AIR QUALITY PERMIT TO CONTRUCT

APPLICATION

CENTRAL BANKS CDP
COMPRESSOR STATION

GRAYSON MILL
ENERGY

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September 15, 2024

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1.0 ACRONYMS

BACT	Best Available Control Technology
Bbl	Barrel
Bbl/day	Barrels of oil per day
Btu/hr	British thermal unit per hour
CERIS	Combined Emissions Reporting Information System
CFR	Code of Federal Regulations
DRE	Destruction Efficiency
EPA	Environmental Protection Agency
EU	Emission Unit
Fugitives	Fugitive Emissions
GHG	Greenhouse Gas
GOR	Gas-oil-ratio
GME	Grayson Mill Energy
HAP	Hazardous Air Pollutant
LDAR	Leak Detection and Repair
LDC	Local Distribution Companies
LNG	Liquified Natural Gas
m3	Cubic meters
MMBtu/hr	Million British thermal units per hour
MMscf/yr	Million standard cubic feet per year
NAAQS	National Ambient Air Quality Standards
NDAC	North Dakota Administrative Code
NDDEQ	North Dakota Department of Environmental Quality
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NGL	Natural Gas Liquids
NSPS	New Source Performance Standards
PSD	Prevention of Significant Deterioration
RVP	Reid Vapor Pressure
Scfh	Standard cubic feet per hour
SO2	Sulfur dioxide
TPY	Tons per year
VHAP	Volatile Hazardous Air Pollutant
VOCs	Volatile organic compounds
VOL	Volatile organic liquids

2.0 INTRODUCTION

Gallo Solutions, LLC (GS), as contracted by Grayson Mill Energy (GME), is submitting this Permit to Construct application to the North Dakota Department of Environmental Quality (NDDEQ) in accordance with the requirements of North Dakota Administrative Code (NDAC) 33.1-15-14-02. This application is for removing two existing compressor engines with a single new compressor engine of less horsepower (hp) at the existing Central Bank CDP Compressor Station.

2.1. Application

In accordance with North Dakota Division of Air Quality requirements, permit application forms have been completed and are uploaded in the Department's Combined Emissions Reporting Information System (CERIS) online database.

2.2. Site Location

The Central Banks CDP Compressor Station encompasses approximately 5 acres and is located approximately 14 miles north of Watford City. The legal description of the site is SE1/4 SW1/4 of Section 9, Township 152 North, Range 98 West, in McKenzie County, North Dakota. The geographic coordinates are Latitude: 47.994983 North and Longitude: 103.231692 West. The site elevation is approximately 2,175 feet above sea level. A map of the facility is located in the NDDEQ's files.

2.3. Site Location

The terrain surrounding the facility is characterized as flat to slightly rolling hills. The surrounding area is mainly used for industrial facilities and agriculture. The air quality classification for the area is "Better than National Standards" or unclassifiable/ attainment for the National Ambient Air Quality Standards for criteria pollutants (40 CFR 81.327). There are no non-attainment areas within a reasonable distance of the site.

A plot plan of the facility can be found in **Attachment E**.

3.0 FACILITY DESCRIPTION

This section provides a detailed description of the operations and equipment at the Central Banks CDP Compressor Station. The facility utilizes compression equipment to compress nearby field natural gas for pipeline transmission and stores removed liquids in fluid storage tanks. The two Caterpillar G3606 compressors (EU24-25)

The existing facility consists of the following permitted process equipment and emitting units (EUs):

- **EU1-5**: Five (5) Waukesha L7044GSI Natural Gas Compressor Engines (1,680 hp each)
- **EU10-13**: Four (4) 1,000 bbl Condensate/Produced Water Tanks
- **EU14-17**: Four (4) 400 bbl Condensate/Produced Water Tanks
- **EU18**: Steffes Low Pressure Flare (controls EU10-17, Truck Loading Fugitives)
- **IEU19**: 1,000 gal Diesel Fuel Storage Tank
- **EU20**: Volvo Penta TWD1643GE, 917 hp Diesel **Emergency** Generator
- **EU21**: Zeeco High Pressure Emergency Flare
- **EU22**: Zeeco High Pressure Flare (controls Blowdowns)
- **EU23**: One (3.0 MMBtu/hr) In-Line Heater (permitted, but not listed in operating permit)
- ~~**EU24-25**: Two (2) Caterpillar G3516 Natural Gas Compressor Engines (1,150 hp each)~~
- **EU26**: One (1) Caterpillar G3606 Natural Gas Compressor Engine (1,875 hp)
- Fugitive Leak Emissions (**FUGITIVES**)

The proposed new equipment includes:

- **PROPOSED EU27**: One (1) Waukesha L7044GSI Natural Gas Compressor Engines (1,680 hp)

The replacement of the two Caterpillar compressor engines (EU25-25) with the proposed Waukesha compressor (EU27) doesn't change the current throughput of ~44 million standard cubic feet per day (MMscf/d) of natural gas compression to ~55 MMscf/d.

4.0 EMISSIONS INVENTORY

For purposes of estimating emissions from this facility, GME utilized proposed facility engineering designs, AP-42 emission factors, EPA fugitive component emission factors, equipment manufacturer's specs, control manufacturer's specs, and site-specific analytical data. Potential emissions from this facility originate primarily from the condensate tanks and compressor engines. The remainder of the emissions are from the heater burner, emergency and blowdown flares, and fugitive emissions (e.g., truck loading, equipment leaks, etc.).

TABLE 1: EMISSIONS SUMMARY

Emitting Units[1]	PM Total (tpy)	NOx (tpy)	CO (tpy)	SOx (tpy)	VOC (tpy)	HAP (tpy)	CHCO (tpy)	CO_2e (tpy)
EU 1 - Waukesha 7044GSI (1680 bhp)	1.13	8.11	16.22	0.03	5.68	1.16	0.81	9,872.20
EU 2 - Waukesha 7044GSI (1680 bhp)	1.13	8.11	16.22	0.03	5.68	1.16	0.81	9,872.20
EU 3 - Waukesha 7044GSI (1680 bhp)	1.13	8.11	8.11	0.03	5.68	1.16	0.81	9,872.20
EU 4 - Waukesha 7044GSI (1680 bhp)	1.13	8.11	8.11	0.03	5.68	1.16	0.81	9,872.20
EU 5 - Waukesha 7044GSI (1680 bhp)	1.13	8.11	8.11	0.03	5.68	1.16	0.81	9,872.20
EU 10 - 17 - 400 bbl Condensate/Produced Water Tanks[2]	-	-	-	-	-	-	-	-
EU 18 - Steffes Flare (condensate/water tanks and truck loading)[3]	0.20	1.66	7.57	0.00	20.13	0.60	-	0.63
EU 19 - 1,000 gallon diesel fuel storage tank	-	-	-	-	Neg.	Neg.	-	-
EU 20 - Volvo 937 hp Emergency Portable Diesel-Fired Generator)[4]	-	-	-	-	-	-	-	-
EU 21 - Zeeco Process/Emergency Flare	0.08	0.39	1.76	0.00	1.59	0.18	-	0.09
EU 22 - Zeeco Process/Blowdown Flare	0.14	0.69	3.16	0.00	2.86	0.32	-	0.16
EU 23 - In-line gas heater	0.10	1.29	1.08	0.01	0.07	0.02	-	1,553.23
REPLACE: ~~EU 24 - Caterpillar G3516 (1150 bhp)~~	~~0.82~~	~~5.55~~	~~2.00~~	~~0.02~~	~~3.22~~	~~0.61~~	~~0.38~~	~~4,962.51~~
REPLACE: ~~EU 25 - Caterpillar G3516 (1150 bhp)~~	~~0.82~~	~~5.55~~	~~2.00~~	~~0.02~~	~~3.22~~	~~0.61~~	~~0.38~~	~~4,957.66~~
EU26 - Caterpillar G3606 (1875 bhp)	1.20	18.11	18.11	0.04	12.67	4.50	4.16	9,239.96
PROPOSED: **EU 27 - Waukesha 7044GSI (1680 bhp)**	**1.31**	**8.11**	**8.11**	**0.04**	**3.34**	**1.05**	**0.65**	**9,872.70**
Fugitive Emissions	-	-	-	-	4.41	0.12	-	72.00
Total (without Fugitives)	**8.65**	**70.80**	**96.57**	**0.25**	**69.05**	**12.45**	**8.87**	**70,027.76**
TOTAL	**8.65**	**70.80**	**96.57**	**0.25**	**73.46**	**12.57**	**8.87**	**70,099.77**

Per calculations found in the emission inventory in **Attachment B**, the largest criteria pollutant's potential emissions are conservatively estimated to be approximately **96.57** tons per year (tpy) of CO. The conservative approaches utilized to determine the individual and overall PTE are outlined in the following emission unit-specific sections. The facility's potential emissions are CERIS and the emission inventory in **Attachment B**. The emissions from the facility originate with the following EUs.

- Existing Compressor Engines (EU 1-5);
- Existing Condensate Storage Tanks (EU 10-17);
- Existing Condensate Tanks Combustion and Truck Loading Control Device (EU18);
- Existing Diesel Storage Tank (IEU 19);
- Existing Emergency Diesel-Fired Generator (EU 20);
- Existing Emergency Process Flare (EU 21);
- Existing Compressor Blowdown Flare (EU 22);
- Existing In-Line Heater (EU 23);
- **REMOVE:** Existing Compressor Engines (EU 24-25);

- **PROPOSED** Compressor Engine (EU 27);
- Existing Fugitive Leak Emissions (Fugitives).

4.1. Existing Compressor Engines (EU1-5) Emissions

The facility currently utilizes five permitted Waukesha L7044GSI natural gas compressor engines. The engines each have a maximum horsepower rating of 1,680 hp. These reciprocating internal combustion engine VOC, NOx, and CO emissions are based on the catalyst specifications and the PM, SOx, and HAPs emissions are based on AP-42 factors. The permitted CO emission factor for EU1-2 is 1.0 g/bhp-hr and the emission factor for EU3-5 is 0.5 g/bhp-hr. All emissions are estimated as if the engines are operating 8,760 hours per year. On a 12-month rolling total, the associated emissions are listed in **Attachment B**.

4.2. Existing Condensate Storage Tanks (EU10-17, EU18) Emissions

The facility currently utilizes four 400 bbl and four 1,000 bbl permitted storage tanks. Two of the 400 bbl tanks and the four 1,000 bbl storage tanks are utilized for storing the condensate separated from the incoming pipeline from the natural gas that is being compressed for transmission at the facility. The two other 400 bbl tanks are utilized for produced water pulled off the bottom of the condensate tanks and water received from the inlet slug catcher separator. The total estimated water is estimated to be approximately 5-10% of the total condensate throughput. The water emissions would be negligible; however, to be conservative, the water is being assumed to be equivalent to the condensate and is included in the overall combined storage tank emissions.

Each of the tanks are routed through a vapor line to the tank flare (EU18). To calculate the flaring combustion emissions, AP-42 emission factors were used. Per the manufacturer, the utility flare exceeds the requirements of 40 CFR 60.18 and is designed to have greater than a 99% destruction efficiency (DRE). To be conservative, GME is assuming 98% DRE. Furthermore, the small volume of truck loading fugitive emissions is routed to the tank vapor line and combusted in the flare. On a 12-month rolling total, the associated emissions are listed in **Attachment B**.

The proposed change in engines does not affect the existing permitted emissions from the storage tanks.

4.3. Existing Diesel Storage (IEU19) Emissions

The facility utilizes a permitted 1,000 gal diesel storage tank to fuel the emergency diesel generator in the event the facility ever lost electrical power. The yearly throughput of the diesel tank is approximately 1,000 gal/yr. The emissions from the storage tank are insignificant.

4.4. Existing Emergency Diesel-Fired Generator (EU20) Emissions

The facility utilizes a permitted Volvo Penta TWD1643GE diesel-fired emergency generator. The generator engine has a maximum horsepower rating of 917 hp. The emergency generator's emissions are not required to be included in the PTE, as there is no time limit on the use of the engine for emergency purposes, as per 40 CFR Par 60, Subpart IIII.

4.5. Existing Emergency Process and Compressor Blowdown Combustion Control Device (EU21-22) Emissions

The facility utilizes two permitted Zeeco high pressure flares for non-routine flaring and to control emissions during compressor blowdown operations. The emergency flare's permitted non-routine throughput volume is 8.03 MMscf/yr and the blowdown flare's permitted throughput volume is 14.45 MMscf/yr. To calculate the flaring combustion emissions, site-specific gas analytical and AP-42 emission factors were used.

Per the manufacturer, the utility flares exceed the requirements of 40 CFR 60.18 and are designed to have greater than 99% destruction efficiency (DRE); however, to calculate the potential to emit, GME is conservatively using a 98% DRE. On a 12-month rolling total, the associated emissions are listed in **Attachment B**.

The proposed change in engines does not affect the flare's emissions.

4.6. Existing In-Line Heater (EU23) Emissions

The facility utilizes a permitted in-line heater to heat the compressed gas to spec for sales, if needed. The heater has a maximum rating of 3.0 MMBtu/hr. The emissions were estimated using the maximum rating and AP-42 emission factors and are considered insignificant. Although the heater is not operated full time, it is assumed to operate 8,760 hours per year. On a 12-month rolling total, the associated emissions are listed in **Attachment B**.

The proposed change in engines does not affect the flare's emissions.

4.7. Existing Compressor Engine (EU26) Emissions

The facility utilizes a permitted Caterpillar G3606 natural gas compressor engine. The engine has a maximum horsepower rating of 1,875. The reciprocating internal combustion engine's permitted emissions rates are VOC (0.7 g/bhp-hr), NOx (1.0 g/bhp-hr), and CO (1.0 g/bhp-hr). The PM, SOx, and HAPs emissions are based on AP-42 emission factors.

All emissions are estimated as if the engines are operating 8,760 hours per year. On a 12-month rolling total, the associated emissions are listed in **Attachment B.**

4.8. PROPOSED Compressor Engine (EU26) Emissions

GME is proposing to replace EU24 and EU25 with a Waukesha L7044GSI natural gas compressor engine. The engine has a maximum horsepower rating of 1,680 hp (see **Attachment C** for manufacturer specs). The reciprocating internal combustion engine's VOC (0.230 g/bhp-hr), NOx (0.5 g/bhp-hr), and CO (0.5 g/bhp-hr) emissions are based on the engine and catalyst specifications (see **Attachment D** for catalyst specs). The PM, SOx, and HAPs emissions are based on AP-42 emission factors. All emissions are estimated as if the engines are operating 8,760 hours per year. On a 12-month rolling total, the associated emissions are listed in **Attachment B.**

4.9. Fugitive Sources Emissions

Fugitive emissions from equipment leaks and dust shall not be estimated for purposes of determining major source Title V applicability[1]. However, the fugitive emissions are estimated using "EPA Protocol for Equipment Leak Emission Estimates, Table 2-4: Oil and Gas Production Operations Average Emission Factors" and applying a conservative component count. The fugitive leak emissions at the site primarily consist of leaks from connectors, valves, pumps, etc. Insignificant emissions such as those from condensate truck loading and from methanol are also included in this section. Site- specific oil vapor and fuel gas analytical data were applied to speciate greenhouse gases (GHG) vs. criterial pollutants vs. HAPs. The fugitive emissions estimates are located in **Attachment B**.

Fugitive Emissions

The facility periodically truck loads the condensate produced at the facility. As per the NDDEQ memo entitled "Compliance Requirements for Condensate Truck Loadout Emissions", dated February 3, 2020, *"VOC emissions from condensate truck loadout are considered adequately controlled for purposes of compliance with [Chapter 33.1-15-07] if emissions are controlled by a flare, vapor recovery unit, or equally effective control device approved by the Department."* The truck loadout fugitives are routed to the tank vapor line and combusted in the Steffes flare (EU18). The emissions are very small and are included in the emissions estimate for EU18 in **Attachment B**.

[1] https://www.govinfo.gov/content/pkg/CFR-2019-title40-vol17/xml/CFR-2019-title40-vol17-part70.xml

Methanol Totes Emissions

The facility utilizes methanol to reduce freezing of process equipment during cold temperatures. There are five 500-gal methanol totes coupled with electric pumps. The emissions from the totes are insignificant.

5.0 POTENTIALLY APPLICABLE STATE REGULATIONS

There are numerous potentially applicable regulations and requirements that may apply to the Central Banks CDP Compressor Station. This section presents a review of the potential applicability of these requirements.

5.1. NDAC 33.1-15-01

General Provisions

Multiple topics are included in the General Provisions chapter, these include: entry onto premises - authority, variances, circumvention, severability, land use plans and zoning regulations (only to provide air quality information), measurement of air contaminants, shutdown and malfunction of an installation - requirements for notification, time schedule for compliance, prohibition of air pollution, confidentiality of records, enforcement, and compliance certifications.

5.2. NDAC 33.1-15-02

Ambient Air Quality Standards

The facility must comply with the North Dakota and Federal Ambient Air Quality Standards (AAQS). In addition to these standards, compliance with the “Criteria Pollutant Modeling requirements for a Permit to Construct” guidelines and the “Policy for the Control of Hazardous Air Pollutant Emissions in North Dakota (Air Toxics Policy) is required.

The project is not subject to PSD nor does the project PTE trigger modeling thresholds listed in the “Criteria Pollutant Modeling requirements for a Permit to Construct”; therefore, preconstruction modeling for this facility is not required.

Furthermore, based on the low level of HAP emissions associated with the project and that the facility is a source of minor HAP significance, GME proposes that the project qualifies for exemption under the Air Toxics Policy.

5.3. NDAC 33.1-15-03

Restriction of Emission of Visible Air Contaminants

The regulation governs particulate matter and opacity limits from new and existing sources.

GME will comply with all applicable standards.

5.4. NDAC 33.1-15-04

Open Burning Restrictions

GME will comply with all open burning regulations at the Central Banks CDP Compressor Station.

5.5. NDAC 33.1-15-05

Emissions of Particulate Matter Restricted

This chapter establishes particulate matter emission limits for industrial process equipment and fuel burning equipment used for indirect heating.

This facility operates one natural gas-fired stationary combustion unit (line-heater); however, it does not have a heat input of greater than 10 MMBtu.hr and is exempt.

5.6. NDAC 33.1-15-06.

Emissions of Sulfur Compounds Restricted

The regulation applies to installations that burn fuel and that SO2 emissions are substantially due to the sulfur content of the fuel; and in which the fuel is burned primarily to produce heat.

The facility is exempt from this chapter since the engines and in-line heater utilize fuel gas containing no more than 2 grains pof sulfur per 100 standard cubic feet.

5.7. NDAC 33.1-15-07.

Control of Organic Compound Emissions

This chapter establishes requirements for organic compound facilities and the disposal of organic compounds.

The facility is required to perform leak detection and repair under NSPS Subpart OOOOb and to control the organic compound emissions from the tanks and process gas.

5.8. NDAC 33.1-15-08.

Control of Air Pollution from Vehicles and Other Internal Combustion Emissions

This chapter restricts the operation of internal combustion engines which emit from any source unreasonable and excessive smoke, obnoxious or noxious gas, fumes or vapor. It also prohibits the removal or disabling of motor vehicle pollution control devices.

The facility's existing engines and proposed new internal combustion engine are subject to the requirements.

5.9. NDAC 33.1-15-10.

Control of Pesticides

GME will comply with these requirements.

5.10. NDAC 33.1-15-11.

Prevention of Air Pollution Emergency Episodes

GME will comply with any applicable source curtailment requirements when notified by the Department of an episode.

5.11. NDAC 33.1-15-12.

Standards of Performance for New Stationary Sources

This chapter adopts most NSPS standards under 40 CFR Part 60. The facility currently must comply Subpart OOOOa. However, the proposed change in engines will make the facility to Subpart OOOOb. Subpart OOOOb has yet to be incorporated by reference in NDAC Section 33.1-15-12-01.1 and remains administered by EPA Region 8. Thus, strictly speaking, NDAC 33.1-15-12 does not apply. However, 40 CFR 60 Subpart A applies to the facility via Subpart OOOOb, and NDAC 33.1-15-12 incorporates 40 CFR 60 Subpart A.

Multiple existing engines and the proposed new engine all must comply with NSPS Subpart JJJJ, which establishes emissions limits (from controls) and performance testing based on date manufactured, usage, size, and fuel type.

5.12. NDAC 33.1-15-13.

Emission Standards for Hazardous Air Pollutants (40 CFR Part 61)

This chapter adopts most NSPS standards under 40 CFR Part 61. This facility does not have any applicable requirements under this chapter.

5.13. NDAC 33.1-15-14.

Designated Air Contaminant Sources, Permit to Construct, Minor Source Permit to Operate, and Title V Permit to Operate

This chapter requires the facility to obtain a Permit to Construct and a Permit to Operate. The facility is an affected source under NDAC 33.1-15-14-01.13.

5.14. NDAC 33.1-15-15.

Designated Air Contaminant Sources, Permit to Construct, Minor Source Permit to Operate, and Title V Permit to Operate

This chapter adopts the federal provisions of the prevention of significant deterioration of air quality (PSD) program. A facility subject to PSD review is classified as a major stationary source and has a potential to emit greater than 250 tons per year of any regulated pollutant.

The Central Banks CDP Compressor Station emits significantly lower than the threshold and is not subject to the requirements.

5.15. NDAC 33.1-15-16.

Restriction of Odorous Air Contaminants

This chapter restricts the discharge of objectionable odorous air contaminants which measures seven odor concentration units or greater outside the property boundary.

GME will comply all requirements as it applies to sources outside a city or outside the area of which a city has exercised extraterritorial zoning as defined in North Dakota Century Cody Section 40-47-01.1.

5.16. NDAC 33.1-15-17.

Restriction of Fugitive Emissions

This chapter restricts fugitive emissions from particulate matter or other visible air contaminants and gaseous emissions that would violate Chapter 2 (ambient air quality standards), Chapter 15 (PSD), Chapter 16 (odor), or Chapter 19 (visibility).

GME is subject to the requirements of this chapter.

5.17. NDAC 33.1-15-18.

Stack Heights

This chapter restricts the use of stack heights above good engineering practices (GEP) and the use of dispersion techniques to affect the concentration of a pollutant in ambient air.

GME is required to ensure that the stack height of the proposed engine is at least 1.5 times the nearby building height.

5.18. NDAC 33.1-15-19.

Visibility Protection

This chapter applies to new major stationary sources.

This facility is not a major stationary source and is therefore not subject to the requirements of this chapter.

5.19. NDAC 33.1-15-20.

Control of Emissions from Oil and Gas Well Production Facilities

This facility is not an oil or gas well facility and is therefore not subject to the requirements of this chapter.

5.20. NDAC 33.1-15-21.

Acid Rain Program

This chapter adopts the acid rain provisions of the Clean Air Act specified under 40 CFR Parts 72-78.

The facility is not an electric utility and is therefore not subject to the requirements of this chapter.

5.21. NDAC 33.1-15-22.

Emissions Standards for Hazardous Air Pollutants for Source Categories

This chapter adopts the 40 CFR Part 63 regulations, entitled National Emission Standards for Hazardous Pollutants (NESHAPs) which regulates HAPs from regulated source categories. These typically apply to major sources; however, some regulations have “area source” standards.

The facility’s HAP emissions are less than 10 tpy of any single HAP and less than 25 tpy of any combination of HAPs, so the facility remains an area (minor) source of HAPs. The proposed engine (EU27) and existing engines are subject to the requirements of NESHAP Subpart ZZZZ and will comply by complying with NSPS Subpart JJJJ.

5.22. NDAC 33.1-15-23.

Emissions Standards for Hazardous Air Pollutants for Source Categories

This chapter adopts the 40 CFR Part 63 regulations, entitled National Emission Standards for Hazardous Pollutants (NESHAPs) which regulates HAPs from regulated source categories. These typically apply to major sources; however, some regulations have “area source” standards.

5.23. NDAC 33.1-15-24.

Fees

This chapter requires a filing fee of $325 for permit to construct applications, plus any additional fees based on actual processing costs.

GME is subject to these fees.

5.24. NDAC 33.1-15-25.

Regional Haze Requirements

This chapter is specific to existing stationary sources or groups of sources which have the potential to “contribute to visibility impairment” as defined in Section 33.1-15-25-10.2. Existing stationary sources or groups of sources determined to contribute to visibility impairment may be required to implement emissions reduction measures to help the

Department make reasonable progress toward North Dakota's goals established in accordance with 40 CFR 51.308.

This facility is an existing source and based on the emissions changing significantly with the replacement of two compressors with a single new compressor, the low PTE of visibility impairment pollutants is not expected to contribute to visibility impairment. Therefore, the facility is not subject to the requirements of this chapter.

6.0 POTENTIALLY APPLICABLE FEDERAL REGULATIONS

There are numerous potentially applicable regulations and requirements that may apply to the Central Banks CDP Compressor Station. This section presents a review of the potential applicability of these requirements.

6.1. 40 CFR 60, Subpart Dc

Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

This regulation applies to all steam generating units for which construction, modification or reconstruction is commenced after June 9, 1989, and that have a maximum design heat input capacity of ≥10 Million British Thermal Units per hour (MMBtu/hr), but <100 MMBtu/hr.

This facility does not contain any steam generating units onsite.

6.2. 40 CFR 60, Subpart K

Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978

This facility does not contain any storage vessels for petroleum liquids for which construction, reconstruction, or modification commenced after June 11, 1973, and prior to May 19, 1978, and is not subject to this regulation.

6.3. 40 CFR 60, Subpart Ka

Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984

This facility does not contain any storage vessels for petroleum liquids for which construction, reconstruction, or modification commenced after May 19, 1978, and prior to July 23, 1984, and is not subject to this regulation.

6.4. 40 CFR 60, Subpart Kb

Standards of Performance for Volatile Organic Liquid (VOL) Storage Vessels (Including Petroleum Storage Vessels)

This regulation applies to storage vessels with a capacity of ≥75 m^3 (~472 bbls) that are used to store volatile organic liquids (VOL) for which construction, reconstruction or modification commenced after July 23, 1984. There is an exemption for storage vessels with a design capacity of ≤1,589.874 m^3 (~10,000 bbls) that are used prior to custody transfer.

The storage vessels' capacities are less than 1,589.874 m^3 and they are located prior to custody transfer; therefore, the storage vessels are not subject to this regulation.

6.5. 40 CFR 60, Subpart GG

Standards of Performance for Stationary Gas Turbines

This regulation applies to all stationary gas turbines with a peak load equal to or greater than 10 MMBtu/hr which commences construction, modification, or reconstruction after October 3, 1977.

This facility does not contain any stationary gas turbines with a peak load equal to or greater than 10 MMBtu/hr and is not subject to this regulation.

6.6. 40 CFR 60, Subpart KKK

Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants

This regulation applies to affected facilities in onshore natural gas processing plants where construction, reconstruction, or modification is commenced after January 20, 1984, and prior to August 23, 2011.

This facility does not contain nor is considered a natural gas processing plant and is not subject to this regulation.

6.7. 40 CFR 60, Subpart LLL

Standards of Performance for Onshore Natural Gas Processing SO_2 Emissions

This regulation applies to sweetening units and each sweetening unit followed by a sulfur recovery unit at facilities that process natural gas where construction, reconstruction, or modification is commenced after January 20, 1984, and prior to August 23, 2011.

There are no sweetening units located at this facility that are subject to this regulation.

6.8. 40 CFR 60, Subpart IIII

Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

This regulation applies to all compression-ignition internal combustion engines (regardless of horsepower) where construction is commenced after July 11, 2005, where the engine is manufactured after April 1, 2006.

The Volvo Penta TWQD1643GE, 917 hp diesel emergency generator engine was manufactured in 2013 and is subject to this regulation.

6.9. 40 CFR 60, Subpart JJJJ

Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

This regulation applies to any spark-ignition internal combustion engine where construction is commenced after June 12, 2006, and where the engine is manufactured:

- After July 1, 2007, for engines > 500 hp,
- After January 1, 2008, for lean-burn engines 500 < hp < 1350 hp,
- After July 1, 2008, for engines < 500 hp,
- After January 1, 2009, for emergency engines.

The EU3 (11/4/2016), EU4 (8/24/2015), and EU5 (10/28/2015) Waukesha L7044GSI natural gas compressor engines (1,680 hp each) and the EU26 (10/24/2018) Caterpillar G3606 4SLB natural gas compressor engine (1,875 hp) were all manufactured or reconstructed after June 1, 2007; therefore, are all subject to the requirements of this subpart. The proposed EU27 (04/30/2009) Waukesha L744GSI 4SRB natural gas compressor engine (1,680 hp) is manufactured after July 1, 2007; therefore, is also subject to the requirements of this subpart.

6.10. 40 CFR 60, Subpart KKKK

Standards of Performance for Stationary Combustion Turbines

This regulation applies to stationary combustion turbines with a heat input at peak load equal to or greater than 10 MMBtu/hr that commenced construction, modification, or reconstruction after February 18, 2005.

There are no stationary combustion turbines located at this facility.

6.11. 40 CFR 60, Subpart OOOO

Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or before September 18, 2015

This regulation applies to numerous sources within the crude oil and natural gas production sector of the oil and gas industry. Some of the source types potentially subject to the regulation include production storage tanks, compressor engines, pneumatic controllers, sulfur removal units, natural gas processing units and hydraulically fractured gas wells.

The regulation requires storage tanks that emit greater than six tons per year of VOCs to install and continuously operate a control device that has a minimum control efficiency of 95%, as well as monitoring, recordkeeping, and reporting requirements.

Furthermore, the regulation applies to continuous bleed natural-gas-driven pneumatic controllers. Exceptions include controllers with a natural gas bleed rate ≤6 standard cubic feet per hour (scfh) not at a natural gas plant and intermittent pneumatic controllers.

Finally, the regulation applies to centrifugal compressors using wet seals and all reciprocating compressors with the exceptions of centrifugal compressors using dry seals and centrifugal and/or reciprocating compressors located at a well site or after custody transfer to the transmission segment.

The Central Banks CDP Compressor Station is classified as a crude oil and natural gas transmission facility and originally was subject to this regulation as it was constructed between August 23, 2011 and September 18, 2015; however, the facility was modified after September 18, 2015, and is no longer subject to this regulation.

6.12. 40 CFR 60, Subpart OOOOa

Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015

This regulation is similar to 40 CFR 60, Subpart OOOO; however, it also establishes emission standards and compliance schedules for the control of GHGs and other numerous requirements. The greenhouse gas standard in this subpart is in the form of a limitation on emissions of methane from affected facilities in the crude oil and natural gas source category that commence construction, modification, or reconstruction after September 18, 2015. This subpart also establishes emission standards and compliance schedules for the control of VOCs and SO_2 emissions from affected facilities in the crude oil and natural gas source category that commence construction, modification, or reconstruction between September 18, 2015 and December 6, 2022.

Subpart OOOOa, like Subpart OOOO, requires storage tanks that emit greater than six tons per year of VOCs to install and continuously operate a control device that has a minimum control efficiency of 95%, as well as operate a Leak Detection and Repair (LDAR) monitoring, recordkeeping, and reporting program. It also applies to continuous bleed natural gas-driven pneumatic controllers. Exceptions include controllers with a natural gas bleed rate ≤6 scfh not at a natural gas plant and intermittent pneumatic controllers.

Finally, the regulation applies to centrifugal compressors using wet seals and all reciprocating compressors. This facility does not have any centrifugal gas compressor engines; however, has multipole reciprocating compressors. This regulation requires a facility to monitor all fugitive emission components, as defined in §60.5430a. Repairs of all sources of fugitive emissions must be made and recordkeeping and reporting must be done. For purposes of this section, fugitive emissions are defined as: Any visible emission from a fugitive emissions component observed using optical gas imaging or an instrument reading of 500 ppm or greater using Method 21. The facility must conduct LDAR monitoring as per the regulation.

The existing condensate tanks at this facility are affected sources within the regulation because they emit more than the affected source threshold of 6 tpy and were constructed after September 18, 2015. The storage tanks must be equipped with a closed vent system (CVS) that is designed, operated, and maintained to route all gases, vapors, and fumes emitted from affected facilities to a control device. The facility has only no-bleed or low-bleed pneumatic controllers; theres are not affected sources that are subject to this regulation.

The facility has been conducting semi-annual LDAR inspections using OGI cameras, as well as ongoing audio, visual, and olfactory (AVO) and Method 22 visible emissions observations of the flares. GME reports the information in the annual NSPS OOOOa submittal in March 2024. This is on file with NDDEQ.

Because the proposed compressor engine replacement is occurring after December 6, 2022, the new engine and fugitive monitoring will have to comply with 40 CFR 60, Subpart OOOOb.

6.13. 40 CFR 60, Subpart OOOOb

Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review

Subpart OOOOb updates Subpart OOOOa and includes numerous new requirements for facilities that are new, reconstructed, and modified after December 6, 2022. The regulation now includes green completions for all wells, not just gas wells. It establishes a methane emission limit on storage tanks of 20 tpy with the existing 6 tpy limit for VOCs. Pneumatic controllers and pumps must be no bleed/vent or be routed to a 95% control device. There

are updates to the CVS systems and flares that include more parametric monitoring of flowrates, pressures, heating values, etc. Fugitive emissions monitoring requirements updates include varied frequencies of LDAR depending on the equipment located at the oil facility. A routine flaring phase-out requirement requires no flaring from the oil and gas production facilities, unless it is a temporary or an emergency situation by May 7, 2026.

Furthermore, the regulation includes the Super-Emitter Program which allows 3rd parties to notify the EPA of large emitting events (100 kg/hr of CH4).

Finally, the Emissions Guidance (EG) OOOOc requires all existing facilities prior to December 7, 2022 to comply with the stringent Subpart OOOOb requirements. This must be administered at the state level through a State Implementation Plan (SIP) or Federal Implementation Plan (FIP). The EG requirements will be in effect no later than March 8, 2029.

This modification will trigger the Central Banks CDP Compressor Station to comply with specific sections of the regulation depending on what equipment is new (e.g., proposed compressor), pneumatics, updated fugitive monitoring requirements, CVS parametric monitoring requirements, the Super-Emitter Program, etc.

6.14. 40 CFR 63, Subpart HH

National Emission Standards for Hazardous Air Pollutants from Oil and Gas Production Facilities

This regulation applies to all oil and gas production facilities that are major sources of HAPs (for storage vessels, glycol dehydrators, and ancillary equipment and compressors located at natural gas processing plants) and/or area sources of HAPs (for tri-ethylene glycol dehydrators).

This facility is not an oil and gas production facility that is a major source of HAPs, nor is it an area source of HAPs containing a tri-ethylene glycol dehydrator. The Central Banks CDP Compressor Station is not subject to this regulation.

6.15. 40 CFR 63, Subpart HHH

National Emission Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities

This regulation applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user and that are major sources of HAPs.

The facility is not a natural gas transmission and storage facility that transports or stores natural gas prior to entering the pipeline to a local distribution company or final end users and is not a major source of HAPs. The Central Banks CDP Compressor Station is not subject to this regulation.

6.16. 40 CFR 63, Subpart ZZZZ

National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

This regulation applies to any RICE engines located at a major or area source of HAP emissions. The engines include any new, existing, modified, or reconstructed engines regardless of horsepower.

There are seven existing and one proposed RICE engine located at this facility. This facility is considered an area source of HAPs. EU1 and EU2 are subject to the regulation because they were manufactured prior to June 12, 2006. All other engines (EU3-5, EU26, and proposed EU27) were all manufactured after June 12, 2006 and therefore are subject to NSPS Subpart JJJJ. Each engine is inherently in compliance with NESHAP Subpart ZZZZ by complying with NSPS JJJJ.

6.17. 40 CFR 63, Subpart JJJJJJ

National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

This regulation applies to any industrial, commercial, or institutional boiler as defined at §63.11237, that is located at, or is part of, an area source of HAPs.

This facility does not contain an industrial, commercial, or institutional boiler as defined at §63.11237 and is not subject to this regulation.

6.18. 40 CFR 98, Subpart C

Greenhouse Gas Reporting Rule: General Stationary Fuel Combustion Sources

This regulation establishes requirements for GHG emissions and applies to stationary fuel combustion sources that combust solid, liquid, or gaseous fuel, generally for the purposes of producing electricity, generating steam, or providing useful heat or energy for industrial, commercial, or institutional use, or reducing the volume of waste by removing combustible matter. Stationary fuel combustion sources include, but are not limited to, boilers, simple and combined-cycle combustion turbines, engines, incinerators, and process heaters.

The Central Banks CDP Compressor Station is subject to this regulation and will comply by complying with the requirements of 40 CFR 98, Subpart W.

6.19. 40 CFR 98, Subpart MM

Greenhouse Gas Reporting Rule: Supplier of Petroleum Products

This regulation establishes requirements for GHG emissions and applies to petroleum refineries and importers and exporters of petroleum products and natural gas liquids.

The Central Banks CDP Compressor Station is not involved in the import, export or refining of petroleum products and is not subject to this regulation.

6.20. 40 CFR 98, Subpart NN

Greenhouse Gas Reporting Rule: Supplier of Natural Gas and Gas Liquids

This regulation establishes requirements for reporting GHG emissions and applies to:

1. Natural gas liquids fractionators are installations that fractionate natural gas liquids (NGLs) into their constituent liquid products (ethane, propane, normal butane, iso-butane or pentanes plus) for supply to downstream facilities.

2. Local Distribution Companies (LDCs) are companies that own or operate distribution pipelines, not interstate pipelines or intrastate pipelines, that physically deliver natural gas to end users and that are regulated as separate operating companies by state public utility commissions or that operate as independent municipally owned distribution systems.

The Central Banks CDP Compressor Station is not a natural gas liquids fractionator or an LDC, and is not subject to this regulation.

6.21. 40 CFR 98, Subpart W

Greenhouse Gas Reporting Rule: Petroleum and Natural Gas Systems

This regulation establishes requirements for GHG emissions reporting and applies to offshore petroleum and natural gas production, onshore petroleum and natural gas production, onshore natural gas processing, onshore natural gas transmission compression, underground natural gas storage, liquefied natural gas (LNG) storage, LNG import and export equipment, and natural gas distribution.

The Central Banks CDP Compressor Station is an affected source that is subject to this regulation because it contains onshore petroleum and natural gas gathering and boosting sources subject to reporting under Subpart W and is part of a larger reporting faction which

includes additional GME gathering and boosting sites within the Williston Basin. GME submits the annual reports to EPA through their e-GGRT database by March 31st.

CENTRAL BANKS CDP PTC ATTACHMENTS

Attachment A: Permit to Construct Application Forms

Attachment B: Emission Inventory

Attachment C: Proposed Engine Manufacturer Specs

Attachment D: Engine Catalyst Manufacturer Specs

Attachment E: Plot Plan

Attachment F: Facility Map

ATTACHMENT A: PTC APPLICATION FORMS

PERMIT APPLICATION FOR HAZARDOUS AIR POLLUTANT (HAP) SOURCES

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8329 (9-2021)

SECTION A1 - APPLICANT INFORMATION

Name of Firm or Organization Grayson Mill Energy, LLC		
Applicant's Name Dusty Grosulak		
Title EHS/Regulatory	Telephone Number (701) 552-7850	E-mail Address Dgrosulak@gmellc.com
Mailing Address (Street & No.) 14649 Brigham Drive		
City Williston	State ND	ZIP Code 58801

SECTION A2 - FACILITY INFORMATION

Contact Person for Air Pollution Matters Dusty Grosulak		
Title EHS/Regulatory	Telephone Number (701) 552-7850	E-mail Address Dgrosulak@gmellc.com
Facility Address (Street & No. or Lat/Long to Nearest Second) 47.994983/-103.231692		
City Watford	State ND	ZIP Code 58854
County McKenzie	Number of Employees at Location N/A	
Land Area at Plant Site 5 Acres (or) Sq. Ft.	MSL Elevation at Plant 2,175	

Describe Nature of Business/Process

Natural Gas Compressor Station

SECTION B – STACK DATA

Inside Diameter (ft) 1	Height Above Grade (ft) 12	
Gas Temperature at Exit (°F) 1220	Gas Velocity at Exit (ft/sec) 474	Gas Volume (scfm) 28,450
Basis of any Estimates (attach separate sheet if necessary) Engine and Catalyst Specs.		
Are Emission Control Devices in Place? If YES – Complete SFN 8532 ☒ Yes ☐ No		
Nearest Residences or Building Residence	Distance (ft) ~4000	Direction Northwest
Nearest Property Line	Distance (ft)	Direction

SECTION C – EMISSION STREAM DATA

Source ID Number SFN 8516 EU27	Mean Particle Diameter (um) TBD
Flow Rate (scfm) 28,450	Drift Velocity (ft/sec) TBD
Stream Temperature (°F) 1220	Particulate Concentration (gr/dscf) TBD
Moisture Content (%) N/A	Halogens or Metals Present? TBD
Pressure (in. Hg) TBD	Organic Content (ppmv) TBD
Heat Content (Btu/scfm) TBD	O_2 Content (%) TBD

SECTION D – POLLUTANT SPECIFIC DATA
(Complete One Box for Each Pollutant in Emission Stream)

Pollutant Emitted See Attachment B - Emission Inventory	Chemical Abstract Services (CAS) Number See Attachment B - Emission Inventory
Proposed Emission Rate (lb/hr) See Attachment B - Emission Inventory	Emission Source (describe) EU27 - Compressor Engine
Source Classification (process point, process fugitive, area fugitive) See Attachment B - Emission Inventory	Pollutant Class and Form (organic/inorganic - particulate/vapor) Organic Vapor
Concentration in Emission Stream (ppmv) See Attachment B - Emission Inventory	Vapor Pressure (in. Hg @ °F) TBD
Solubility	Molecular Weight (lb/lb-mole) See Attachment B - Emission Inventory
Absorptive Properties	

Pollutant Emitted	Chemical Abstract Services (CAS) Number
Proposed Emission Rate (lb/hr)	Emission Source (describe)
Source Classification (process point, process fugitive, area fugitive)	Pollutant Class and Form (organic/inorganic - particulate/vapor)
Concentration in Emission Stream (ppmv)	Vapor Pressure (in. Hg @ °F)
Solubility	Molecular Weight (lb/lb-mole)
Absorptive Properties	

(Add additional pages if necessary)

Signature of Applicant	Date 09/13/2024

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Environmental Quality
Division of Air Quality
4201 Normandy Street, 2nd Floor
Bismarck, ND 58503-1324
(701) 328-5188

PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8532 (9-2021)

NOTE: READ INSTRUCTIONS BEFORE COMPLETING THIS FORM.
- Must also include forms SFN 8516 or SFN 52858

SECTION A – GENERAL INFORMATION

Name of Firm or Organization	Facility Name
Grayson Mill Energy, LLC	Central Banks CDP Compressor Station
Source ID No. of Equipment being Controlled EU27	

SECTION B – EQUIPMENT

Type: ☐ Cyclone ☐ Multiclone ☐ Baghouse ☐ Electrostatic Precipitator
☐ Wet Scrubber ☐ Spray Dryer ☐ Flare/Combustor
☑ Other – Specify: Oxidation Catalyst

Name of Manufacturer	Model Number	Date to Be Installed
DCL	CB000RH 0426 0H63 01	TBD

Application:
☐ Boiler ☐ Kiln ☑ Engine ☐ Other – Specify:

Pollutants Removed	CO	NOx	VOC	
Design Efficiency (%)	96%	96%	0	
Operating Efficiency (%)	96%	96%	0	

Describe method used to determine operating efficiency:
manufacturer specs

SECTION CD – GAS CONDITIONS

Gas Conditions			Inlet	Outlet
Gas Volume (SCFM; 68°F; 14.7 psia)				28,450
Gas Temperature (°F)				1220
Gas Pressure (in. H_2O)				
Gas Velocity (ft/sec)				
Pollutant Concentration (Specify Pollutant and Unit of Concentration)	Pollutant	Unit of Concentration		
	CO	tpy	See Attachment B	See Attachment B
	NOx	tpy	See Attachment B	See Attachment B
	VOC	tpy	See Attachment B	See Attachment B

Pressure Drop Through Gas Cleaning Device (in. H_2O)
TBD

INSTRUCTIONS FOR PERMIT APPLICATION FOR AIR POLLUTION CONTROL EQUIPMENT

1. Complete this form for each piece of equipment or process, which has air pollution control equipment installed, described in the following Permit Applications: Hazardous Air Pollutant (HAP) Sources (SFN 8329), Fuel Burning Equipment for Indirect Heating (SFN 8518); Manufacturing or Processing Equipment (SFN 8520); Incinerators/Crematories (SFN 8522); Internal Combustion Engines and Turbines (SFN 8891); and Glycol Dehydration Units (SFN 58923). Print or type all information. If an item does not apply, place NA in the appropriate space.

2. Type of Equipment - If the type is not one of those listed; provide enough information so the operating principal of the equipment can be determined.

3. List each pollutant which the device is intended to control, the efficiency of removal intended by the designer, and the actual efficiency under operating conditions.

4. Please attach the following:

   - A brief description and sketch of the air pollution control device if it is of unusual design or used in conjunction with other control devices. Show any bypass of the device and specify the conditions under which the bypass is used.

   - A description of what is done with collected air contaminants from the time they are collected until they reach the final disposal point. Include a description of the transportation methods used.

   - If a stack test has been conducted, attach a copy of the results, date of the test, a description of the techniques used, and the name and address of the organization which performed the test.

5. If the control device is a combustor (e.g.: thermal oxidizer, vapor combustion unit, etc.), include an estimate of potential greenhouse gas emissions (CO_2e).

SUBMIT YOUR APPLICATION WITH ALL SUPPORTING DOCUMENTS, ALONG WITH THE FORMS SPECIFIED IN THE FIRST PARAGRAPH ABOVE, TO:

North Dakota Department of Environmental Quality
Division of Air Quality
4201 Normandy Street, 2nd Floor
Bismarck, ND 58503-1324
(701) 328-5188

PERMIT APPLICATION FOR INTERNAL COMBUSTION ENGINES AND TURBINES

NORTH DAKOTA DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR QUALITY
SFN 8891 (9-2021)

NOTE: READ INSTRUCTIONS BEFORE COMPLETING THIS FORM.
- Must include SFN 8516 or SFN 52858

SECTION A – GENERAL INFORMATION

Name of Firm or Organization	Facility Name
Grayson Mill Energy, LLC	Central Banks CDP

SECTION B – FACILITY AND UNIT INFORMATION

Source ID Number (From form SFN 8516): EU27

Type of Unit (check all that apply)

- ☒ Stationary Natural Gas-Fired Engine
- ☐ Stationary Diesel and Dual Fuel Engine
- ☐ Stationary Gasoline Engine
- ☐ Stationary Natural Gas-Fired Turbine
- ☐ Emergency Use Only
- ☐ Non-Emergency Use
- ☐ Peaking
- ☐ Demand Response
- ☐ Other – Specify:

SECTION C – MANUFACTURER DATA

Make	Model	Date of Manufacture
Waukesha	L7044GSI	04/30/2009

Reciprocating Internal Combustion Engine

- ☒ Spark Ignition ☐ Compression Ignition ☐ Lean Burn
- ☒ 4 Stroke ☐ 2 Stroke ☒ Rich Burn

Maximum Rating (BHP @ rpm)	Operating Capacity (BHP @ rpm)
1,680 bhp @ 1,000 rpm	1,680 bhp @ 1,000 rpm

Engine Subject to:

- ☐ 40 CFR 60, Subpart IIII
- ☒ 40 CFR 60, Subpart JJJJ
- ☐ 40 CFR 63, Subpart ZZZZ
- ☐ 40 CFR 60, Subpart OOOO (for compressors)
- ☒ 40 CFR 60, Subpart OOOOa (for compressors)

Turbine
Dry Low Emissions? ☐ Yes ☐ No

Heat Input (MMBtu/hr)	Maximum Rating (HP)	75% Rating (HP)	Efficiency

Turbine Subject to:
☐ 40 CFR 60, Subpart GG ☐ 40 CFR 60, Subpart KKKK

SECTION D – FUELS USED

Natural Gas (10^6 cu ft/year)	Percent Sulfur	Percent H_2S
113.99	Negligible	Negligible
Oil (gal/year)	Percent Sulfur	Grade No.
LP Gas (gal/year)	Other – Specify:	

SECTION E – NORMAL OPERATING SCHEDULE

Hours Per Day	Days Per Week	Weeks Per Year	Hours Per Year	Peak Production Season (if any)
24	7	52	8,760	

SECTION F – STACK PARAMETERS

Emission Point ID Number		Stack Height Above Ground Level (feet)	
EU27		12	
Stack Diameter (feet at top)	**Gas Discharged (SCFM)**	**Exit Temp (°F)**	**Gas Velocity (FPS)**
1	28,450	1220	604

SECTION G – EMISSION CONTROL EQUIPMENT

Is any emission control equipment installed on this unit?

☒ No ☐ Yes – Complete and attach form SFN 8532

SECTION H – MAXIMUM AIR CONTAMINANTS EMITTED

Pollutant	Maximum Pounds Per Hour	Amount (Tons Per Year)	Basis of Estimate*
NO_x	1.85	8.81	Manufacturer
CO	1.85	8.81	Manufacturer
PM	0.30	1.31	AP-42 Table 3.2-3 (07/00)
PM_{10} (filterable and condensable)	0.15	0.64	AP-42 Table 3.2-3 (07/00)
$PM_{2.5}$ (filterable and condensable)	0.15	0.64	AP-42 Table 3.2-3 (07/00)
SO_2	9.04E-03	0.04	AP-42 Table 3.2-3 (07/00)
VOC	0.76	3.34	Manufacturer
GHG (as CO_2e)	2,091.23	9,872.70	Manfacturer's Specs and Subpart W
Largest Single HAP	0.15	0.65	Formaldehyde - Manufacturer's Specs
Total HAPS	0.24	1.05	AP-42 Table 3.2-3 (07/00)

* If performance test results are available for the unit, submit a copy of test with this application, if manufacture data used, submit manufacturers specification sheets.

IS THIS UNIT IN COMPLIANCE WITH ALL APPLICABLE AIR POLLUTION RULES AND REGULATIONS?

☒ YES ☐ NO

If "NO" a Compliance Schedule (SFN 61008) must be completed and attached.

Attach and label separate sheet(s) if you need more space to explain any system or answers or to provide complete listings of Emissions, Contaminants, or other items.

SEND COMPLETED APPLICATION AND ALL ATTACHMENTS TO:

North Dakota Department of Environmental Quality
Division of Air Quality
4201 Normandy Street, 2nd Floor
Bismarck, ND 58503-1324
(701) 328-5188

ATTACHMENT B: EMISSION INVENTORY

Grayson Mill Operating, LLC
Central Banks CDP Compressor Station

Potential To Emit

Emitting Units[1]	PM Total (tpy)	NOx (tpy)	CO (tpy)	SOx (tpy)	VOC (tpy)	HAP (tpy)	CHCO (tpy)	CO_2e (tpy)
EU 1 - Waukesha 7044GSI (1680 bhp)	1.13	8.11	16.22	0.03	5.68	1.16	0.81	9,872.20
EU 2 - Waukesha 7044GSI (1680 bhp)	1.13	8.11	16.22	0.03	5.68	1.16	0.81	9,872.20
EU 3 - Waukesha 7044GSI (1680 bhp)	1.13	8.11	8.11	0.03	5.68	1.16	0.81	9,872.20
EU 4 - Waukesha 7044GSI (1680 bhp)	1.13	8.11	8.11	0.03	5.68	1.16	0.81	9,872.20
EU 5 - Waukesha 7044GSI (1680 bhp)	1.13	8.11	8.11	0.03	5.68	1.16	0.81	9,872.20
EU 10 - 17 - 400 bbl Condensate/Produced Water Tanks[2]	-	-	-	-	-	-	-	-
EU 18 - Steffes Flare (condensate/water tanks and truck loading)[3]	0.20	1.66	7.57	0.00	20.13	0.60	-	0.63
EU 19 - 1,000 gallon diesel fuel storage tank	-	-	-	-	Neg.	Neg.	-	-
EU 20 - Volvo 937 hp Emergency Portable Diesel-Fired Generator)[4]	-	-	-	-	-	-	-	-
EU 21 - Zeeco Process/Emergency Flare	0.08	0.39	1.76	0.00	1.59	0.18	-	0.09
EU 22 - Zeeco Process/Blowdown Flare	0.14	0.69	3.16	0.00	2.86	0.32	-	0.16
EU 23 - In-line gas heater	0.10	1.29	1.08	0.01	0.07	0.02	-	1,553.23
~~REPLACE: EU 24 - Caterpillar G3516 (1150 bhp)~~	~~0.82~~	~~5.55~~	~~2.00~~	~~0.02~~	~~3.22~~	~~0.61~~	~~0.38~~	~~4,962.51~~
~~REPLACE: EU 25 - Caterpillar G3516 (1150 bhp)~~	~~0.82~~	~~5.55~~	~~2.00~~	~~0.02~~	~~3.22~~	~~0.61~~	~~0.38~~	~~4,957.66~~
EU26 - Caterpillar G3606 (1875 bhp)	1.20	18.11	18.11	0.04	12.67	4.50	4.16	9,239.96
PROPOSED: EU 27 - Waukesha 7044GSI (1680 bhp)	**1.31**	**8.11**	**8.11**	**0.04**	**3.34**	**1.05**	**0.65**	**9,872.70**
Fugitive Emissions	-	-	-	-	4.41	0.12	-	72.00
Total (without Fugitives)	**8.65**	**70.80**	**96.57**	**0.25**	**69.05**	**12.45**	**8.87**	**70,027.76**
TOTAL	**8.65**	**70.80**	**96.57**	**0.25**	**73.46**	**12.57**	**8.87**	**70,099.77**

[1]EU6, 7, 8, & 9 removed in PTC15003 R1

[2,3]Emissions from EU10-17 are controlled by EU18. All emissions originiating from these tanks and truck loading fugitives are included under EU18.

[4]As per 40 CFR 60, Subpart IIII, "there is no time limit on the use of emergency stationary RICE in emergency situations". Therefore, emissions are not to be included in PTE.

Grayson Mill Operating, LLC
Central Banks CDP Compressor Station

EU 1 - Waukesha L7044GSI (1680 bhp)
with 3-Way Catalyst
4-Stroke, Rich-Burn

Make:	Waukesha		
Model:	L7044GSI		
Fuel:	Natural Gas		
Horsepower:	1,680.00	bhp	(Manufacturer Specs)
Fuel Usage:	98.12	MMscf/yr	
House of Operation:	8,760	hrs/yr	
Max Fuel Conbustion Rate:	7,881.00	Btu/bhp-hr	(Manufacturer Specs)
Fuel Combustion Rate:	13.24	MMBtu/hr	
Fuel Heating Value:	1,182.00	MMBtu/MMscf	(Site Fuel Gas Specs)

Criteria Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
VOCs	0.350	g/bhp-hr	PCT20026	1.30	**5.68**
NOx	0.500	g/bhp-hr	PCT20026	1.85	**8.11**
CO	1.000	g/bhp-hr	PCT20026	3.70	**16.22**
SOx	5.88E-04	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	7.79E-03	**0.03**
PM-10/2.5 Filterable	0.0095	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.13	**0.55**
PM Condensable	0.0099	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.13	**0.57**
PM Total	0.01941	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.26	**1.13**
CO_2	563.00	g/bhp-hr	Manufacturer	2085.22	**9133.27**
CH_4	1.6200	g/bhp-hr	Manufacturer	6.00	**26.28**
N_2O	0.00	lbs/MMBtu	40 CFR 98, Subp. C Table 1&2	0.00	**0.01**
				Total CO2e:	**9,872.20**

Hazardous Air Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions[1] (tpy)
1,1,2,2 - Tetrachloroethane	2.53E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.35E-04	7.34E-04
1,1,2-Trichloroethane	1.53E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.03E-04	4.44E-04
1,3-Butadiene	6.63E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	8.78E-03	1.92E-02
1,3-Dichloropropene	1.27E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.68E-04	3.68E-04
Acetaldehyde	2.79E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.69E-02	8.09E-02
Acrolein	2.63E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.48E-02	7.63E-02
Benzene	1.58E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.09E-02	4.58E-02
Carbon Tetrachloride	1.77E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.34E-04	5.13E-04
Chlorobenzene	1.29E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.71E-04	3.74E-04
Chrloroform	1.37E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.81E-04	3.97E-04
Ethylbenzene	2.48E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.28E-04	7.19E-04
Ethyl Dibromide	2.13E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.82E-04	6.18E-04
Formaldehyde	5.00E-02	g/bhp-hr	PTC15003	1.85E-01	8.11E-01
Methanol	3.06E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	4.05E-02	8.87E-02
Methylene Chloride	4.12E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	5.45E-04	1.19E-03
Naphtalene	9.71E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.29E-03	2.82E-03
PAH	1.41E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.87E-03	4.09E-03
Styrene	1.19E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.58E-04	3.45E-04
Toluene	5.58E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	7.39E-03	1.62E-02
Vinyl Chloride	7.18E-06	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	9.51E-05	2.08E-04
Xylene	1.95E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.58E-03	5.65E-03
				Total HAPs:	**1.16**

Hazardous Air Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
Arsenic	0.000204	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.28509E-06	1.00E-05
Beryllium	0.000012	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.34417E-07	5.89E-07
Cadmium	0.0011	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.23216E-05	5.40E-05
Chromium	0.0014	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.5682E-05	6.87E-05
Cobalt	0.000084	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	9.40919E-07	4.12E-06
Manganese	0.00038	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	4.25654E-06	1.86E-05
Mercury	0.00026	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.91237E-06	1.28E-05
Nickel	0.0021	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.3523E-05	1.03E-04
Selenium	0.000024	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.68834E-07	1.18E-06
				Total Metal HAPs:	**2.73E-04**

Grayson Mill Operating, LLC
Central Banks CDP Compressor Station

EU 2 - Waukesha L7044GSI (1680 bhp)
with 3-Way Catalyst
4-Stroke, Rich-Burn

Make:	Waukesha		
Model:	L7044GSI		
Fuel:	Natural Gas		
Horsepower:	1,680.00	bhp	(Manufacturer Specs)
Fuel Usage:	98.12	MMscf/yr	
House of Operation:	8,760	hrs/yr	
Max Fuel Conbustion Rate:	7,881.00	Btu/bhp-hr	(Manufacturer Specs)
Fuel Combustion Rate:	13.24	MMBtu/hr	
Fuel Heating Value:	1,182.00	MMBtu/MMscf	(Site Fuel Gas Specs)

Criteria Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
VOCs	0.350	g/bhp-hr	PCT20026	1.30	**5.68**
NOx	0.500	g/bhp-hr	PCT20026	1.85	**8.11**
CO	1.000	g/bhp-hr	PCT20026	3.70	**16.22**
SOx	5.88E-04	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	7.79E-03	**0.03**
PM-10/2.5 Filterable	0.0095	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.13	**0.55**
PM Condensable	0.0099	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.13	**0.57**
PM Total	0.01941	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.26	**1.13**
CO_2	563.00	g/bhp-hr	Manufacturer	2085.22	**9133.27**
CH_4	1.6200	g/bhp-hr	Manufacturer	6.00	**26.28**
N_2O	0.00	lbs/MMBtu	40 CFR 98, Subp. C Table 1&2	0.00	**0.01**
				Total CO2e:	**9,872.20**

Hazardous Air Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions[1] (tpy)
1,1,2,2 - Tetrachloroethane	2.53E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.35E-04	7.34E-04
1,1,2-Trichloroethane	1.53E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.03E-04	4.44E-04
1,3-Butadiene	6.63E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	8.78E-03	1.92E-02
1,3-Dichloropropene	1.27E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.68E-04	3.68E-04
Acetaldehyde	2.79E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.69E-02	8.09E-02
Acrolein	2.63E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.48E-02	7.63E-02
Benzene	1.58E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.09E-02	4.58E-02
Carbon Tetrachloride	1.77E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.34E-04	5.13E-04
Chlorobenzene	1.29E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.71E-04	3.74E-04
Chrloroform	1.37E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.81E-04	3.97E-04
Ethylbenzene	2.48E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.28E-04	7.19E-04
Ethyl Dibromide	2.13E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.82E-04	6.18E-04
Formaldehyde	5.00E-02	g/bhp-hr	PTC15003	1.85E-01	8.11E-01
Methanol	3.06E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	4.05E-02	8.87E-02
Methylene Chloride	4.12E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	5.45E-04	1.19E-03
Naphtalene	9.71E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.29E-03	2.82E-03
PAH	1.41E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.87E-03	4.09E-03
Styrene	1.19E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.58E-04	3.45E-04
Toluene	5.58E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	7.39E-03	1.62E-02
Vinyl Chloride	7.18E-06	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	9.51E-05	2.08E-04
Xylene	1.95E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.58E-03	5.65E-03
				Total HAPs:	**1.16**

Hazardous Air Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
Arsenic	0.000204	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.28509E-06	1.00E-05
Beryllium	0.000012	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.34417E-07	5.89E-07
Cadmium	0.0011	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.23216E-05	5.40E-05
Chromium	0.0014	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.5682E-05	6.87E-05
Cobalt	0.000084	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	9.40919E-07	4.12E-06
Manganese	0.00038	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	4.25654E-06	1.86E-05
Mercury	0.00026	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.91237E-06	1.28E-05
Nickel	0.0021	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.3523E-05	1.03E-04
Selenium	0.000024	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.68834E-07	1.18E-06
				Total Metal HAPs:	**2.73E-04**

Grayson Mill Operating, LLC
Central Banks CDP Compressor Station

EU 3 - Waukesha L7044GSI (1680 bhp)
with 3-Way Catalyst
4-Stroke, Rich-Burn

Make:	Waukesha		
Model:	L7044GSI		
Fuel:	Natural Gas		
Horsepower:	1,680.00	bhp	(Manufacturer Specs)
Fuel Usage:	98.12	MMscf/yr	
House of Operation:	8,760	hrs/yr	
Max Fuel Conbustion Rate:	7,881.00	Btu/bhp-hr	(Manufacturer Specs)
Fuel Combustion Rate:	13.24	MMBtu/hr	
Fuel Heating Value:	1,182.00	MMBtu/MMscf	(Site Fuel Gas Specs)

Criteria Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
VOCs	0.350	g/bhp-hr	PCT20026	1.30	**5.68**
NOx	0.500	g/bhp-hr	PCT20026	1.85	**8.11**
CO	0.500	g/bhp-hr	PCT20026	1.85	**8.11**
SOx	5.88E-04	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	7.79E-03	**0.03**
PM-10/2.5 Filterable	0.0095	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.13	**0.55**
PM Condensable	0.0099	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.13	**0.57**
PM Total	0.01941	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.26	**1.13**
CO_2	563.00	g/bhp-hr	Manufacturer	2085.22	**9133.27**
CH_4	1.6200	g/bhp-hr	Manufacturer	6.00	**26.28**
N_2O	0.00	lbs/MMBtu	40 CFR 98, Subp. C Table 1&2	0.00	**0.01**
				Total CO2e:	**9,872.20**

Hazardous Air Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions[1] (tpy)
1,1,2,2 - Tetrachloroethane	2.53E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.35E-04	7.34E-04
1,1,2-Trichloroethane	1.53E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.03E-04	4.44E-04
1,3-Butadiene	6.63E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	8.78E-03	1.92E-02
1,3-Dichloropropene	1.27E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.68E-04	3.68E-04
Acetaldehyde	2.79E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.69E-02	8.09E-02
Acrolein	2.63E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.48E-02	7.63E-02
Benzene	1.58E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.09E-02	4.58E-02
Carbon Tetrachloride	1.77E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.34E-04	5.13E-04
Chlorobenzene	1.29E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.71E-04	3.74E-04
Chrloroform	1.37E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.81E-04	3.97E-04
Ethylbenzene	2.48E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.28E-04	7.19E-04
Ethyl Dibromide	2.13E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.82E-04	6.18E-04
Formaldehyde	5.00E-02	g/bhp-hr	PTC15003	1.85E-01	8.11E-01
Methanol	3.06E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	4.05E-02	8.87E-02
Methylene Chloride	4.12E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	5.45E-04	1.19E-03
Naphtalene	9.71E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.29E-03	2.82E-03
PAH	1.41E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.87E-03	4.09E-03
Styrene	1.19E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.58E-04	3.45E-04
Toluene	5.58E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	7.39E-03	1.62E-02
Vinyl Chloride	7.18E-06	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	9.51E-05	2.08E-04
Xylene	1.95E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.58E-03	5.65E-03
				Total HAPs:	**1.16**

Hazardous Air Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
Arsenic	0.000204	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.2851E-06	1.00E-05
Beryllium	0.000012	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.3442E-07	5.89E-07
Cadmium	0.0011	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.2322E-05	5.40E-05
Chromium	0.0014	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.5682E-05	6.87E-05
Cobalt	0.000084	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	9.4092E-07	4.12E-06
Manganese	0.00038	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	4.2565E-06	1.86E-05
Mercury	0.00026	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.9124E-06	1.28E-05
Nickel	0.0021	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.3523E-05	1.03E-04
Selenium	0.000024	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.6883E-07	1.18E-06
				Total Metal HAPs:	**2.73E-04**

Grayson Mill Operating, LLC
Central Banks CDP Compressor Station

EU 4 - Waukesha L7044GSI (1680 bhp)
with 3-Way Catalyst
4-Stroke, Rich-Burn

Make:	Waukesha		
Model:	L7044GSI		
Fuel:	Natural Gas		
Horsepower:	1,680.00	bhp	(Manufacturer Specs)
Fuel Usage:	98.12	MMscf/yr	
House of Operation:	8,760	hrs/yr	
Max Fuel Conbustion Rate:	7,881.00	Btu/bhp-hr	(Manufacturer Specs)
Fuel Combustion Rate:	13.24	MMBtu/hr	
Fuel Heating Value:	1,182.00	MMBtu/MMscf	(Site Fuel Gas Specs)

Criteria Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
VOCs	0.350	g/bhp-hr	PCT20026	1.30	**5.68**
NOx	0.500	g/bhp-hr	PCT20026	1.85	**8.11**
CO	0.500	g/bhp-hr	PCT20026	1.85	**8.11**
SOx	5.88E-04	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	7.79E-03	**0.03**
PM-10/2.5 Filterable	0.0095	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.13	**0.55**
PM Condensable	0.0099	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.13	**0.57**
PM Total	0.01941	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.26	**1.13**
CO_2	563.00	g/bhp-hr	Manufacturer	2085.22	**9133.27**
CH_4	1.6200	g/bhp-hr	Manufacturer	6.00	**26.28**
N_2O	0.00	lbs/MMBtu	40 CFR 98, Subp. C Table 1&2	0.00	**0.01**
				Total CO2e:	**9,872.20**

Hazardous Air Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions[1] (tpy)
1,1,2,2 - Tetrachloroethane	2.53E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.35E-04	7.34E-04
1,1,2-Trichloroethane	1.53E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.03E-04	4.44E-04
1,3-Butadiene	6.63E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	8.78E-03	1.92E-02
1,3-Dichloropropene	1.27E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.68E-04	3.68E-04
Acetaldehyde	2.79E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.69E-02	8.09E-02
Acrolein	2.63E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.48E-02	7.63E-02
Benzene	1.58E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.09E-02	4.58E-02
Carbon Tetrachloride	1.77E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.34E-04	5.13E-04
Chlorobenzene	1.29E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.71E-04	3.74E-04
Chrloroform	1.37E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.81E-04	3.97E-04
Ethylbenzene	2.48E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.28E-04	7.19E-04
Ethyl Dibromide	2.13E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.82E-04	6.18E-04
Formaldehyde	5.00E-02	g/bhp-hr	PTC15003	1.85E-01	8.11E-01
Methanol	3.06E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	4.05E-02	8.87E-02
Methylene Chloride	4.12E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	5.45E-04	1.19E-03
Naphtalene	9.71E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.29E-03	2.82E-03
PAH	1.41E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.87E-03	4.09E-03
Styrene	1.19E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.58E-04	3.45E-04
Toluene	5.58E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	7.39E-03	1.62E-02
Vinyl Chloride	7.18E-06	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	9.51E-05	2.08E-04
Xylene	1.95E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.58E-03	5.65E-03
				Total HAPs:	**1.16**

Hazardous Air Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
Arsenic	0.000204	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.2851E-06	1.00E-05
Beryllium	0.000012	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.3442E-07	5.89E-07
Cadmium	0.0011	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.2322E-05	5.40E-05
Chromium	0.0014	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.5682E-05	6.87E-05
Cobalt	0.000084	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	9.4092E-07	4.12E-06
Manganese	0.00038	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	4.2565E-06	1.86E-05
Mercury	0.00026	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.9124E-06	1.28E-05
Nickel	0.0021	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.3523E-05	1.03E-04
Selenium	0.000024	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.6883E-07	1.18E-06
				Total Metal HAPs:	**2.73E-04**

[1]Control efficiency from the dual catalytic converter unit was conservatively assumed to be 50% per verbal guidance by NDDEQ on 4/29/10.

Grayson Mill Operating, LLC
Central Banks CDP Compressor Station

EU 5 - Waukesha L7044GSI (1680 bhp)
with 3-Way Catalyst
4-Stroke, Rich-Burn

Make:	Waukesha		
Model:	L7044GSI		
Fuel:	Natural Gas		
Horsepower:	1,680.00	bhp	(Manufacturer Specs)
Fuel Usage:	98.12	MMscf/yr	
House of Operation:	8,760	hrs/yr	
Max Fuel Conbustion Rate:	7,881.00	Btu/bhp-hr	(Manufacturer Specs)
Fuel Combustion Rate:	13.24	MMBtu/hr	
Fuel Heating Value:	1,182.00	MMBtu/MMscf	(Site Fuel Gas Specs)

Criteria Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
VOCs	0.350	g/bhp-hr	PCT20026	1.30	**5.68**
NOx	0.500	g/bhp-hr	PCT20026	1.85	**8.11**
CO	0.500	g/bhp-hr	PCT20026	1.85	**8.11**
SOx	5.88E-04	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	7.79E-03	**0.03**
PM-10/2.5 Filterable	0.0095	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.13	**0.55**
PM Condensable	0.0099	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.13	**0.57**
PM Total	0.01941	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.26	**1.13**
CO_2	563.00	g/bhp-hr	Manufacturer	2085.22	**9133.27**
CH_4	1.6200	g/bhp-hr	Manufacturer	6.00	**26.28**
N_2O	0.00	lbs/MMBtu	40 CFR 98, Subp. C Table 1&2	0.00	**0.01**
				Total CO2e:	**9,872.20**

Hazardous Air Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions[1] (tpy)
1,1,2,2 - Tetrachloroethane	2.53E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.35E-04	7.34E-04
1,1,2-Trichloroethane	1.53E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.03E-04	4.44E-04
1,3-Butadiene	6.63E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	8.78E-03	1.92E-02
1,3-Dichloropropene	1.27E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.68E-04	3.68E-04
Acetaldehyde	2.79E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.69E-02	8.09E-02
Acrolein	2.63E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.48E-02	7.63E-02
Benzene	1.58E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.09E-02	4.58E-02
Carbon Tetrachloride	1.77E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.34E-04	5.13E-04
Chlorobenzene	1.29E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.71E-04	3.74E-04
Chrloroform	1.37E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.81E-04	3.97E-04
Ethylbenzene	2.48E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.28E-04	7.19E-04
Ethyl Dibromide	2.13E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.82E-04	6.18E-04
Formaldehyde	5.00E-02	g/bhp-hr	PTC15003	1.85E-01	8.11E-01
Methanol	3.06E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	4.05E-02	8.87E-02
Methylene Chloride	4.12E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	5.45E-04	1.19E-03
Naphtalene	9.71E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.29E-03	2.82E-03
PAH	1.41E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.87E-03	4.09E-03
Styrene	1.19E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.58E-04	3.45E-04
Toluene	5.58E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	7.39E-03	1.62E-02
Vinyl Chloride	7.18E-06	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	9.51E-05	2.08E-04
Xylene	1.95E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.58E-03	5.65E-03
				Total HAPs:	**1.16**

Hazardous Air Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
Arsenic	2.04E-04	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.29E-06	1.00E-05
Beryllium	1.20E-05	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.3442E-07	5.89E-07
Cadmium	1.10E-03	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.2322E-05	5.40E-05
Chromium	1.40E-03	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.5682E-05	6.87E-05
Cobalt	8.40E-05	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	9.4092E-07	4.12E-06
Manganese	3.80E-04	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	4.2565E-06	1.86E-05
Mercury	2.60E-04	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.9124E-06	1.28E-05
Nickel	2.10E-03	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.3523E-05	1.03E-04
Selenium	2.40E-05	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.6883E-07	1.18E-06
				Total Metal HAPs:	**2.73E-04**

[1]Control efficiency from the dual catalytic converter unit was conservatively assumed to be 50% per verbal guidance by NDDEQ on 4/29/10.

Grayson Mill Operating, LLC
Central Banks CDP Compressor Station

EU 10-17, EU18 - Condensate Storage Tanks, with Flare Emission Control

(GOR: 98 scf/bbl):	**58,800**	scf/day
Lower Heating Value	**2,276**	Btu/scf
Molecular Weight	**50.20**	lb/lb-mole
Permitted Throughput	**600**	BOPD

VOC wt Fraction	**69.87%**
Benzene wt Fraction	**0.22%**
Toluene wt Fraction	**0.12%**
E-Benzene wt Fraction	**0.02%**
Xylene wt Fraction	**0.03%**
n-Hexane wt Fraction	**1.65%**
2,2,4-Trimethylpentante wt Fraction	**0.03%**

Controlled emissions are calculated based on a 98.0% DRE of the VOC gas.

CRITERIA POLLUTANT EMISSIONS

					Mol wt		wt%				
VOC:	**2,450** scf/hr	x	1/379 lb-mole/scf	x	50.2 lb/lb-mole	x	69.87%	x	2.0%	=	**4.53** lb/hr
	4.53 lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**19.86** TPY				

Benzene	**2,450** scf/hr	x	1/379 lb-mole/scf	x	50.2 lb/lb-mole	x	0.22%	x	2.0%	=	**1.43E-02** lb/hr	=	**6.25E-02** TPY
E-Benzene	**2,450** scf/hr	x	1/379 lb-mole/scf	x	50.2 lb/lb-mole	x	0.12%	x	2.0%	=	**7.79E-03** lb/hr	=	**3.41E-02** TPY
Toluene	**2,450** scf/hr	x	1/379 lb-mole/scf	x	50.2 lb/lb-mole	x	0.02%	x	2.0%	=	**1.30E-03** lb/hr	=	**5.69E-03** TPY
n-Hexane	**2,450** scf/hr	x	1/379 lb-mole/scf	x	50.2 lb/lb-mole	x	0.03%	x	2.0%	=	**1.95E-03** lb/hr	=	**8.53E-03** TPY
Xylenes	**2,450** scf/hr	x	1/379 lb-mole/scf	x	50.2 lb/lb-mole	x	1.65%	x	2.0%	=	**1.07E-01** lb/hr	=	**4.69E-01** TPY
2,2,4-Trimethylpentane	**2,450** scf/hr	x	1/379 lb-mole/scf	x	50.2 lb/lb-mole	x	0.03%	x	2.0%	=	**1.95E-03** lb/hr	=	**8.53E-03** TPY
													0.59 TPY

NOx:	**2,450** scf/hr	x	**2,276** Btu/scf	x	1 MMBtu/1,000,000 Btu	x	0.068 lb/MMBtu	=	**0.38** lb/hr
	0.38 lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**1.66** TPY		

CO:	**2,450** scf/hr	x	**2,276** Btu/scf	x	1 MMBtu/1,000,000 Btu	x	0.310 lb/MMBtu	=	**1.73** lb/hr
	1.73 lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**7.57** TPY		

PM:	**2,450** scf/hr	x	**19** lb/MMscf	=	**4.66E-02** lb/hr		
	4.66E-02 lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**0.20** TPY

					Mol wt		wt%		SO2/H2S MW Ratio		
SO2:	**2,450** scf/hr	x	1/379 lb-mole/scf	x	50.2 lb/lb-mole	x	0.00%	x	1.88	=	**0.00** lb/hr
	0.00 lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**0.00** TPY				

					Mol wt		wt%				
H2S:	**2,450** scf/hr	x	1/379 lb-mole/scf	x	50.2 lb/lb-mole	x	0.00%	x	2.0%	=	**0.00** **lb/hr**
	0.00 lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**0.00** **TPY**				

REGULATED GREENHOUSE GAS EMISSIONS

			mol% CO2		mton/kg		CO2 density				tons/Mtons		
CO2 in Gas	**2,450** scf/hr	x	0.18%	x	0.001	x	0.053 kg/scf	=	2.268E-04	x	1.10	=	**2.50E-04** **TPY CO2e**

			DRE		mol Methane 1		mol Ethane 2		mol Propane 3		mol Butane 4		mol Pentane 5		mol Hexane 6		mol Heptane 7
Combustion CO2:	**2,450** scf/hr	x	98.0%	x	(0.05	+	0.14	+	0.34	+	0.30	+	0.13	+	0.03	+	0.01

mol Octane 8		mol Nonane 9		mol Methane 10		mton/kg		CO2 density				ton/Mtons	
0.000	+	0.0000	+	0.00	) x	0.001	x	0.05 kg/scf	=	0.43 Mton CO2	x	1.10	
												=	**0.48** **TPY CO2e**

			mol CH4		CH4 Density		mton/kg		Uncontrolled %				
CH4:	**2,450** scf/hr	x	0.05	x	0.0192	x	0.001	x	2.0%	=	4.38E-05 Mton/yr CH4	x	
	1.1023 tons/Mtons	=	**4.83E-05** **TPY CH4**	x	28	=	**1.35E-03** **TPY CO2e**						

			N2O EF		HHV		mton/kg			
N2O:	**2,450** scf/hr	x	0.001 kg/MMBtu	x	0.002276 MMBtu/scf	x	0.001	=	5.58E-06 Mton/yr	x
	1.1023 tons/Mtons	=	**6.15E-06** **TPY N2O**	x	265	=	**1.63E-03** TPY CO2e			

Grayson Mill Operating, LLC
Central Banks CDP Compressor Station

EU 20 - Volvo Penta Genset Engine TWD1643GE (917 bhp) Emergency Generator
Compression Ignition Engine

Make:	Volvo Penta		
Model:	TWD1643GE		
Fuel:	Natural Gas		
Horsepower:	917.00	bhp	(Manufacturer Specs)
Fuel Usage:	0	gal/yr	Permitted Volume
House of Operation:	0	hrs/yr	(PTC application)
Max Fuel Conbustion Rate:	42.75	gal/hr	(PTC application)
	6,386.90	Btu/bhp-hr	(PTC application)
Fuel Combustion Rate:	2.93	MMBtu/yr	(PTC application)
Fuel Heating Value:	137,000.00	Btu/gal	(AP-42 Appendix A)

Criteria Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
VOCs	7.05E-04	g/bhp-hr	AP-42 Table 3.4-4 (10/96)	0.65	**0.00**
NOx	2.60	g/bhp-hr	Manufacturer's Data	5.26	**0.00**
CO	2.60	g/bhp-hr	Manufacturer's Data	5.26	**0.00**
SOx	4.05E-04	lbs/bhp-hr	AP-42 Table 3.4-4 (10/96)	0.37	**0.00**
PM Total	0.15	g/bhp-hr	Manufacturer's Data	0.30	**0.00**
CO_2	161.49	lbs/MMBtu	40 CFR 98, Subp. C Table 1&2	472.84	**0.00**
CH_4	6.61E-03	lbs/MMBtu	40 CFR 98, Subp. C Table 1&2	1.94E-02	**0.00E+00**
N_2O	1.32E-03	lbs/MMBtu	40 CFR 98, Subp. C Table 1&2	3.87E-03	**0.00E+00**
				Total CO2e:	**0.00**

Hazardous Air Pollutant	Diesel Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
1,1,2,2 - Tetrachloroethane	2.52E-05	lbs/MMBtu	AP-42 Chpt 1.3-10	7.38E-05	0.00E+00
1,1,2-Trichloroethane	7.88E-06	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.31E-05	0.00E+00
1,3-Butadiene	6.63E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.94E-03	0.00E+00
1,3-Dichloropropene	1.27E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.72E-05	0.00E+00
Acetaldehyde	2.79E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	8.17E-03	0.00E+00
Acrolein	2.63E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	7.70E-03	0.00E+00
Benzene	1.58E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	4.63E-03	0.00E+00
Carbon Tetrachloride	1.77E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	5.18E-05	0.00E+00
Chlorobenzene	1.29E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.78E-05	0.00E+00
Chrloroform	1.37E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	4.01E-05	0.00E+00
Ethylbenzene	2.48E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	7.26E-05	0.00E+00
Ethyl Dibromide	2.13E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	6.24E-05	0.00E+00
Formaldehyde	5.00E-02	g/bhp-hr	PTC15003	1.01E-01	0.00E+00
Methanol	3.06E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	8.96E-03	0.00E+00
Methylene Chloride	4.12E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.21E-04	0.00E+00
Naphtalene	9.71E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.84E-04	0.00E+00
PAH	1.41E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	4.13E-04	0.00E+00
Styrene	1.19E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.48E-05	0.00E+00
Toluene	5.58E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.63E-03	0.00E+00
Vinyl Chloride	7.18E-06	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.10E-05	0.00E+00
Xylene	1.95E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	5.71E-04	0.00E+00
				Total HAPs:	**0.00**

Hazardous Air Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
Arsenic	0.000204	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	4.36E-09	0.00E+00
Beryllium	0.000012	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.565E-10	0.00E+00
Cadmium	0.0011	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.351E-08	0.00E+00
Chromium	0.0014	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.992E-08	0.00E+00
Cobalt	0.000084	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.795E-09	0.00E+00
Manganese	0.00038	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	8.121E-09	0.00E+00
Mercury	0.00026	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	5.557E-09	0.00E+00
Nickel	0.0021	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	4.488E-08	0.00E+00
Selenium	0.000024	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	5.129E-10	0.00E+00
				Total Metal HAPs:	**0.00E+00**

Grayson Mill Operating, LLC
Central Banks CDP Compressor Station

EU 21 - Zeeco Process/Emergency Flare - 18 mmscfd

Permitted Volume	**8.03**	MMscf/yr
Lower Heating Value	**1,412**	Btu/scf
Molecular Weight	**24.32**	lb/lb-mole

VOC wt Fraction	**30.80%**
Benzene wt Fraction	**0.04%**
Toluene wt Fraction	**0.04%**
E-Benzene wt Fraction	**0.00%**
Xylene wt Fraction	**0.04%**
n-Hexane wt Fraction	**0.59%**
2,2,4-Trimethylpentante wt Fraction	**2.72%**

Controlled emissions are calculated based on a **98.0%** DRE of the VOC gas.

CRITERIA POLLUTANT EMISSIONS

					Mol wt		wt%									
VOC:	**917**	scf/hr	x	1/379 lb-mole/scf	x	24.32 lb/lb-mole	x	30.80%	x	2.0%	=	**0.36**	lb/hr			
	0.36	lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**1.59**	TPY							

Benzene	**917**	scf/hr	x	1/379 lb-mole/scf	x	24.32 lb/lb-mole	x	0.04%	x	2.0%	=	**4.87E-04**	lb/hr	=	**2.13E-03**	TPY		
E-Benzene	**917**	scf/hr	x	1/379 lb-mole/scf	x	24.32 lb/lb-mole	x	0.04%	x	2.0%	=	**4.59E-04**	lb/hr	=	**2.01E-03**	TPY		
Toluene	**917**	scf/hr	x	1/379 lb-mole/scf	x	24.32 lb/lb-mole	x	0.00%	x	2.0%	=	**2.00E-05**	lb/hr	=	**8.76E-05**	TPY		
n-Hexane	**917**	scf/hr	x	1/379 lb-mole/scf	x	24.32 lb/lb-mole	x	0.04%	x	2.0%	=	**4.58E-04**	lb/hr	=	**2.00E-03**	TPY		
Xylenes	**917**	scf/hr	x	1/379 lb-mole/scf	x	24.32 lb/lb-mole	x	0.59%	x	2.0%	=	**6.91E-03**	lb/hr	=	**3.03E-02**	TPY		
2,2,4-Trimethylpentane	**917**	scf/hr	x	1/379 lb-mole/scf	x	24.32 lb/lb-mole	x	2.72%	x	2.0%	=	**3.20E-02**	lb/hr	=	**1.40E-01**	TPY		
															0.18	TPY		

NOx:	**917**	scf/hr	x	**1,412**	Btu/scf	x	1 MMBtu/1,000,000 Btu	x	0.068 lb/MMBtu	=	**0.09**	lb/hr
	0.09	lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**0.39**	TPY			

CO:	**917**	scf/hr	x	**1,412**	Btu/scf	x	1 MMBtu/1,000,000 Btu	x	0.310 lb/MMBtu	=	**0.40**	lb/hr
	0.40	lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**1.76**	TPY			

PM:	**917**	scf/hr	x	**19**	lb/MMscf	=	**1.74E-02**	lb/hr
	1.74E-02	lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**0.08** TPY

					Mol wt		wt%		SO2/H2S MW Ratio					
SO2:	**917**	scf/hr	x	1/379 lb-mole/scf	x	24.32 lb/lb-mole	x	0.00%	x	1.88	=	**0.00**	lb/hr	
	0.00	lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**0.00**	TPY					

					Mol wt		wt%							
H2S:	**917**	scf/hr	x	1/379 lb-mole/scf	x	24.32 lb/lb-mole	x	0.00%	x	2.0%	=	**0.00**	**lb/hr**	
	0.00	lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**0.00**	**TPY**					

REGULATED GREENHOUSE GAS EMISSIONS

				mol% CO2		mton/kg		CO2 density				tons/Mtons																		
CO2 in Gas	**917**	scf/hr	x	0.82%	x	0.001	x	0.053 kg/scf	=	3.947E-04	x	1.10	=	**0.00**	**TPY CO2e**															
				DRE		mol Methane 1		mol Ethane 2		mol Propane 3		mol Butane 4		mol Pentane 5		mol Hexane 6		mol Heptane 7												
Combustion CO2:	**917**	scf/hr	x	98.0%	x	(0.65	+	0.19	+	0.08	+	0.04	+	0.01	+	0.01	+	0.00												
				mol Octane 8		mol Nonane 9		mol Decane 10		mton/kg		CO2 density				ton/Mtons														
				0.000	+	0.0002	+	0.00)	x	0.001	x	0.05 kg/scf	=	0.07 Mton CO2	x	1.10														
																=	**0.08**	**TPY CO2e**											

				mol CH4		CH4 Density		mton/kg		Uncontrolled %																				
CH4:	**917**	scf/hr	x	0.65	x	0.0192	x	0.001	x	2.0%	=	2.27E-04	Mton/yr CH4	x																
				1.1023	tons/Mtons	=	**2.51E-04**	**TPY CH4**	x	28	=	**7.02E-03**	**TPY CO2e**																	

				N2O EF				HHV				mton/kg																		
N2O:	**917**	scf/hr	x	0.001	kg/MMBtu	x	0.001412	MMBtu/scf	x	0.001	=	1.29E-06	Mton/yr	x																
				1.1023	tons/Mtons	=	**1.43E-06**	**TPY N2O**	x	265	=	**3.78E-04**	TPY CO2e																	

Grayson Mill Operating, LLC
Central Banks CDP Compressor Station

EU 22 - Zeeco Process/Blowdown Flare - 14 mmscfd

Permitted Volume	**14.45**	MMscf/yr
Lower Heating Value	**1,412**	Btu/scf
Molecular Weight	**24.32**	lb/lb-mole

VOC wt Fraction	**30.80%**
Benzene wt Fraction	**0.04%**
Toluene wt Fraction	**0.04%**
E-Benzene wt Fraction	**0.00%**
Xylene wt Fraction	**0.04%**
n-Hexane wt Fraction	**0.59%**
2,2,4-Trimethylpentante wt Fraction	**2.72%**

Controlled emissions are calculated based on a **98.0%** DRE of the VOC gas.

CRITERIA POLLUTANT EMISSIONS

					Mol wt		wt%				
VOC:	**1,650** scf/hr	x	1/379 lb-mole/scf	x	24.316 lb/lb-mole	x	30.80%	x	2.0%	=	**0.65** lb/hr

	0.65 lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**2.86**	TPY

Benzene	**1,650** scf/hr	x	1/379 lb-mole/scf	x	24.316 lb/lb-mole	x	0.04%	x	2.0%	=	**8.77E-04** lb/hr	=	**3.84E-03** TPY
E-Benzene	**1,650** scf/hr	x	1/379 lb-mole/scf	x	24.316 lb/lb-mole	x	0.04%	x	2.0%	=	**8.26E-04** lb/hr	=	**3.62E-03** TPY
Toluene	**1,650** scf/hr	x	1/379 lb-mole/scf	x	24.316 lb/lb-mole	x	0.00%	x	2.0%	=	**3.60E-05** lb/hr	=	**1.58E-04** TPY
n-Hexane	**1,650** scf/hr	x	1/379 lb-mole/scf	x	24.316 lb/lb-mole	x	0.04%	x	2.0%	=	**8.24E-04** lb/hr	=	**3.61E-03** TPY
Xylenes	**1,650** scf/hr	x	1/379 lb-mole/scf	x	24.316 lb/lb-mole	x	0.59%	x	2.0%	=	**1.24E-02** lb/hr	=	**5.45E-02** TPY
2,2,4-Trimethylpentane	**1,650** scf/hr	x	1/379 lb-mole/scf	x	24.316 lb/lb-mole	x	2.72%	x	2.0%	=	**5.76E-02** lb/hr	=	**2.52E-01** TPY
													0.32 TPY

NOx:	**1,650** scf/hr	x	**1,412** Btu/scf	x	1 MMBtu/1,000,000 Btu	x	0.068 lb/MMBtu	=	**0.16** lb/hr

	0.16 lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**0.69** TPY

CO:	**1,650** scf/hr	x	**1,412** Btu/scf	x	1 MMBtu/1,000,000 Btu	x	0.310 lb/MMBtu	=	**0.72** lb/hr

	0.72 lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**3.16** TPY

PM:	**1,650** scf/hr	x	**19** lb/MMscf	=	**3.14E-02** lb/hr

	3.14E-02 lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**0.14** TPY

					Mol wt		wt%		SO2/H2S MW Ratio		
SO2:	**1,650** scf/hr	x	1/379 lb-mole/scf	x	24.316 lb/lb-mole	x	0.00%	x	1.88	=	**0.00** lb/hr

	0.00 lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**0.00** TPY

					Mol wt		wt%				
H2S:	**1,650** scf/hr	x	1/379 lb-mole/scf	x	24.316 lb/lb-mole	x	0.00%	x	2.0%	=	**0.00 lb/hr**

	0.00 lb/hr	x	8760 hr/yr	x	1 ton/2000 lb	=	**0.00** TPY

REGULATED GREENHOUSE GAS EMISSIONS

			mol% CO2		mton/kg		CO2 density				tons/Mtons		
CO2 in Gas	**1,650** scf/hr	x	0.82%	x	0.001	x	0.053 kg/scf	=	7.105E-04	x	1.10	=	**0.00 TPY CO2e**

			DRE		mol Methane 1		mol Ethane 2		mol Propane 3		mol Butane 4		mol Pentane 5		mol Hexane 6		mol Heptane 7
Combustion CO2:	**1,650** scf/hr	x	98.0%	x	(0.65	+	0.19	+	0.08	+	0.04	+	0.01	+	0.01	+	0.00

mol Octane 8		mol Nonane 9		mol Decane 10		mton/kg		CO2 density			ton/Mtons	
0.000	+	0.0002	+	0.00)	x	0.001	x	0.05 kg/scf	=	0.13 Mton CO2	x	1.10

											=	**0.14**	**TPY CO2e**

			mol CH4		CH4 Density		mton/kg		Uncontrolled %				
CH4:	**1,650** scf/hr	x	0.65	x	0.0192	x	0.001	x	2.0%	=	4.09E-04 Mton/yr CH4	x	

	1.1023 tons/Mtons	=	**4.51E-04**	**TPY CH4**	x	28	=	**1.26E-02**	**TPY CO2e**

			N2O EF			HHV			mton/kg			
N2O:	**1,650** scf/hr	x	0.001	kg/MMBtu	x	0.001412259 MMBtu/scf		x	0.001	=	2.33E-06 Mton/yr	x

	1.1023 tons/Mtons	=	**2.57E-06**	**TPY N2O**	x	265	=	**6.81E-04**	TPY CO2e

Central Banks CDP Compressor Station

Heater Treater Burner

Burner Rating **3,000,000** Btu/hr

NOx:	0.098 lb/MMBtu	x	3.00 MMBtu/hr			=	**0.29** lb/hr	
	0.2941 lb/hr	x	8,760 hr/yr	x	1 ton / 2000 lb	=	**1.29** TPY	
CO:	0.082 lb/MMBtu	x	3.00 MMBtu/hr			=	**0.25** lb/hr	
	0.25 lb/hr	x	8,760 hr/yr	x	1 ton / 2000 lb	=	**1.08** TPY	
PM Filterable:	0.002 lb/MMBtu	x	3.00 MMBtu/hr			=	**0.01** lb/hr	
	0.01 lb/hr	x	8,760 hr/yr	x	1 ton / 2000 lb	=	**0.02** TPY	
1 Condensable:	0.006 lb/MMBtu	x	3.00 MMBtu/hr			=	**0.02** lb/hr	
	0.02 lb/hr	x	8,760 hr/yr	x	1 ton / 2000 lb	=	**0.07** TPY	
PM Total:	0.007 lb/MMBtu	x	3.00 MMBtu/hr			=	**0.02** lb/hr	
	0.02 lb/hr	x	8,760 hr/yr	x	1 ton / 2000 lb	=	**0.10** TPY	
SO2:	0.001 lb/MMBtu	x	3.00 MMBtu/hr			=	**0.00** lb/hr	
	0.00 lb/hr	x	8,760 hr/yr	x	1 ton / 2000 lb	=	**0.01** TPY	
VOC:	0.005 lb/MMBtu	x	3.00 MMBtu/hr			=	**0.02** lb/hr	
	0.02 lb/hr	x	8,760 hr/yr	x	1 ton / 2000 lb	=	**0.07** TPY	
HAP:	0.002 lb/MMBtu	x	3.00 MMBtu/hr			=	**0.01** lb/hr	
	0.01 lb/hr	x	8,760 hr/yr	x	1 ton / 2000 lb	=	**0.02** TPY	
CO2:	117.647 lb/MMBtu	x	3.00 MMBtu/hr			=	**352.94** lb/hr	
	352.94 lb/hr	x	8,760 hr/yr	x	1 ton / 2000 lb	=	**1,545.88** TPY	
CH4:	0.007 lb/MMBtu	x	3.00 MMBtu/hr			=	**0.02** lb/hr	
	0.02 lb/hr	x	8,760 hr/yr	x	1 ton / 2000 lb	=	**0.09** TPY	
N2O:	0.001 lb/MMBtu	x	3.00 MMBtu/hr			=	**0.004** lb/hr	
	0.00 lb/hr	x	8,760 hr/yr	x	1 ton / 2000 lb	=	**0.02** TPY	

NOx, CO, CO2, & VOC Emission Factors are from AP-42 Table 1.4-1 and 1.4-2. Nitrogen Dioxide (N20) and Methane come from Table C-1 of Subpart W.

Grayson Mill Operating, LLC
Central Banks CDP Compressor Station

EU 26 - Caterpillar G3606 A4 (1875 bhp)
with 3-Way Catalyst
4-Stroke, Lean-Burn

Make:	Caterpillar		
Model:	G3606		
Fuel:	Natural Gas		
Horsepower:	1,875.00	bhp	(Manufacturer Specs)
Fuel Usage:	104.51	MMscf/yr	
House of Operation:	8,760	hrs/yr	
Max Fuel Conbustion Rate:	7,521	Btu/bhp-hr	(Manufacturer Specs)
Fuel Combustion Rate:	14.10	MMBtu/hr	
Fuel Heating Value:	1,182	MMBtu/MMscf	(Site Fuel Gas Specs)

Criteria Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
VOCs	0.700	g/bhp-hr	Manufacturer's Information	2.89	**12.67**
NOx	1.000	g/bhp-hr	Manufacturer's Information	4.13	**18.11**
CO	1.000	g/bhp-hr	Manufacturer's Information	4.13	**18.11**
SOx	5.88E-04	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	8.29E-03	**0.04**
PM-10/2.5 Filterable	0.0095	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.13	**0.59**
PM Condensable	0.0099	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.14	**0.61**
PM Total	0.01941	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.27	**1.20**
CO_2	441.000	g/bhp-hr	Manufacturer's Information	1822.95	**7984.52**
CH_4	2.470	g/bhp-hr	Manufacturer's Information	10.21	**44.72**
N_2O	0.0002	lbs/MMBtu	40 CFR 98, Subp. C Table 1&2	0.00	**0.01**
				Total CO2e:	**9,239.96**

Hazardous Air Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
1,1,2,2 - Tetrachloroethane	4.00E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	5.64E-04	1.24E-03
1,1,2-Trichloroethane	3.18E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	4.48E-04	9.82E-04
1,3-Butadiene	2.67E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	3.77E-04	8.25E-04
1,3-Dichloropropene	2.64E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	3.72E-04	8.15E-04
2-Methylnaphthalene	3.32E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	4.68E-04	1.03E-03
2,2,4-Trimethylpentane	2.50E-04	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	3.53E-03	7.72E-03
Acenaphthene	1.25E-06	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	1.76E-05	3.86E-05
Acetaldehyde	5.53E-06	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	7.80E-05	1.71E-04
Acrolein	5.15E-03	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	7.26E-02	1.59E-01
Benzene	4.40E-04	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	6.20E-03	1.36E-02
Benzo(b)fluoranthene	1.66E-07	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	2.34E-06	5.13E-06
Benzo(e)pyrene	4.15E-07	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	5.85E-06	1.28E-05
Benzo(g,h,i)perylene	4.14E-07	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	5.84E-06	1.28E-05
Biphenyl	2.12E-04	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	2.99E-03	6.55E-03
Carbon Tetrachloride	3.67E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	5.18E-04	1.13E-03
Chlorobenzene	3.04E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	4.29E-04	9.39E-04
Chrloroform	2.85E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	4.02E-04	8.80E-04
Chrysene	6.93E-07	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	9.77E-06	2.14E-05
Ethylbenzene	3.97E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	5.60E-04	1.23E-03
Ethylene Dibromide	4.43E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	6.25E-04	1.37E-03
Fluoranthene	1.11E-06	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	1.57E-05	3.43E-05
Fluorene	5.67E-06	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	8.00E-05	1.75E-04
Formaldehyde	2.30E-01	g/bhp-hr	Manufacturer's Data	9.51E-01	4.16E+00
Methanol	2.50E-03	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	3.53E-02	7.72E-02
Methylene Chloride	2.00E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	2.82E-04	6.18E-04
n-Hexane	1.11E-03	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	1.57E-02	3.43E-02
Naphtalene	7.44E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	1.05E-03	2.30E-03
PAH	2.69E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	3.79E-04	8.31E-04
Phenanthrene	1.04E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	1.47E-04	3.21E-04
Phenol	2.40E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	3.38E-04	7.41E-04
Pyrene	1.36E-06	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	1.92E-05	4.20E-05
Styrene	2.36E-06	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	3.33E-05	7.29E-05
Toluene	4.08E-04	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	5.75E-03	1.26E-02
Vinyl Chloride	1.49E-05	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	2.10E-04	4.60E-04
Xylene	1.84E-04	lbs/MMBtu	AP-42 Chpt 3.2-2 (7/00)	2.59E-03	5.68E-03
				Total HAPs:	**4.50**

Hazardous Air Pollutant	Emission Factor[3]	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
Arsenic	0.000204	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.4338E-06	1.07E-05
Beryllium	0.000012	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.4317E-07	6.27E-07
Cadmium	0.0011	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.3124E-05	5.75E-05
Chromium	0.0014	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.6703E-05	7.32E-05
Cobalt	0.000084	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.0022E-06	4.39E-06
Manganese	0.00038	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	4.5336E-06	1.99E-05
Mercury	0.00026	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	3.1019E-06	1.36E-05
Nickel	0.0021	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.5054E-05	1.10E-04
Selenium	0.000024	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.8633E-07	1.25E-06
				Total Metal HAPs:	**2.91E-04**

Emission factor from AP-42 Table 3.2-2. Uncontrolled Emissions Factors for 4-Stroke Lean-Burn Engines (July 2000)
Manufacturer's information.
[3]Emission factor from AP-42 table 1.4-4, Emission Factors for Metals from Natural Gas Combustion (July 1998)
Control efficiency from the dual catalytic converter until conservatively assumed to be 50%.

Grayson Mill Operating, LLC
Central Banks CDP Compressor Station

EU 27 - Waukesha L7044GSI (1680 bhp)
with 3-Way Catalyst
4-Stroke, Rich-Burn

Make:	Waukesha		
Model:	L7044GSI		
Fuel:	Natural Gas		
Horsepower:	1,680.00	bhp	(Manufacturer Specs)
Fuel Usage:	113.99	MMscf/yr	
House of Operation:	8,760	hrs/yr	
Max Fuel Conbustion Rate:	9,155.00	Btu/bhp-hr	(Manufacturer Specs)
Fuel Combustion Rate:	15.38	MMBtu/hr	
Fuel Heating Value:	1,182.00	MMBtu/MMscf	(Site Fuel Gas Specs)

Criteria Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
VOCs	0.206	g/bhp-hr	Manufacturer	0.76	**3.34**
NOx	0.500	g/bhp-hr	Manufacturer	1.85	**8.11**
CO	0.500	g/bhp-hr	Manufacturer	1.85	**8.11**
SOx	5.88E-04	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	9.04E-03	**0.04**
PM-10/2.5 Filterable	0.0095	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.15	**0.64**
PM Condensable	0.0099	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.15	**0.67**
PM Total	0.01941	lbs/MMBtu	AP-42 Table 3.2-3 (07/00)	0.30	**1.31**
CO_2	563.00	g/bhp-hr	Manufacturer	2085.22	**9133.27**
CH_4	1.6200	g/bhp-hr	Manufacturer	6.00	**26.28**
N_2O	0.0002	lbs/MMBtu	40 CFR 98, Subp. C Table 1&2	0.00	**0.01**
				Total CO2e:	**9,872.70**

Hazardous Air Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions[1] (tpy)
1,1,2,2 - Tetrachloroethane	2.53E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.89E-04	8.52E-04
1,1,2-Trichloroethane	1.53E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.35E-04	5.15E-04
1,3-Butadiene	6.63E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.02E-02	2.23E-02
1,3-Dichloropropene	1.27E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.95E-04	4.28E-04
Acetaldehyde	2.79E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	4.29E-02	9.40E-02
Acrolein	2.63E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	4.05E-02	8.86E-02
Benzene	1.58E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.43E-02	5.32E-02
Carbon Tetrachloride	1.77E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.72E-04	5.96E-04
Chlorobenzene	1.29E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.98E-04	4.35E-04
Chrloroform	1.37E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.11E-04	4.61E-04
Ethylbenzene	2.48E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.81E-04	8.35E-04
Ethyl Dibromide	2.13E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.28E-04	7.17E-04
Formaldehyde	4.00E-02	g/bhp-hr	Manufacturer Specs	1.48E-01	6.49E-01
Methanol	3.06E-03	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	4.71E-02	1.03E-01
Methylene Chloride	4.12E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	6.34E-04	1.39E-03
Naphtalene	9.71E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.49E-03	3.27E-03
PAH	1.41E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	2.17E-03	4.75E-03
Styrene	1.19E-05	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.83E-04	4.01E-04
Toluene	5.58E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	8.58E-03	1.88E-02
Vinyl Chloride	7.18E-06	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	1.10E-04	2.42E-04
Xylene	1.95E-04	lbs/MMBtu	AP-42 Chpt 3.2-3 (7/00)	3.00E-03	6.57E-03
				Total HAPs:	**1.05**

Hazardous Air Pollutant	Emission Factor	Units	Emission Factor Reference	Emissions (lb/hr)	Emissions (tpy)
Arsenic	0.000204	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.65449E-06	1.16E-05
Beryllium	0.000012	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.56146E-07	6.84E-07
Cadmium	0.0011	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.43134E-05	6.27E-05
Chromium	0.0014	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.82171E-05	7.98E-05
Cobalt	0.000084	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	1.09302E-06	4.79E-06
Manganese	0.00038	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	4.94463E-06	2.17E-05
Mercury	0.00026	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	3.38317E-06	1.48E-05
Nickel	0.0021	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	2.73256E-05	1.20E-04
Selenium	0.000024	lbs/MMSCF	AP-42 Table 1.1-4 (7/98)	3.12292E-07	1.37E-06
				Total Metal HAPs:	**3.17E-04**

Grayson Mill Operating, LLC

Truck Loadout Emission Calculation

		Saturation Factor (S)		Vapor Pressure (P)		Molecular Weight (MW)		Temp + 460		Load Loss lb/1000 gal
12.46	x	0.60	x	11.31	x	50.18	/	500.00	=	8.49

LL lb/1,000 gal		Truck Load Rate bbl/hr		Load Time hrs		gal/bbl		Emissions lb/hr
8.49	x	25.00	/	1.00	x	42.00	=	8.91

LL lb/1,000 gal		Annual bbl/yr		gal/bbl		lb/ton		Emissions TPY	C3 + VOC
8.49	x	219,000	x	42.00	/	2000.00	=	39.05	27.28

Uncontrolled	Control %		VOC Emissions TPY
27.28	99%	0.01	0.27

LL lb/1,000 gal		Truck Load Rate bbl/hr		Load Time hrs		gal/bbl		Emissions lb/hr
8.49	x	25.00	/	1.00	x	42.00	=	8.91

LL lb/1,000 gal		Annual bbl/yr		gal/bbl		lb/ton		Emissions tons	HAPs
8.49	x	219,000	x	42.00	/	2000.00	=	3.90E+01	8.08E-01

Uncontrolled	Control %		Oil HAPs Emissions tons
8.08E-01	0.99	0.01	8.08E-03

LL lb/1,000 gal		Truck Load Rate bbl/hr		Load Time hrs		gal/bbl		Emissions lb/hr
8.49	x	25.00	/	1.00	x	42.00	=	8.91

LL lb/1,000 gal		Annual bbl/yr		gal/bbl		lb/ton		Emissions tons	CH4
8.49	x	219000.00	x	42.00	/	2000.00	=	3.90E+01	5.86E-01

Uncontrolled	Control %		Oil CH4 Emissions tons
5.86E-01	0.99	0.01	5.86E-03

LL lb/1,000 gal		Truck Load Rate bbl/hr		Load Time hrs		gal/bbl		Emissions lb/hr
8.49	x	25.00	/	1.00	x	42.00	=	8.91

LL lb/1,000 gal		Annual bbl/yr		gal/bbl		lb/ton		Emissions TPY VOC	CO2
8.49	x	219000.00	x	42.00	/	2000.00	=	3.90E+01	5.86E-02

Uncontrolled	Control %		Oil CO2 Emissions tons
5.86E-02	99%	0.01	5.86E-04

Grayson Mill Operating, LLC
Central Banks CDP Compressor Station

Fugitive Leak Emissions

Calculated based on estimated component count, weight percent of VOC/HAPs, and application of leak factors from Protocol for Equipment Emissions Estimates, EPA-453/R-95-017, 11/95

Hours of Operaion = 8760 hr/yr
Crude Oil Type = Light Crude Oil - API Gravity approx. 58; RVP = 10 (**Also most conservative value**)

VOC wt %	70%	tanks	31.90%	gas
HAPs wt%	2.07%	tanks	0.80%	gas
CH4 wt%	8.70%	tanks	44.20%	gas

	Components				Total
	Gas	Heavy Oil	Light Oil	Water/Oil	Emissions
Total VOC Emissions (tons/yr)	1.60	0.00	2.81	0.00	**4.41**
Total HAP Emissions (tons/yr)	0.04	0.00	0.08	0.00	**0.12**
Total CH4 Emissions (tons/yr)	2.22	0.00	0.35	0.00	**2.57**

	Estimated Component Count			
	Gas	Heavy Oil	Light Oil	Water/Oil[1]
Total Number of Valves	61	0	11	0
Total Number of Pump Seals	4	0	1	0
Total Number of Others[2]	25	0	5	0
Total Number of Connectors	16	0	3	0
Total Number of Flanges	37	0	7	0
Total Number of Open-ended Line	0	0	0	0

1. Water/oil applies to water streams in oil service with a water content of greater than 50%, from the point of origin to the point where water content reaches 99%. For water streams with a water content greater than 99%, the emission rate is considered negligible.
2. The "other" equipment type is derived from compressors, diphragms, drains, dump arms, hatches, instruments, meters, pressure relief valves, polished rods, relief valves and vents. The "other" equipment trype should be applied to any equipment type other than connectors, flanges, open-ended lines, pumps, or valves.

	TOC Emission Factor (kg/hr/source)			
	Gas	Heavy Oil	Light Oil	Water/Oil
Valves	4.50E-03	-	2.50E-03	-
Pump Seals	2.40E-03	-	1.30E-02	-
Others	8.80E-03	-	7.50E-02	-
Connectors	2.00E-04	-	2.10E-04	-
Flanges	3.90E-04	-	1.10E-04	-
Open-ended Lines	2.00E-03	-	1.40E-03	-

	TOC Emission Factor (lb/hr/source)			
	Gas	Heavy Oil	Light Oil	Water/Oil
Valves	9.90E-03	-	5.50E-03	-
Pump Seals	5.28E-03	-	2.86E-02	-
Others	1.94E-02	-	1.65E-01	-
Connectors	4.40E-04	-	4.62E-04	-
Flanges	8.58E-04	-	2.42E-04	-
Open-ended Lines	4.40E-03	-	3.08E-03	-

Emission Factors: Protocol for Equipment Emission Estimates, EPA-453/R-95-017, 11/95.

	TOC Emission Factor (lb/hr)			
	Gas	Heavy Oil	Light Oil	Water/Oil
Valves	6.04E-01	-	6.05E-02	-
Pump Seals	2.11E-02	-	2.86E-02	-
Others	4.84E-01	-	8.25E-01	-
Connectors	7.04E-03	-	1.39E-03	-
Flanges	3.17E-02	-	1.69E-03	-
Open-ended Lines	0.00E+00	-	0.00E+00	-

	VOC Emission (lb/hr)			
	Gas	Heavy Oil	Light Oil	Water/Oil
Valves	1.93E-01	-	4.23E-02	-
Pump Seals	6.74E-03	-	2.00E-02	-
Others	1.54E-01	-	5.76E-01	-
Connectors	2.25E-03	-	9.68E-04	-
Flanges	1.01E-02	-	1.18E-03	-
Open-ended Lines	0.00E+00	-	0.00E+00	-
Total VOC Emissions	**0.37**	**0.00**	**0.64**	**0.00**

	VOC Emission (Tons/yr)			
	Gas	Heavy Oil	Light Oil	Water/Oil
Valves	8.44E-01	-	1.85E-01	-
Pump Seals	2.95E-02	-	8.75E-02	-
Others	6.76E-01	-	2.52E+00	-
Connectors	9.84E-03	-	4.24E-03	-
Flanges	4.44E-02	-	5.18E-03	-
Open-ended Lines	0.00E+00	-	0.00E+00	-
Total VOC Emissions	**1.60**	**0.00**	**2.81**	**0.00**

	HAPs Emission (lb/hr)			
	Gas	Heavy Oil	Light Oil	Water/Oil
Valves	4.83E-03	-	1.25E-03	-
Pump Seals	1.69E-04	-	5.92E-04	-
Others	3.87E-03	-	1.71E-02	-
Connectors	5.63E-05	-	2.87E-05	-
Flanges	2.54E-04	-	3.51E-05	-
Open-ended Lines	0.00E+00	-	0.00E+00	-
Total HAPs Emissions	**0.01**	**0.00**	**0.02**	**0.00**

	HAPs Emission (Tons/yr)			
	Gas	Heavy Oil	Light Oil	Water/Oil
Valves	2.12E-02	-	5.49E-03	-
Pump Seals	7.40E-04	-	2.59E-03	-
Others	1.70E-02	-	7.48E-02	-
Connectors	2.47E-04	-	1.26E-04	-
Flanges	1.11E-03	-	1.54E-04	-
Open-ended Lines	0.00E+00	-	0.00E+00	-
Total HAPs Emissions	**0.04**	**0.00**	**0.08**	**0.00**

	CH4 Emission (lb/hr)			
	Gas	Heavy Oil	Light Oil	Water/Oil
Valves	2.67E-01	-	5.26E-03	-
Pump Seals	9.34E-03	-	2.49E-03	-
Others	2.14E-01	-	7.18E-02	-
Connectors	3.11E-03	-	1.21E-04	-
Flanges	1.40E-02	-	1.47E-04	-
Open-ended Lines	0.00E+00	-	0.00E+00	-
Total HAPs Emissions	**0.51**	**0.00**	**0.08**	**0.00**

	CH4 Emission (Tons/yr)			
	Gas	Heavy Oil	Light Oil	Water/Oil
Valves	1.17E+00	-	2.31E-02	-
Pump Seals	4.09E-02	-	1.09E-02	-
Others	9.37E-01	-	3.14E-01	-
Connectors	1.36E-02	-	5.28E-04	-
Flanges	6.15E-02	-	6.46E-04	-
Open-ended Lines	0.00E+00	-	0.00E+00	-
Total HAPs Emissions	**2.22**	**0.00**	**0.35**	**0.00**

ATTACHMENT C: PROPOSED ENGINE MFR. SPECS

VHP - L7044GSI

Gas Compression

ENGINE SPEED (rpm):	1200	NOx SELECTION (g/bhp-hr):	Customer Catalyst
DISPLACEMENT (in3):	7040	COOLING SYSTEM:	JW, IC + OC
COMPRESSION RATIO:	8:1	INTERCOOLER WATER INLET (°F):	130
IGNITION SYSTEM:	ESM2	JACKET WATER OUTLET (°F):	180
EXHAUST MANIFOLD:	Water Cooled	JACKET WATER CAPACITY (gal):	100
COMBUSTION:	Rich Burn, Turbocharged	AUXILIARY WATER CAPACITY (gal):	11
ENGINE DRY WEIGHT (lbs):	24250	LUBE OIL CAPACITY (gal):	190
AIR/FUEL RATIO SETTING:	0.38% CO	MAX. EXHAUST BACKPRESSURE (in. H2O):	18
ENGINE SOUND LEVEL (dBA)	104	MAX. AIR INLET RESTRICTION (in. H2O):	15
IGNITION TIMING:	ESM2 Controlled	EXHAUST SOUND LEVEL (dBA)	111

SITE CONDITIONS:

FUEL:		ALTITUDE (ft):	2500
FUEL PRESSURE RANGE (psig):	30 - 60	MAXIMUM INLET AIR TEMPERATURE (°F):	100
FUEL HHV (BTU/ft3):	1,153.7	FUEL WKI:	70.9
FUEL LHV (BTU/ft3):	1,042.9		

SITE SPECIFIC TECHNICAL DATA

POWER RATING	UNITS	110% OVERLOAD SITE DATA (See note 18)	MAX RATING AT 100 °F AIR TEMP	SITE RATING AT MAXIMUM INLET AIR TEMPERATURE OF 100 °F		
				100%	75%	50%
CONTINUOUS ENGINE POWER	BHP	1848	1680	1680	1260	843
OVERLOAD	% 2/24 hr	Note 18	10	10	-	-
MECHANICAL EFFICIENCY (LHV)	%	31.2	30.8	30.8	30.1	28.4
CONTINUOUS POWER AT FLYWHEEL	BHP	1848	1680	1680	1260	843
based on no auxiliary engine driven equipment						
AVAILABLE TURNDOWN SPEED RANGE	RPM	700 - 1200				
FUEL CONSUMPTION						
FUEL CONSUMPTION (LHV)	BTU/BHP-hr	8170	8276	8276	8458	8982
FUEL CONSUMPTION (HHV)	BTU/BHP-hr	9038	9155	9155	9356	9935
FUEL FLOW *based on fuel analysis LHV*	SCFM	241	222	222	170	121
HEAT REJECTION						
JACKET WATER (JW)	BTU/hr x 1000	4463	4159	4158	3321	2571
LUBE OIL (OC)	BTU/hr x 1000	586	571	571	517	450
INTERCOOLER (IC)	BTU/hr x 1000	320	284	284	188	95
EXHAUST	BTU/hr x 1000	4604	4185	4184	3004	1925
RADIATION	BTU/hr x 1000	716	701	701	626	530
EMISSIONS (ENGINE OUT):						
NOx (NO + NO2)	g/bhp-hr	12.82	13.37	13.37	14.69	16.57
CO	g/bhp-hr	12.67	12.64	12.64	12.18	11.68
THC	g/bhp-hr	2.36	2.36	2.36	2.15	1.86
NMHC	g/bhp-hr	0.801	0.782	0.782	0.712	0.617
NM,NEHC (VOC)	g/bhp-hr	0.211	0.206	0.206	0.188	0.163
CO2	g/bhp-hr	517	523	523	535	568
CO2e	g/bhp-hr	557	563	563	571	599
CH2O	g/bhp-hr	0.05	0.050	0.050	0.050	0.050
CH4	g/bhp-hr	1.62	1.58	1.58	1.44	1.25
AIR INTAKE / EXHAUST GAS						
INDUCTION AIR FLOW	SCFM	2765	2546	2546	1951	1386
EXHAUST GAS MASS FLOW	lb/hr	12857	11841	11840	9075	6445
EXHAUST GAS FLOW *at exhaust temp, 14.5 psia*	ACFM	9668	8841	8841	6518	4363
EXHAUST TEMPERATURE	°F	1232	1220	1220	1156	1063

HEAT EXCHANGER SIZING[12]			
TOTAL JACKET WATER CIRCUIT (JW)	BTU/hr x 1000	5061	4716
TOTAL AUXILIARY WATER CIRCUIT (IC + OC)	BTU/hr x 1000	1027	969

COOLING SYSTEM WITH ENGINE MOUNTED WATER PUMPS		
JACKET WATER PUMP MIN. DESIGN FLOW	GPM	450
JACKET WATER PUMP MAX. EXTERNAL RESTRICTION	psig	16
AUX WATER PUMP MIN. DESIGN FLOW	GPM	79
AUX WATER PUMP MAX. EXTERNAL RESTRICTION	psig	44

All data provided per the condtions listed in the notes section on page three.

Data Generated by EngCalc Program Version 4.1 INNIO Waukesha Gas Engines, Inc.

8/28/2024 9:30 AM

FUEL COMPOSITION

HYDROCARBONS:		Mole or Volume %
Methane	CH4	77.962
Ethane	C2H6	15.16
Propane	C3H8	3.116
Iso-Butane	I-C4H10	0.1518
Normal Butane	N-C4H10	0.251
Iso-Pentane	I-C5H12	0.0152
Normal Pentane	N-C5H12	0.0162
Hexane	C6H14	0
Heptane	C7H16	0
Ethene	C2H4	0
Propene	C3H6	0
	SUM HYDROCARBONS	96.673
NON-HYDROCARBONS:		
Nitrogen	N2	2.1374
Oxygen	O2	0
Helium	He	0
Carbon Dioxide	CO2	1.19
Carbon Monoxide	CO	0
Hydrogen	H2	0
Water Vapor	H2O	0
	TOTAL FUEL	100

FUEL:	
FUEL PRESSURE RANGE (psig):	30 - 60
FUEL WKI:	70.9
FUEL SLHV (BTU/ft3):	1024.76
FUEL SLHV (MJ/Nm3):	40.30
FUEL LHV (BTU/ft3):	1042.91
FUEL LHV (MJ/Nm3):	41.01
FUEL HHV (BTU/ft3):	1153.66
FUEL HHV (MJ/Nm3):	45.37
FUEL DENSITY (SG):	0.68

Standard Conditions per ASTM D3588-91 [60°F and 14.696psia] and ISO 6976:1996-02-01[25, V(0;101.325)].
Based on the fuel composition, supply pressure and temperature, liquid hydrocarbons may be present in the fuel. No liquid hydrocarbons are allowed in the fuel. The fuel must not contain any liquid water. Waukesha recommends both of the following:
1) Dew point of the fuel gas to be at least 20°F (11°C) below the measured temperature of the gas at the inlet of the engine fuel regulator.
2) A fuel filter separator to be used on all fuels except commercial quality natural gas.
Refer to the 'Fuel and Lubrication' section of 'Technical Data' or contact the Waukesha Application Engineering Department for additional information on fuels, or LHV and WKI* calculations.
* Trademark of INNIO Waukesha Gas Engines Inc.

FUEL CONTAMINANTS

Total Sulfur Compounds	0	% volume
Total Halogen as Cloride	0	% volume
Total Ammonia	0	% volume
Siloxanes		
Tetramethyl silane	0	% volume
Trimethyl silanol	0	% volume
Hexamethyldisiloxane (L2)	0	% volume
Hexamethylcyclotrisiloxane (D3)	0	% volume
Octamethyltrisiloxane (L3)	0	% volume
Octamethylcyclotetrasiloxane (D4)	0	% volume
Decamethyltetrasiloxane (L4)	0	% volume
Decamethylcyclopentasiloxane (D5)	0	% volume
Dodecamethylpentasiloxane (L5)	0	% volume
Dodecamethylcyclohexasiloxane (D6)	0	% volume
Others	0	% volume

Total Sulfur Compounds	0 µg/BTU
Total Halogen as Cloride	0 µg/BTU
Total Ammonia	0 µg/BTU
Total Siloxanes (as Si)	0 µg/BTU

Calculated fuel contaminant analysis will depend on the entered fuel composition and selected engine model.

No water or hydrocarbon condensates are allowed in the engine. Requires liquids removal.

NOTES

1. All data is based on engines with standard configurations unless noted otherwise.

2. Power rating is adjusted for fuel, site altitude, and site air inlet temperature, in accordance with ISO 3046/1 with tolerance of ± 3%.

3. Fuel consumption is presented in accordance with ISO 3046/1 with a tolerance of -0 / +5% at maximum rating. Fuel flow calculation based on fuel LHV and fuel consumption with a tolerance of -0/+5 %. For sizing piping and fuel equipment, it is recommended to include the 5% tolerance.

4. Heat rejection tolerances are ± 30% for radiation, and ± 8% for jacket water, lube oil, intercooler, and exhaust energy.

5. Emission levels for engines with Waukesha supplied 3-way catalyst are given at catalyst outlet flange. For all other engine models, emission levels are given at engine exhaust outlet flange prior to any after treatment. Values are based on a new engine operating at indicated site conditions, and adjusted to the specified timing and air/fuel ratio at rated load. Catalyst out emission levels represent emission levels the catalyst is sized to achieve. Manual adjustment may be necessary to achieve compliance as catalyst/engine age. Catalyst-out emission levels are valid for the duration of the engine warranty. Emissions are at an absolute humidity of 75 grains H2O/lb (10.71 g H2O/kg) of dry air. Emission levels may vary subject to instrumentation, measurement, ambient conditions, fuel quality, and engine variation. Engine may require adjustment on-site to meet emission values, which may affect engine performance and heat output. NOx, CO, THC, and NMHC emission levels are listed as a not to exceed limit, all other emission levels are estimated. CO2 emissions based on EPA Federal Register/Vol. 74, No. 209/Friday, October 30, 2009 Rules and Regulations 56398, 56399 (3) Tier 3 Calculation Methodology, Equation C-5.

6. Air flow is based on undried air with a tolerance of ± 7%.

7. Exhaust temperature given at engine exhaust outlet flange with a tolerance of ± 50°F (28°C).

8. Exhaust gas mass flow value is based on a "wet basis" with a tolerance of ± 7%.

9. Inlet air restrictions based on full rated engine load. Exhaust backpressure based on 158 PSI BMEP and 1200 RPM. Refer to the engine specification section of Waukesha's standard technical data for more information.

10. Cooling circuit capacity, lube oil capacity, and engine dry weight values are typical.

11. Fuel must conform to Waukesha's "Gaseous Fuel Specification" S7884-7 or most current version. Fuel may require treatment to meet current fuel specification.

12. Heat exchanger sizing values given as the maximum heat rejection of the circuit, with applied tolerances and an additional 5% reserve factor.

13. Fuel volume flow calculation in english units is based on 100% relative humidity of the fuel gas at standard conditions of 60°F and 14.696 psia (29.92 inches of mercury; 101.325 kPa).

14. Fuel volume flow calculation in metric units is based on 100% relative humidity of the fuel gas at a combustion temperature of 25°C and metering conditions of 0°C and 101.325 kPa (14.696 psia; 29.92 inches of mercury). This is expressed as [25, V(0;101.325)].

15. Engine sound data taken with the microphone at 1 m (3.3 ft) from the side of the engine at the approximate front-to-back centerline. Microphone height was at intake manifold level. Engine sound pressure data may be different at front, back and opposite side locations. Exhaust sound data taken with microphone 1 meter (3.3 ft) away and 1 meter (3.3 ft) to the side of the exhaust outlet.

16. Due to variation between test conditions and final site conditions, such as exhaust configuration and background sound level, sound pressure levels under site conditions may be different than those tabulated above.

17. Cooling system design flow is based on minimum allowable cooling system flow. Cooling system maximum external restriction is defined as the allowable restriction at the minimum cooling system flow.

18. Continuous Power Rating: The highest load and speed that can be applied 24 hours per day, seven days per week, 365 days per year except for normal maintenance at indicated ambient reference conditions and fuel. It is permissible to operate the engine at the indicated overload power, for two hours in every 24 hour period.

19. emPact emission compliance available for entire range of operable fuels; however, fuel system and/or O2 set point may need to be adjusted in order to maintain compliance.

20. In cold ambient temperatures, heating of the engine jacket water, lube oil and combustion air may be required. See Waukesha Technical Data.

21. Available Turndown Speed Range refers to the constant torque speed range available. Reduced power may be available at speeds outside of this range. Contact application engineering.

SPECIAL REQUIREMENTS

August 28, 2024

Archrock AQT
Archrock
9807 Katy Frwy., Ste. 100
Houston, TX 77024

Archrock
9807 Katy Frwy., Ste. 100
Houston, Texas 77024 U.S.A.
Main 281.836.8000
www.archrock.com

Pedigree for Archrock Unit 806537: Engine Serial Number 5283700086, Compressor Serial Number F25924

In order to better assist your company with its state and federal permitting needs, Archrock submits the following information in regards to the engine and compressor of the above-referenced compressor unit, which Archrock is currently utilizing to provide your company contract compression services. This letter should provide information necessary to answer questions pertaining to, but not limited to, the New Source Performance Standards (NSPS), Subpart JJJJ, Subpart OOOO, and Subpart OOOOa. This information is current as of August 28, 2024.

Engine Make:	WAUKESHA	**Compressor Make:**	ARIEL
Engine Model:	L7044GSI	**Compressor Model:**	JGK4
Engine Serial Number:	5283700086	**Compressor Serial Number:**	F25924
Engine Type:	4 Stroke RB	**Compressor Type:**	Reciprocating
Engine Category:	New	**Compressor Category:**	Existing
Engine Subcategory:	Non Certified	**Compressor Stages:**	3
Engine NSPS Status*:	Non-Exempt	**Compressor NSPS Status*:**	Exempt
Engine Speed:	1200	**Compressor Speed:**	1200
OEM Rated Engine HP:	1680	**OEM Rated Compressor HP:**	2540
Engine Mfr. Date:	4/30/2009	**Compressor Mfr. Date:**	8/17/2007

Engine NSPS Justification*: This engine was manufactured after the Quad J applicability date.

Compressor NSPS Justification*: The mfr. date is before 8/23/2011 and recon./modif. have not been triggered.

Customer: GRAYSON MILL OPERATING LLC

Business Unit: ROCKIES

Archrock Unit Number: 806537

Customer Lease Name: ARCTIC 7044GSI

Please contact AQT@archrock.com with any questions.

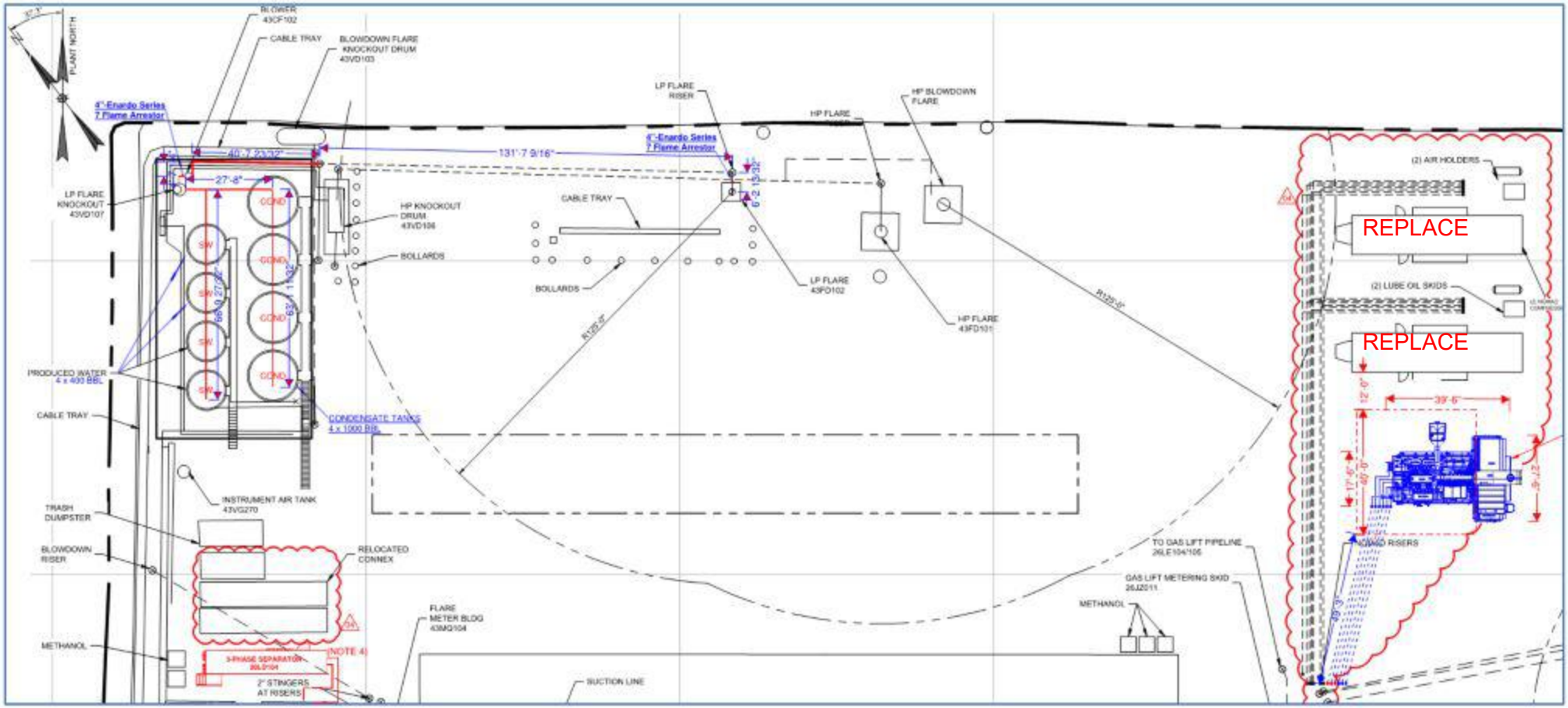
* The "Engine NSPS Status", "Compressor NSPS Status", "Engine Exemption Justification", and “Compressor Exemption Justification” entries herein are based on Archrock's present knowledge of the engine and compressor in question and its reading of U.S. EPA's regulations and guidance pursuant to 40 C.F.R. Part 60, Subpart JJJJ, Subpart OOOO, and Subpart OOOOa. Any change in law or in the federal, state, or local interpretation of existing law could result in this engine being subject to additional or different legal requirements. These conclusions are Archrock's and are not offered as legal opinions or advice to your company. Additionally, any reconstruction or modification respecting this engine or compressor (as those terms are defined in the applicable regulations) could result in the applicability of Subpart JJJJ, Subpart OOOO, Subpart OOOOa, or other legal requirements to this engine or compressor and create legal compliance responsibilities for your company.

ATTACHMENT D: ENGINE CATALYST MFR. SPECS

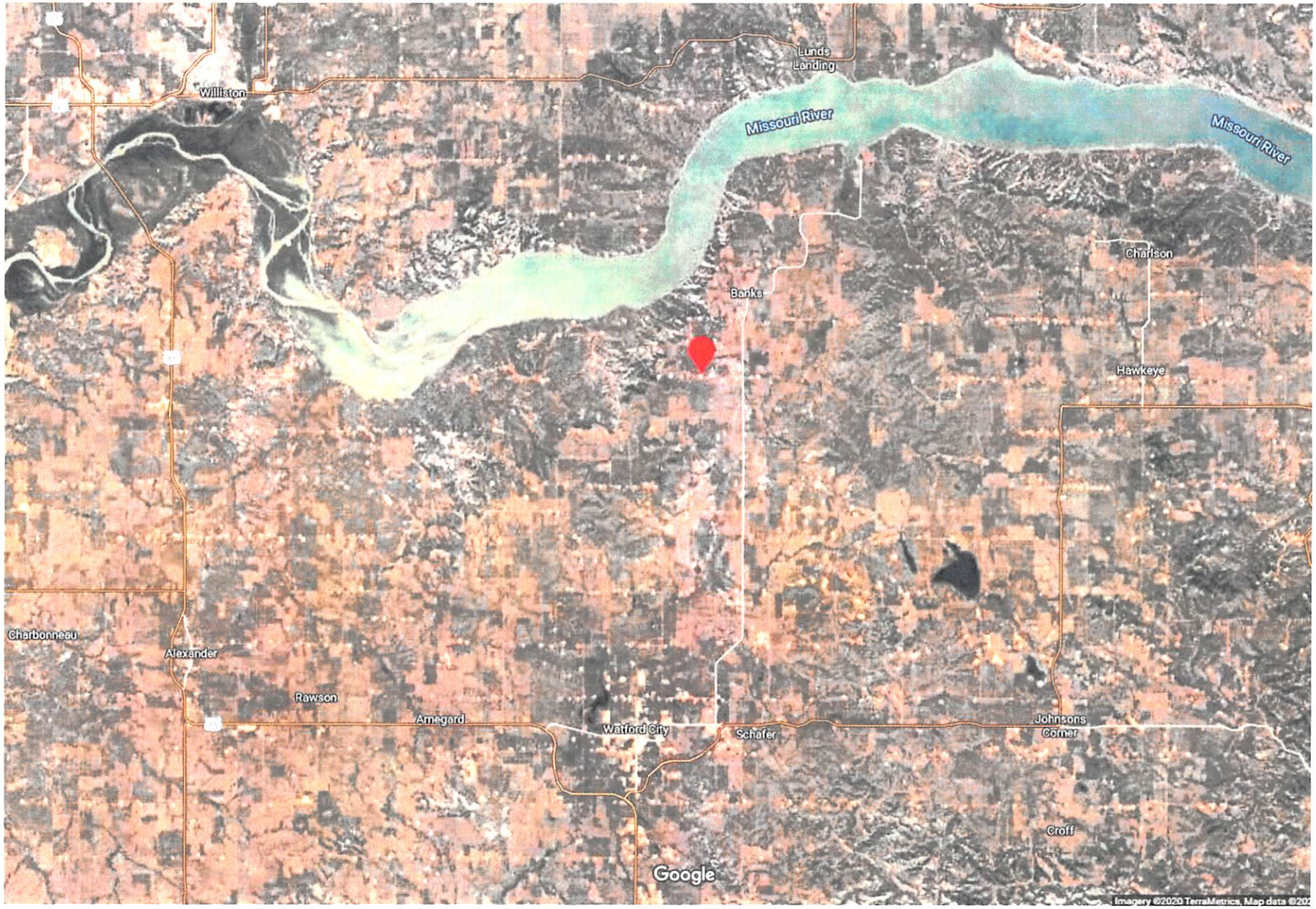
Catalyst Element (Table 1A)		
Application	Gas Compression	
Engine Model	Waukesha L7044GSI	
Engine Mechanical Power	1680 hp	
Fuel	NG (High BTU)	
Exhaust Flowrate	11840 lb/hr	
Exhaust Temperature	1220 deg. F	
Silencer Model	EMIT EAS-3350T-1414F-D1S20	
Catalyst Part Number	CB000-RH-0426-0H63-01	
Number of Elements	2	
Catalyst Code	26 / 300 cpsi	
Dimensions	33.5”D	
Pre-Catalyst Emissions g/bhp-h	NOx	13.37
	CO	12.64
	NMNEHC (VOC)	0.206
Post-Catalyst g/bhp-h	NOx	0.50
	CO	0.50
	NMNEHC (VOC)	0.04
Limited Warranty	(doc. X0000-0000-K1) one year or 8000 hours operation, whichever first	

ATTACHMENT E: PLOT PLAN

Fig - 1 C162-MK523-L-XF-1001_REV 08 CENTRAL BANKS CDP -PLOT- I.F.VCS (OOOOa) REPORT



ATTACHMENT F: MAP OF FACILITY


Williston
Lunds Landing
Missouri River
Missouri River
Charlson
Banks
Hawkeye
Charbonneau
Alexander
Rawson
Amegard
Watford City
Schafer
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