difference (tpy)	Unit Type (Used for reviewing BACT and Monitoring Requirements)
New/Modified	Yes	SC-7	SC-7	Mitsubishi M501 GAC High Load Operation	NOx					25.2	120.58	25.2	120.58	Turbine: Simple Cycle, Natural Gas
					CO					18.4	237.02	18.4	237.02	
					VOC					7	30.66	7	30.66	
					PM					7	30.66	7	30.66	
					PM10					7	30.66	7	30.66	
					PM2.5					7	30.66	7	30.66	
					SO2					1.54	6.75	1.54	6.75	
					NH3					18.7	81.91	18.7	81.91	
					H2SO4					1.41	6.18	1.41	6.18	
					HAPs					1.4	6.33	1.4	6.33	
					CO2 Equivalent					301305	1333499	301305	1333499	
New/Modified	No	SC-7	SC-7	Mitsubishi M501 GAC MSS	NOx					58.5		58.5	0	Turbine: Simple Cycle, Natural Gas
					CO					555.67		555.67	0	
					VOC					312.92		312.92	0	
					CO2					2.09		2.09	0	
					CO2 Equivalent					294159		294159	0	
New/Modified	Yes	FIRE-2	FIRE-2	Emergency Diesel Firewater Pump Engine	NOx					0.6	0.028	0.6	0.028	Engine: Emergency, Diesel
					CO					0.13	0.007	0.13	0.007	
					VOC					0.05	0.003	0.05	0.003	
					PM					0.03	0.002	0.03	0.002	
					PM10					0.03	0.002	0.03	0.002	
					PM2.5					0.03	0.002	0.03	0.002	
					SO2					0.004	0.0002	0.004	0.0002	
					HAPs					0.0026	0.0001	0.0026	0.0001	
					CO2 Equivalent					113.4	5.67	113.4	5.67	
New/Modified	Yes	LH-1	LH-1	Forced Draft Line Heater	NOx					0.118	0.515	0.118	0.515	Heater ≤ 40 MMBtu/hr
					CO					0.145	0.635	0.145	0.635	
					VOC					0.031	0.137	0.031	0.137	
					PM					0.019	0.083	0.019	0.083	
					PM10					0.019	0.083	0.019	0.083	
					PM2.5					0.019	0.083	0.019	0.083	
					SO2					0.004	0.017	0.004	0.017	
					HAPs					0.007	0.032	0.007	0.032	
					CO2 Equivalent					459.2	1824.61	459.2	1824.61	
New/Modified	Yes	FUG-7	FUG-7	Unit 7 Piping Fugitives	VOC					0.029	0.13	0.029	0.13	Fugitives: Piping and Equipment Leak
					CO2 Equivalent					38.81	169.97	38.81	169.97	
					NH3					0.36	1.58	0.36	1.58	
Not New/Modified	Yes	S4-1	S4-1	Westinghouse W-501-B6 with Duct Burner	NOx	174	613			174	613	0	0	Turbine: Combined Cycle, Natural Gas
					CO	420	833			420	833	0	0	
					VOC	12	44			12	44	0	0	
					PM	2	6			2	6	0	0	
					PM10	2	6			2	6	0	0	
					PM2.5	2	6			2	6	0	0	
					SO2	17	12			17	12	0	0	
Not New/Modified	Yes	S4-2	S4-2	Westinghouse W-501-B6 with Duct Burner	NOx	174	613			174	613	0	0	Turbine: Combined Cycle, Natural Gas
					CO	420	833			420	833	0	0	
					VOC	12	44			12	44	0	0	
					PM	2	6			2	6	0	0	
					PM10	2	6			2	6	0	0	
					PM2.5	2	6			2	6	0	0	
					SO2	17	12			17	12	0	0	
Not New/Modified	No	SC-S6A	SC-S6A	GE Frame 7EA w/out Duct Burner High Load Operation	NOx	174				174		0	0	Turbine: Simple Cycle, Natural Gas
					CO	233				233		0	0	
					VOC	8				8		0	0	
					PM	9				9		0	0	
					PM10	9				9		0	0	
					PM2.5	9				9		0	0	
					SO2	14				14		0	0	
					H2SO4	2				2		0	0	

Texas Commission on Environmental Quality
Form PI-1 General Application
Unit Types - Emission Rates

Date: ____________
Permit #: ____________
Company: ____________

Action Requested (only 1 action per FIN)	Include these emissions in annual (tpy) summary?	Facility ID Number (FIN)	Emission Point Number (EPN)	Source Name	Pollutant	Current Short-Term (lb/hr)	Current Long-Term (tpy)	Consolidated Current Short-Term (lb/hr)	Consolidated Current Long-Term (tpy)	Proposed Short-Term (lb/hr)	Proposed Long-Term (tpy)	Short-Term Difference (lb/hr)	Long-Term Difference (tpy)	Unit Type (Used for reviewing BACT and Monitoring Requirements)
Not New/Modified	No	SC-S6A	SC-S6A	GE Frame 7EA w/out Duct Burner SU/SD and Low Load	NOx	180				180		0	0	Turbine: Simple Cycle, Natural Gas
					CO	386				386		0	0	
					VOC	5				5		0	0	
					PM	9				9		0	0	
					PM10	9				9		0	0	
					PM2.5	9				9		0	0	
					SO2	14				14		0	0	
					H2SO4	2				2		0	0	
Not New/Modified	Yes	SC-S6A	SC-S6A	Annual Emissions from EPN SC-S6A	NOx		286				286	0	0	Turbine: Simple Cycle, Natural Gas
					CO		363				363	0	0	
					VOC		8				8	0	0	
					PM		29				29	0	0	
					PM10		29				29	0	0	
					PM2.5		29				29	0	0	
					SO2		13				13	0	0	
					H2SO4		2				2	0	0	
Not New/Modified	No	SC-S6B	SC-S6B	GE Frame 7EA w/out Duct Burner High Load Operation	NOx	174				174		0	0	Turbine: Simple Cycle, Natural Gas
					CO	233				233		0	0	
					VOC	8				8		0	0	
					PM	9				9		0	0	
					PM10	9				9		0	0	
					PM2.5	9				9		0	0	
					SO2	14				14		0	0	
					H2SO4	2				2		0	0	
Not New/Modified	No	SC-S6B	SC-S6B	GE Frame 7EA w/out Duct Burner SU/SD and Low Load	NOx	180				180		0	0	Turbine: Simple Cycle, Natural Gas
					CO	386				386		0	0	
					VOC	5				5		0	0	
					PM	9				9		0	0	
					PM10	9				9		0	0	
					PM2.5	9				9		0	0	
					SO2	14				14		0	0	
					H2SO4	2				2		0	0	
Not New/Modified	Yes	SC-S6B	SC-S6B	Annual Emissions from EPN SC-S6B	NOx		286				286	0	0	Turbine: Simple Cycle, Natural Gas
					CO		363				363	0	0	
					VOC		8				8	0	0	
					PM		29				29	0	0	
					PM10		29				29	0	0	
					PM2.5		29				29	0	0	
					SO2		13				13	0	0	
					H2SO4		2				2	0	0	
Not New/Modified	No	CC-S6A	CC-S6A	GE Frame 7EA with Duct Burner High Load Operation	NOx	42				42		0	0	Turbine: Combined Cycle, Natural Gas
					CO	326				326		0	0	
					VOC	18				18		0	0	
					PM	15				15		0	0	
					PM10	15				15		0	0	
					PM2.5	15				15		0	0	
					SO2	20				20		0	0	
					H2SO4	3.8				3.8		0	0	
					NH3	20				20		0	0	
Not New/Modified	No	CC-S6A	CC-S6A	GE Frame 7EA with Duct Burner SU/SD and Low Load	NOx	180				180		0	0	Turbine: Combined Cycle, Natural Gas
					CO	518				518		0	0	
					VOC	18				18		0	0	
					PM	15				15		0	0	
					PM10	15				15		0	0	
					PM2.5	15				15		0	0	
					SO2	20				20		0	0	
					H2SO4	3.8				3.8		0	0	
Not New/Modified	Yes	CC-S6A	CC-S6A	Annual Emissions from EPN CC-S6A	NOx		165				165	0	0	Turbine: Combined Cycle, Natural Gas
					CO		456				456	0	0	
					VOC		25				25	0	0	
					PM		38				38	0	0	
					PM10		38				38	0	0	

Action Requested (only 1 action per FIN)	Include these emissions in annual (tpy) summary?	Facility ID Number (FIN)	Emission Point Number (EPN)	Source Name	Pollutant	Current Short-Term (lb/hr)	Current Long-Term (tpy)	Consolidated Current Short-Term (lb/hr)	Consolidated Current Long-Term (tpy)	Proposed Short-Term (lb/hr)	Proposed Long-Term (tpy)	Short-Term Difference (lb/hr)	Long-Term Difference (tpy)	Unit Type (Used for reviewing BACT and Monitoring Requirements)
					PM2.5		38				38	0	0	
					SO2		16				16	0	0	
					H2SO4		3.1				3.1	0	0	
					NH3		50				50	0	0	
Not New/Modified	No	CC-S6B	CC-S6B	GE Frame 7EA with Duct Burner High Load Operation	NOx	42				42		0	0	Turbine: Combined Cycle, Natural Gas
					CO	326				326		0	0	
					VOC	18				18		0	0	
					PM	15				15		0	0	
					PM10	15				15		0	0	
					PM2.5	15				15		0	0	
					SO2	20				20		0	0	
					H2SO4	3.8				3.8		0	0	
					NH3	20				20		0	0	
Not New/Modified	No	CC-S6B	CC-S6B	GE Frame 7EA with Duct Burner SU/SD and Low Load	NOx	180				180		0	0	Turbine: Combined Cycle, Natural Gas
					CO	518				518		0	0	
					VOC	18				18		0	0	
					PM	15				15		0	0	
					PM10	15				15		0	0	
					PM2.5	15				15		0	0	
					SO2	20				20		0	0	
					H2SO4	3.8				3.8		0	0	
Not New/Modified	Yes	CC-S6B	CC-S6B	Annual Emissions from EPN CC-S6B	NOx		165				165	0	0	Turbine: Combined Cycle, Natural Gas
					CO		456				456	0	0	
					VOC		25				25	0	0	
					PM		38				38	0	0	
					PM10		38				38	0	0	
					PM2.5		38				38	0	0	
					SO2		16				16	0	0	
					H2SO4		3.1				3.1	0	0	
					NH3		50				50	0	0	
Not New/Modified	Yes	FIRE	FIRE	Firewater Pump Engine	NOx	9.3	0.9			9.3	0.9	0	0	Engine: Emergency, Diesel
					CO	2	0.2			2	0.2	0	0	
					VOC	0.8	0.1			0.8	0.1	0	0	
					PM	0.7	0.1			0.7	0.1	0	0	
					PM10	0.7	0.1			0.7	0.1	0	0	
					PM2.5	0.7	0.1			0.7	0.1	0	0	
					SO2	0.1	0.1			0.1	0.1	0	0	
					H2SO4	0.1	0.1			0.1	0.1	0	0	
Not New/Modified	Yes	OTD-1	OTD-1	Diesel Storage Tank	VOC	0.1	0.1			0.1	0.1	0	0	Storage Tank (1): Fixed roof with capacity < 25 Mgal or TVP < 0.50 psia
Not New/Modified	Yes	OTD-2	OTD-2	Diesel Storage Tank	VOC	0.1	0.1			0.1	0.1	0	0	Storage Tank (1): Fixed roof with capacity < 25 Mgal or TVP < 0.50 psia
Not New/Modified	Yes	OTD-3	OTD-3	Diesel Storage Tank	VOC	0.1	0.1			0.1	0.1	0	0	Storage Tank (1): Fixed roof with capacity < 25 Mgal or TVP < 0.50 psia
Not New/Modified	Yes	LO-1	LO-1	Gas Turbine GT-6A Lube Oil Vent	VOC	0.1	0.2			0.1	0.2	0	0	Process Vent
					PM	0.1	0.2			0.1	0.2	0	0	
					PM10	0.1	0.2			0.1	0.2	0	0	
					PM2.5	0.1	0.2			0.1	0.2	0	0	
Not New/Modified	Yes	LO-2	LO-2	Gas Turbine GT-6B Lube Oil Vent	VOC	0.1	0.2			0.1	0.2	0	0	Process Vent
					PM	0.1	0.2			0.1	0.2	0	0	
					PM10	0.1	0.2			0.1	0.2	0	0	
					PM2.5	0.1	0.2			0.1	0.2	0	0	
Not New/Modified	Yes	LO-3	LO-3	Steam Turbine Lube Oil Vent	VOC	0.1	0.2			0.1	0.2	0	0	Process Vent
					PM	0.1	0.2			0.1	0.2	0	0	
					PM10	0.1	0.2			0.1	0.2	0	0	
					PM2.5	0.1	0.2			0.1	0.2	0	0	
Not New/Modified	Yes	FUG-6	FUG-6	Unit 6 Piping Fugitives	VOC	0.3	1.5			0.3	1.5	0	0	Fugitives: Piping and Equipment Leak
					H2S	0.1	0.1			0.1	0.1	0	0	
					NH3	0.5	2.2			0.5	2.2	0	0	
					Cl2	0.1	0.4			0.1	0.4	0	0	
Not New/Modified	Yes	OTA-1	OTA-1	Ammonia Storage Tank 1	NH3	0.1	0.4			0.1	0.4	0	0	Storage Tank (1): Fixed roof with capacity < 25 Mgal or TVP < 0.50 psia
Not New/Modified	Yes	CT-1467-4	CT-1467-4	Cooling Tower 4	PM	1.49	6.51			1.49	6.51	0	0	Cooling Tower
					PM10	0.1	0.42			0.1	0.42	0	0	
					PM2.5	0.002	0.01			0.002	0.01	0	0	

Texas Commission on Environmental Quality
Form PI-1 General Application
Unit Types - Emission Rates

Date: ____________
Permit #: ____________
Company: ____________

Action Requested (only 1 action per FIN)	Include these emissions in annual (tpy) summary?	Facility ID Number (FIN)	Emission Point Number (EPN)	Source Name	Pollutant	Current Short-Term (lb/hr)	Current Long-Term (tpy)	Consolidated Current Short-Term (lb/hr)	Consolidated Current Long-Term (tpy)	Proposed Short-Term (lb/hr)	Proposed Long-Term (tpy)	Short-Term Difference (lb/hr)	Long-Term Difference (tpy)	Unit Type (Used for reviewing BACT and Monitoring Requirements)
					HOCL	0.1	0.1			0.1	0.1	0	0	
Not New/Modified	Yes	FUG-4	FUG-4	Unit 4 Fugitives	VOC	0.5	2.2			0.5	2.2	0	0	Fugitives: Piping and Equipment Leak
					Cl2	0.08	0.35			0.08	0.35	0	0	
Not New/Modified	Yes	MSSFUG	MSSFUG	MSS Fugitive Emissions	NOX	<0.01	<0.01			<0.01	<0.01	0	0	MSS Activities
					CO	<0.01	<0.01			<0.01	<0.01	0	0	
					PM	<0.01	<0.01			<0.01	<0.01	0	0	
					PM10	<0.01	<0.01			<0.01	<0.01	0	0	
					PM2.5	<0.01	<0.01			<0.01	<0.01	0	0	
					VOC	7	1.07			7	1.07	0	0	
					NH3	<0.01	<0.01			<0.01	<0.01	0	0	
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Texas Commission on Environmental Quality
Form PI-1 General Application
Stack Parameters

Date: ____________
Permit #: ____________
Company: ____________

Emission Point Discharge Parameters													
EPN	Included in EMEW?	UTM Coordinates Zone	East (Meters)	North (Meters)	Building Height (ft)	Height Above Ground (ft)	Stack Exit Diameter (ft)	Velocity (FPS)	Temperature (°F)	Fugitives - Length (ft)	Fugitives - Width (ft)	Fugitives - Axis Degrees
SC-7	Yes											
FIRE-2	Yes											
LH-1	Yes											
FUG-7	Yes											
S4-1	Yes											
S4-2	Yes											
SC-S6A	Yes											
SC-S6B	Yes											
CC-S6A	Yes											
CC-S6B	Yes											
FIRE	Yes											
OTD-1	Yes											
OTD-2	Yes											
OTD-3	Yes											
LO-1	Yes											
LO-2	Yes											
LO-3	Yes											
FUG-6	Yes											
OTA-1	Yes											
CT-1467-4	Yes											
FUG-4	Yes											
MSSFUG	Yes											

Date: ____________
Permit #: ____________
Company: ____________

I. Public Notice Applicability	
A. Application Type	
Is this an application for a new or major modification of a PSD (including GHG), Nonattainment, or HAP permit?	Yes

B. Project Increases and Public Notice Thresholds (for Initial and Amendment Projects)

For public notice applicability, the agency does not include consolidation or incorporation of any previously authorized facility or activity (PBR, standard permits, etc.), changes to permitted allowable emission rates when exclusively due to changes to standardized emission factors, or reductions in emissions which are not enforceable through the amended permit. Thus, the total emissions increase would be the sum of emissions increases under the amended permit and the emissions decreases under the amended permit for each air contaminant.

The table below will generate emission increases based on the values represented on the "Unit Types - Emission Rates" sheet. Use the "yes" and "no" options in column B of the "Unit Types - Emission Rates" worksheet to indicate if a unit's proposed change of emissions should be included in these totals.

Notes:

1. Emissions of PM, PM10, and/or PM2.5 may have been previously quantified and authorized as PM, PM10,and/or PM2.5. These emissions will be speciated based on current guidance and policy to demonstrate compliance with current standards and public notice requirements may change during the permit review.

2. All renewals require public notice.

This row is optional. If you do not think the table below accurately represents public notice applicability increases for your project, provide discussion here (1000 characters).	
Do the facilities handle, load, unload, dry, manufacture, or process grain, seed, legumes, or vegetable fibers (agricultural facilities)?	No

Pollutant	Current Long-Term (tpy)	Consolidated Emissions (tpy)	Proposed Long-Term (tpy)	Project Change in Allowable (tpy)	PN Threshold	Notice required?
VOC	159.77	0.00	190.70	30.93	5	Yes
PM	153.22	0.00	183.97	30.75	5	Yes*
PM_{10}	147.13	0.00	177.88	30.75	5	Yes*
$PM_{2.5}$	146.72	0.00	177.47	30.75	5	Yes*
NO_x	2128.91	0.00	2250.03	121.12	5	Yes
CO	3304.21	0.00	3541.87	237.66	50	Yes
SO_2	82.10	0.00	88.87	6.77	10	No
Pb	0.00	0.00	0.00	0.00	0.6	No
NH3	102.61	0	186.1	83.49	5	Yes
H2SO4	10.3	0	16.48	6.18	5	Yes
HAPs	0	0	6.3621	6.3621	5	Yes
CO2 Equivalent	0	0	1335499.25	1335499.25	**	Yes
CO2	0	0	0	0	5	No
H2S	0.1	0	0.1	0	5	No
Cl2	0.75	0	0.75	0	5	No
HOCL	0.1	0	0.1	0	5	No

* Notice is required for PM, PM10, and PM2.5 if one of these pollutants is above the threshold.

** Notice of a GHG action is determined by action type. Initial and major modification always require notice. Voluntary updates require a consolidated notice if there is a change to BACT. Project emission increases of CO2e (CO2 equivalent) are not relevant for determining public notice of GHG permit actions.

C. Is public notice required for this project as represented in this workbook? If no, proceed to Section III Small Business Classification. Note: public notice applicability for this project may change throughout the technical review.	Yes
D. Are any HAPs to be authorized/re-authorized with this project? The category "HAPs" must be specifically listed in the public notice if the project authorizes (reauthorizes for renewals) any HAP pollutants.	Yes

II. Public Notice Information

Complete this section if public notice is required (determined in the above section) or if you are not sure if public notice is required.

A. Contact Information

Enter the contact information for the **person responsible for publishing.** This is a designated representative who is responsible for ensuring public notice is properly published in the appropriate newspaper and signs are posted at the facility site. This person will be contacted directly when the TCEQ is ready to authorize public notice for the application.

Prefix (Mr., Ms., Dr., etc.):	Mr.
First Name:	Daniel
Last Name:	Perez
Title:	Supervisor - Environmental Compliance
Company Name:	El Paso Electric Company

Mailing Address:	P.O. Box 982
Address Line 2:	
City:	El Paso
State:	Texas
ZIP Code:	79901
Telephone Number:	915-543-4166
Fax Number:	
Email Address:	Daniel.perez@epelectric.com

Enter the contact information for the **Technical Contact.** This is the designated representative who will be listed in the public notice as a contact for additional information.

Prefix (Mr., Ms., Dr., etc.):	Mr.
First Name:	Bill
Last Name:	Jamieson
Title:	Director, Air Quality
Company Name:	SWCA Environmental Consultants
Mailing Address:	20 E Thomas Rd
Address Line 2:	Suite 1700
City:	Phoenix
State:	Arizona
ZIP Code:	85012
Telephone Number:	800-828-8517
Fax Number:	
Email Address:	bjamieson@swca.com

B. Public place

Place a copy of the full application (including all of this workbook and all attachments) at a public place in the county where the facilities are or will be located. You must state where in the county the application will be available for public review and comment. The location must be a public place and described in the notice. A public place is a location which is owned and operated by public funds (such as libraries, county courthouses, city halls) and cannot be a commercial enterprise. You are required to pre-arrange this availability with the public place indicated below. The application must remain available from the first day of publication through the designated comment period.

If this is an application for a PSD, nonattainment, or FCAA §112(g) permit, the public place must have internet access available for the public as required in 30 TAC § 39.411(f)(3).

If the application is submitted to the agency with information marked as Confidential, you are required to indicate which specific portions of the application are not being made available to the public. These portions of the application must be accompanied with the following statement: ***Any request for portions of this application that are marked as confidential must be submitted in writing, pursuant to the Public Information Act, to the TCEQ Public Information Coordinator, MC 197, P.O. Box 13087, Austin, Texas 78711-3087.***

Name of Public Place:	TCEQ Regional Office
Physical Address:	401 East Franklin Avenue
Address Line 2:	Ste. 560
City:	El Paso
ZIP Code:	79901-1212
County:	El Paso
Has the public place granted authorization to place the application for public viewing and copying?	Yes
Does the public place have Internet access available for the public?	No

C. Alternate Language Publication

In some cases, public notice in an alternate language is required. If an elementary or middle school nearest to the facility is in a school district required by the Texas Education Code to have a bilingual program, a bilingual notice will be required. If there is no bilingual program required in the school nearest the facility, but children who would normally attend those schools are eligible to attend bilingual programs elsewhere in the school district, the bilingual notice will also be required. If it is determined that alternate language notice is required, you are responsible for ensuring that the publication in the alternate language is complete and accurate in that language.

Is a bilingual program required by the Texas Education Code in the School District?	Yes
Are the children who attend either the elementary school or the middle school closest to your facility eligible to be enrolled in a bilingual program provided by the district?	Yes
If yes to either question above, list which language(s) are required by the bilingual program?	Spanish

D. PSD and Nonattainment Permits Only

If this is an application for emissions of GHGs, select either "Separate Public Notice" or "Consolidated Public Notice". Note: Separate public notices requires a separate application.	Consolidated Public Notice

We must notify the applicable county judge and presiding officer when a PSD or Nonattainment permit or modification application is received. This information can be obtained at:
https://www.txdirectory.com

Provide the information for the **County Judge** for the location where the facility is or will be located.

The Honorable:	Ricardo A. Samaniego
Mailing Address:	500 E San Antonio
Address Line 2:	Suite 301
City:	El Paso
State:	Texas
ZIP Code:	79901

Provide the information for the **Presiding Officer(s)** of the municipality for this facility site. This is frequently the Mayor.

First Name:	Donald
Last Name:	Margo
Title:	Mayor
Mailing Address:	300 N Campbell
Address Line 2:	
City:	El Paso
State:	Texas
ZIP Code:	79901
Are the proposed facilities located within 100 km or less of an affected state or Class I Area?	No

III. Small Business Classification	
Complete this section to determine small business classification. If a small business requests a permit, agency rules (30 TAC § 39.603(f)(1)(A)) allow for alternative public notification requirements if all of the following criteria are met. If these requirements are met, public notice does not have to include publication of the prominent (12 square inch) newspaper notice.	
Does the company (including parent companies and subsidiary companies) have fewer than 100 employees or less than $6 million in annual gross receipts?	No
Small business classification:	**No**

Texas Commission on Environmental Quality
Form PI-1 General Application
Federal Applicability

Date: ____________
Permit #: ____________
Company: ____________

I. County Classification	
Does the project require retrospective review?	No
County (completed for you from your response on the General sheet)	El Paso
If applicable, is this facility located within the portion of the county that is in nonattainment?	Yes
This project will be located in an area that is in attainment for ozone as of Sept. 23, 2019. Select from the drop-down list to the right if you would like the project to be reviewed under a different classification.	
Determination:	**This project will be located in a county with a Moderate PM10 nonattainment classification. Complete the nonattainment section below and provide an analysis with the application.**

II. PSD and GHG PSD Applicability Summary			
Is netting required for the PSD analysis for this project?			**No**
Pollutant	**Project Increase**	**Threshold**	**PSD Review Required?**
CO	237.66	100	Yes
NO_x	121.12	40	Yes
PM	30.74	25	Yes
$PM_{2.5}$	30.74	10	Yes
SO_2	6.76	40	No
Ozone (as VOC)	114.26	40	Yes
Ozone (as NOx)	121.12	40	Yes
Pb	0	0.6	No
H_2S	0	10	No
TRS	0	10	No
Reduced sulfur compounds (including H_2S)	0	10	No
H_2SO_4	6.18	7	No
Fluoride (excluding HF)	0	3	No
CO2e	1211545	75000	Yes

III. Nonattainment Applicability Summary			
Is netting required for the nonattainment analysis for this project?			**No**
Pollutant	**Project Increase**	**Threshold**	**NA Review Required?**

Date: ____________
Permit #: ____________
Company: ____________

I. General Information - Non-Renewal	
Is this project for new facilities controlled and operated directly by the federal government? (30 TAC § 116.141(b)(1) and 30 TAC § 116.163(a))	No
A fee of $75,000 shall be required if no estimate of capital project cost is included with the permit application. (30 TAC § 116.141(d)) Select "yes" here to use this option. Then skip sections II and III.	Yes
Select Application Type	Major Application

Date: ____________
Permit #: ____________
Company: ____________

In signing the "General" sheet with this fee worksheet attached, I certify that the total estimated capital cost of the project as defined in 30 TAC §116.141 is equal to or less than the above figure. I further state that I have read and understand Texas Water Code § 7.179, which defines Criminal Offenses for certain violations, including intentionally or knowingly making, or causing to be made, false material statements or representations.

Your estimated capital cost:	Maximum fee appies.
Permit Application Fee:	**$75,000.00**

VI. Total Fees	
Note: fees can be paid together with one payment or as two separate payments.	
Non-Renewal Fee	$75,000.00
Total	$75,000.00

VII. Payment Information	
A. Payment One (required)	
Was the fee paid online?	Yes
Enter the fee amount:	$ 75,000.00
Enter the check, money order, ePay Voucher, or other transaction number:	1284043
Enter the Company name as it appears on the check:	El Paso Electric Company

Date: ____________
Permit #: ____________
Company: ____________

C. Total Paid	**$75,000.00**

VIII. Professional Engineer Seal Requirement	
Is the estimated capital cost of the project above $2 million?	Yes
Is this project subject to an exemption contained in the Texas Engineering Practice Act (TEPA)? (30 TAC § 116.110(f))	No
Is the application required to be submitted under the seal of a Texas licensed P.E.? Note: an electronic PE seal is acceptable.	Yes

El Paso Electric Company P. O. Box 982 El Paso, TX 79960

No. 1284043

Date: Oct 31, 2019 Vendor Name: Texas Commission on Env Qual Vendor No. 976

INVOICE NO	INVOICE DATE	DESCRIPTION	DISCOUNT AMT	NET AMOUNT
RE70873435	29-Oct-19	[151dp] Permit Fee Newman Gas Turbi	0.00	75,000.00

The Electric Company
El Paso Electric

PLEASE DETACH AND RETAIN THIS STATEMENT AS YOUR RECORD OF PAYMENT. 0.00 75,000.00

WARNING! DO NOT ACCEPT THIS CHECK UNLESS THE PINK LOCK & KEY ICONS FADE WHEN WARMED AND YOU CAN SEE HEXAGONS IN A DUAL-TONE TRUE WATERMARK WHEN HELD TO THE LIGHT

THIS CHECK IS CLEARED BY POSITIVE PAY. DO NOT CASH UNLESS YOU CAN SEE SECURITY FEATURES LISTED ON BACK

The Electric Company
El Paso Electric

www.epelectric.com

El Paso Electric Company
P. O. Box 982
El Paso, TX 79960

JPMorgan Chase Bank, N.A.
Dallas, TX

No. 1284043

88-88/1113

CHECK DATE	CHECK NUMBER	CHECK AMOUNT
Oct 31, 2019	1284043	******75,000.00

Seventy-Five Thousand Dollars And Zero Cents*****

Pay To The Order Of
Texas Commission on Env Quality
12100 Park 35 Circle Bldg A
Austin, TX 78753-0000

TWO SIGNATURES REQUIRED FOR CHECKS OVER $50,000.00

⑈1284043⑈ ⑆111300880⑆ 630003112O⑈

safechecks.com

RUB OR BREATHE ON THE PINK LOCK & KEY ICONS — COLOR WILL FADE AND THEN REAPPEAR ON AN AUTHENTIC CHECK — IF COLOR DOES NOT FADE DO NOT ACCEPT

Date: ____________
Permit #: ____________
Company: ____________

Pollutant	Does this pollutant require PSD review?	How will you demonstrate that this project meets all applicable requirements?	Notes
Ozone	Yes	Protocol (required for all PSD projects, excluding GHG PSD)	Attach a protocol meeting all requirements listed on the TCEQ website.
VOC	No	Not applicable	This pollutant is not a part of this project or does not require an impacts analysis.
NOx	Yes	Protocol (required for all PSD projects, excluding GHG PSD)	Attach a protocol meeting all requirements listed on the TCEQ website.
CO	Yes	Protocol (required for all PSD projects, excluding GHG PSD)	Attach a protocol meeting all requirements listed on the TCEQ website.
PM	Yes	Protocol (required for all PSD projects, excluding GHG PSD)	Attach a protocol meeting all requirements listed on the TCEQ website.
PM10	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
PM2.5	Yes	Protocol (required for all PSD projects, excluding GHG PSD)	Attach a protocol meeting all requirements listed on the TCEQ website.
SO2	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
NH3	No	MERA analysis, steps 0-2 only or using screening tables	Attach a detailed description of which MERA step was met for each species in the project. Include speciated emission rates with the total VOC and/or PM species corresponding to the short-term and long-term differences represented on the Unit Types-Emission Rates sheet.
H2SO4	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).
HAPs	No	Qualitative analysis	Provide a detailed description of how the project meets all applicable impacts requirements using the Additional Notes column of this worksheet or as an attachment.
CO2 Equivalent	No	Not applicable	This pollutant is not a part of this project or does not require an impacts analysis.
CO2	No	Not applicable	This pollutant is not a part of this project or does not require an impacts analysis.
H2S	No	Not applicable	This pollutant is not a part of this project or does not require an impacts analysis.
Cl2	No	Not applicable	This pollutant is not a part of this project or does not require an impacts analysis.
HOCL	No	Not applicable	This pollutant is not a part of this project or does not require an impacts analysis.

Date: ____________
Permit #: ____________
Company: ____________

FINs	Unit Type	Pollutant	Current Tier I BACT	Confirm	Additional Notes
SC-7	Turbine: Simple Cycle, Natural Gas	NOx	5.0 to 9.0 ppmvd at 15% O2, typically achieved with dry low NOX burner, water/steam injection, limiting fuel consumption, or SCR. Specify numeric value and proposed technique.	Yes	2.5 ppmvd @ 15% O2
		CO	9-25 ppmvd at 15% O2, typically achieved with good combustion practices and/or oxidation catalyst. Specify numeric value and control technique. A detailed analysis is required if >9 ppmvd is proposed.	Yes	3 ppmvd @ 15% O2
		VOC	2 ppmvd at 15% O2 achieved through good combustion practices.	Yes	
		PM	The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. Good combustion practices. Fuel limited to firing pipeline quality natural gas.	Yes	
		SO2	Good combustion practices. Fuel limited to firing pipeline quality natural gas (low sulfur fuel). Sulfur content of fuel will not exceed 2 to 5 grains per 100 scf on an hourly basis and 0.5 to 1 gr/100 scf on an annual basis.	Yes	
		NH3	7-10 ppmvd at 15% O, achieved by controlling the ammonia injection system to minimize ammonia slip	Yes	
		H2SO4	Good combustion practices. Fuel limited to firing pipeline quality natural gas (low sulfur fuel). Sulfur content of fuel will not exceed 5 grains per 100 scf on an hourly basis and 1 gr/100 scf on an annual basis.	Yes	
		HAPs	See additional notes:	Yes	Good Combustion Practices, oxidation catalyst
		CO2 Equivalent	See additional notes:	Yes	Complies with NSPS TTTT requirements. Good combustion practices to limit CH4 emissions.
		MSS	Minimizing the duration of MSS activities and operating the facility in accordance with best management practices and good air pollution control practices.	Yes	
FIRE-2	Engine: Emergency, Diesel	NOx	Meeting the requirements of 40 CFR Part 60, Subpart IIII. Firing ultra-low sulfur diesel fuel (no more than 15 ppm sulfur by weight). Limited to 100 hrs./yr. of non-emergency operation. Have a non-resettable runtime meter.	Yes	
		CO	Meeting the requirements of 40 CFR Part 60, Subpart IIII. Firing ultra-low sulfur diesel fuel (no more than 15 ppm sulfur by weight). Limited to 100 hrs./yr. of non-emergency operation. Have a non-resettable runtime meter.	Yes	
		VOC	Meeting the requirements of 40 CFR Part 60, Subpart IIII. Firing ultra-low sulfur diesel fuel (no more than 15 ppm sulfur by weight). Limited to 100 hrs./yr. of non-emergency operation. Have a non-resettable runtime meter.	Yes	
		PM	The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. Meeting the requirements of 40 CFR Part 60, Subpart IIII. Firing ultra-low sulfur diesel fuel (no more than 15 ppm sulfur by weight). Limited to 100 hrs./yr. of non-emergency operation. Have a non-resettable runtime meter. No visible emissions shall leave the property. Visible emissions shall be determined by a standard of no visible emissions exceeding 30 seconds in duration in any six-minute period as determined using EPA TM 22 or equivalent	Yes	
		SO2	Meeting the requirements of 40 CFR Part 60, Subpart IIII. Firing ultra-low sulfur diesel fuel (no more than 15 ppm sulfur by weight). Limited to 100 hrs./yr. of non-emergency operation. Have a non-resettable runtime meter.	Yes	
		HAPs	See additional notes:	Yes	Good Combustion Practices
		CO2 Equivalent	See additional notes:	Yes	Good combustion practices to limit CH4 emissions.
		MSS	Minimize duration and occurrence of MSS activities.	Yes	

Date: ____________
Permit #: ____________
Company: ____________

FINs	Unit Type	Pollutant	Current Tier I BACT	Confirm	Additional Notes
LH-1	Heater ≤ 40 MMBtu/hr	NOx	Burners with the best NOx performance given the burner configuration and gaseous fuel used. Specify the proposed emission rate (performance is an annual average) and provide justification if NOx>0.01 lb/MMBtu.	Yes	Low NOx Burner with NOx emission rate of 0.03 lb/MMBtu.
		CO	50 ppmv corrected to 3% O2	Yes	
		VOC	Firing pipeline quality natural gas and good combustion practices. Specify if firing a different fuel.	Yes	Only Firing Pipeline Quality Natural gas
		PM	The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. Maximum opacity 5%	Yes	
		SO2	Maximum 0.6% sulfur content any liquid fuel or 5 grains for pipeline quality sweet natural gas. Provide details.	Yes	The fuel will contain less than 5 grains of sulfer per dscf.
		HAPs	See additional notes:	Yes	Good Combustion Practices
		CO2 Equivalent	See additional notes:	Yes	Good combustion practices to limit CH4 emissions.
		MSS	Same as normal operation BACT requirements.		
FUG-7	Fugitives: Piping and Equipment Leak	VOC	Provide details about applicable option: 1. Uncontrolled VOC emissions < 10 tpy - no control required 2. 10 tpy < uncontrolled VOC emissions < 25 tpy - 28M LDAR program. 75% credit. 3. Uncontrolled VOC emissions > 25 tpy - 28VHP LDAR program. 97% credit for valves, 85% for pumps and compressors. 4. VOC vapor pressure < 0.002 psia - no inspection required, no fugitive emissions expected. For emissions of chlorine and other approved odorous compounds: AVO inspection twice per shift.	Yes	1. Emissions are low in VOC due to pipeline quality natural gas low VOC content.
		CO2 Equivalent	See additional notes:	Yes	Piping fugitivies have same control method for GHG as for VOC. Circuit breakers will be enclosed, pressurized SF6 circuit breakers with pressure monitoring.
		NH3	AVO inspection	Yes	
		MSS	Same as normal operation BACT requirements. Best management practices (BMPs) will be used to minimize emissions, including using proper design of fuel delivery and handling, good air pollution control practices, and safe operating practices. Estimate fugitive emissions of sources such as natural gas, diesel, and ammonia. Leak detection and repair program as required for minimizing VOC leaks.	Yes	

Texas Commission on Environmental Quality
Form PI-1 General Application
Monitoring

Monitoring

This sheet provides the minimum acceptable requirements to demonstrate compliance through monitoring for each pollutant proposed to be emitted from each FIN. This sheet also includes measuring techniques for source of significant emissions in the project.

Instructions:
1. The unit types listed under Unit Type (column B) include all new, modified, consolidated, and/or renewed sources as indicated on the "Unit Types - Emission Rates" sheet. Each new, modified, consolidated, and/or renewed source must address how compliance will be demonstrated.
2. The pollutants listed in Pollutant (column C) include the pollutants indicated on the "Unit Types - Emission Rates" sheet.

Monitoring (30 TAC § 116.111(a)(2)(G))
3. The minimum acceptable monitoring is automatically populated for each unit type and pollutant.
 - Additional monitoring may be required, particularly for Title V sources, and will be included in the NSR and/or Title V permits.
4. Fully expand the Minimum Monitoring Requirements (column D) by increasing the row heights so all text is visible. (Place the cursor on the bottom of the number line to the far left of the screen, click and drag downward until all text is visible.)
5. Review the monitoring and confirm that you will meet all representations listed on the sheet and any additional attachments by entering or selecting "Yes" in Confirm (column E).
6. Add additional notes as necessary in Additional Notes for Monitoring (column F), limited to 500 characters or fewer. Examples include the following:
 - Proposed monitoring for pollutants or units that list "See additional notes:";
 - Details requested in the populated data;
 - Alternative monitoring you are proposing; and
 - Any additional information relevant to the minimization of emissions.
7. Cap EPNs do not need monitoring (leave those rows blank).

Measurement of Emissions (30 TAC § 116.111(a)(2)(B))
Note: this section will be greyed out if this project does not require PSD or nonattainment review, as represented on the General sheet.
7. For each pollutant with a project increase **greater** than the PSD significant emission rate, select the proposed measurement technique using the dropdown (column G).
8. For each pollutant with a project increase **less** than the PSD significant emission rate: leave blank.
9. If selecting "other", provide details in Additional Notes for Measuring (column H).
10. You may also use the Additional Notes for Measuring (column H) to provide more details on a selection.

Click here to return to Cover Sheet.

Important Note: The permit holder shall maintain a copy of the permit along with records containing the information and data sufficient to demonstrate compliance with the permit, including production records and operating hours. All required records must be maintained in a file at the plant site. If, however, the facility normally operates unattended, records shall be maintained at the nearest staffed location within Texas specified in the application. The site must make the records available at the request of personnel from the commission or any air pollution control program having jurisdiction in a timely manner. The applicant must comply with any additional recordkeeping requirements specified in special conditions in the permit. All records must be retained in the file for at least two years following the date that the information or data is obtained. Some permits are required to maintain records for five years. [30 TAC § 116.115(b)(2)(E)]

FIN	Unit Type	Pollutant	Minimum Monitoring Requirements	Confirm	Additional Notes for Monitoring	Proposed Measurement Technique (only complete for pollutants with a project increase above the PSD threshold)	Additional Notes for Measuring:
SC-7	Turbine: Simple Cycle,	NOx	CEMS. Data collected four times per hour and averaged hourly.	Yes		CEMS	
		CO	CEMS. Data collected four times per hour and averaged hourly.	Yes		CEMS	
		VOC	Continuous fuel flow monitor data used to calculate emission rate.	Yes		Record keeping	
		PM	The emission monitoring techniques for PM10 and PM2.5 will follow	Yes		Record keeping	
		SO2	Continuous fuel flow monitor data used to calculate emission rate.	Yes			
		NH3	If this pollutant is applicable, monthly AVO inspections of the	Yes			
		H2SO4	If this pollutant is applicable, quarterly visible emission observation	Yes			
		HAPs	See additional notes:	Yes	Continuous fuel flow monitor to calculate emission rate.		
		CO2 Equivalent	See additional notes:	Yes	Compliance with NSPS TTTT monitoring requirements and records of maintenance of the unit in accordance with manufacturer's recommendations to keep the unit at peak generating efficiency and ensure complete combustion of CH4.	Record keeping	
FIRE-2	Engine: Emergency, Diese	NOx	Use of portable analyzer designed to measure the concentration in	Yes		Record keeping	
		CO	Use of portable analyzer designed to measure the concentration in	Yes		Record keeping	
		VOC	Fuel usage monitoring, and recordkeeping.	Yes		Record keeping	
		PM	The emission monitoring techniques for PM10 and PM2.5 will follow	Yes		Record keeping	
		SO2	Records of fuel delivery indicating date and quantity of fuel delivered	Yes			
		HAPs	See additional notes:	Yes	Fuel usage monitoring and recordkeeping		
		CO2 Equivalent	See additional notes:	Yes	Maintain and operate unit to ensure complete combustion of methane.	Record keeping	
LH-1	Heater ≤ 40 MMBtu/hr	NOx	Stack sampling, fuel usage monitoring, and recordkeeping.	Yes		Record keeping	
		CO	Stack sampling, fuel usage monitoring, and recordkeeping	Yes		Record keeping	
		VOC	Stack sampling if other than natural gas AP42 factor initially	Yes		Record keeping	
		PM	The emission monitoring techniques for PM10 and PM2.5 will follow	Yes		Record keeping	
		SO2	Stack sampling if other than natural gas 5 gr S/100 dscf factor initially represented. Fuel usage monitoring and recordkeeping.	Yes			
		HAPs	See additional notes:	Yes	Fuel monitoring and recordkeeping		
		CO2 Equivalent	See additional notes:	Yes	Maintain and operate unit to ensure complete combustion of methane.	Record keeping	
FUG-7	Fugitives: Piping and	VOC	Fugitive Programs (i.e. AVO, 28VHP, 28MID, etc.	Yes	AVO	Record keeping	
		CO2 Equivalent	See additional notes:	Yes	AVO	Record keeping	
		NH3	May be applicable depending on process. If so, use AVO fugitive	Yes	AVO	Record keeping	

Texas Commission on Environmental Quality
Form PI-1 General Application
Materials

Date: ____________
Permit #: ____________
Company: ____________

Item	How submitted	Date submitted
A. Administrative Information		
Form PI-1 General Application	Email	
Hard copy of the General sheet with original (ink) signature	Mail	
Professional Engineer Seal	Email	
B. General Information		
Copy of current permit (both Special Conditions and MAERT)		
Core Data Form		
Area map	Not applicable	
Plot plan	Email	
Process description	Email	
Process flow diagram	Email	
List of MSS activities	Email	
State regulatory requirements discussion	Email	
C. Federal Applicability		
Summary and project emission increase determination - Tables 1F and 2F	Email	
Netting analysis (if required) - Tables 3F and 4F as needed		
D. Technical Information		
BACT discussion, if additional details are attached	Email	
Monitoring information, if additional details are attached	Email	
Material Balance (if applicable)		
Calculations	Email	
E. Impacts Analysis		
Qualitative impacts analysis	Email	
MERA analysis	Email	
Electronic Modeling Evaluation Workbook: SCREEN3	Not applicable	
Electronic Modeling Evaluation Workbook: NonSCREEN3	Email	
PSD modeling protocol	Email	
F. Additional Attachments		

Appendix E. Texas Professional Engineer (P.E.) certification statement

Texas Professional Engineer Certification

I, the undersigned, hereby certify that, to the best of my knowledge, any emission estimates reported or relied upon in this application are true, accurate, and complete and are based on reasonable techniques available for calculating air pollutant emissions.

Signature:

______________________ Date: 10/31/2019

Jeffrey Stovall, P.E.
Regional Air Quality Manager
SWCA Environmental Consultants

STATE OF TEXAS
JEFFREY LYNN STOVALL
107772
LICENSED
PROFESSIONAL ENGINEER

10/31/2019