



*MarkWest Liberty Midstream and Resources, L.L.C.*  
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December 11, 2015

Mr. Fred Durham, Director  
West Virginia Department of Environmental Protection  
Division of Air Quality  
Charleston, WV 25304

**Re: MarkWest Liberty Midstream & Resources L.L.C.  
Mobley Gas Plant  
Application for Title V Operating (45SR30) Permit**

Dear Mr. Benedict:

MarkWest Liberty Midstream & Resources L.L.C. (MarkWest) is submitting the enclosed Title V Operating Permit application in accordance with the West Virginia Air Pollution Control Act and Title 45 Series 30 (45CSR30) for the Mobley Gas Plant in Wetzel County. The facility began operations on December 1, 2012, and is currently operating under permit R13-2878C.

This package contains the required application forms for the referenced facility.

If you have any questions or comments, please call myself at (303) 542-1212 or email [dmichaud@markwest.com](mailto:dmichaud@markwest.com) at your convenience.

Sincerely,

A handwritten signature in blue ink, appearing to read "Dan Michaud", with a large, stylized flourish extending to the right.

Dan Michaud  
Senior Environmental Engineer  
Enclosures (2 CDs + Hard copies)

**MARKWEST LIBERTY MIDSTREAM & RESOURCES L.L.C.**

**MOBLEY GAS PLANT**

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**45CSR30 TITLE V OPERATING PERMIT APPLICATION**

**SUBMITTED TO WVDEP DIVISION OF AIR QUALITY  
DECEMBER 2015**

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# Introduction

MarkWest Liberty Midstream and Resources, L.L.C (MarkWest) owns and operates the Mobley Gas Plant under the provisions of Permit R13-2878C. The first processing train began operating on December 1, 2012. With the commencement of operation of the fourth processing train on December 14, 2014, Mobley Gas Plant became a major source of nitrogen oxides. MarkWest is hereby submitting a Title V Operating Permit application in accordance with 45 CSR 30.

The Mobley Gas Plant is a natural gas gathering and processing plant for gas wells throughout West Virginia. Emission sources at the facility include six (6) 1,980-hp, Waukesha P9390 GSI compressor engines, two (2) 4,735-hp Caterpillar G3616 LE compressor engines, one (1) 8.12 mmbtu/hr regeneration gas heater, one (1) 26.00 mmbtu/hr heat medium oil heater, one (1) 6.84 mmbtu/hr regeneration gas heater, one (1) 18.05 mmbtu/hr heat medium oil heater, two (2) 7.69 mmbtu/hr regeneration gas heaters, one (1) 16.07 mmbtu/hr heat medium oil heater, one (1) emergency flare, fugitive equipment leaks, and blowdowns.

This facility is located off of North Fork Road, in Wetzel County, West Virginia. This submittal includes the following:

- Title V Permit Application Checklist
- Title V Application – General Forms
- Attachment A – Area Map
- Attachment B – Plot Plan
- Attachment C – Process Flow Diagram
- Attachment D – Title V Equipment Form
- Attachment E – Emission Unit Form
- Attachment G – Air Pollution Control Device Form

If there are any questions concerning this submittal the following may be contacted:

Dan Michaud  
Senior Environmental Engineer  
MarkWest Liberty Midstream and Resources, L.L.C.  
1515 Arapahoe Street, Tower 1, Suite 1600  
Denver, CO 80202-2137  
Phone: (303) 542-1212

## Title V Permit Application Checklist For Administrative Completeness

<p>A complete application is demonstrated when all of the information required below is properly prepared, completed and attached. The items listed below are required information which must be submitted with a Title V permit application. Any submittal will be considered incomplete if the required information is not included.*</p>	
<input checked="" type="checkbox"/>	Two signed copies of the application (at least one <u>must</u> contain the original "Certification" page signed and dated in blue ink)
<input checked="" type="checkbox"/>	Correct number of copies of the application on separate CDs or diskettes, (i.e. at least one disc per copy)
<input checked="" type="checkbox"/>	*Table of Contents (needs to be included but not for administrative completeness)
<input checked="" type="checkbox"/>	Facility information
<input checked="" type="checkbox"/>	Description of process and products, including NAICS and SIC codes, and including alternative operating scenarios
<input checked="" type="checkbox"/>	Area map showing plant location
<input checked="" type="checkbox"/>	Plot plan showing buildings and process areas
<input checked="" type="checkbox"/>	Process flow diagram(s), showing all emission units, control equipment, emission points, and their relationships
<input checked="" type="checkbox"/>	Identification of all applicable requirements with a description of the compliance status, the methods used for demonstrating compliance, and a Schedule of Compliance Form (ATTACHMENT F) for all requirements for which the source is not in compliance
<input checked="" type="checkbox"/>	Listing of all active permits and consent orders (if applicable)
<input checked="" type="checkbox"/>	Facility-wide emissions summary
<input checked="" type="checkbox"/>	Identification of Insignificant Activities
<input checked="" type="checkbox"/>	ATTACHMENT D - Title V Equipment Table completed for all emission units at the facility except those designated as insignificant activities
<input checked="" type="checkbox"/>	ATTACHMENT E - Emission Unit Form completed for each emission unit listed in the Title V Equipment Table (ATTACHMENT D) and a Schedule of Compliance Form (ATTACHMENT F) for all requirements for which the emission unit is not in compliance
<input checked="" type="checkbox"/>	ATTACHMENT G - Air Pollution Control Device Form completed for each control device listed in the Title V Equipment Table (ATTACHMENT D)
<input type="checkbox"/>	ATTACHMENT H – Compliance Assurance Monitoring (CAM) Plan Form completed for each control device for which the "Is the device subject to CAM?" question is answered "Yes" on the Air Pollution Control Device Form (ATTACHMENT G)
<input checked="" type="checkbox"/>	General Application Forms signed by a Responsible Official
<input type="checkbox"/>	Confidential Information submitted in accordance with 45CSR31

# **Title V Application General Forms**



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street SE
Charleston, WV 25304
Phone: (304) 926-0475

www.dep.wv.gov/daq

INITIAL/RENEWAL TITLE V PERMIT APPLICATION - GENERAL FORMS

Section 1: General Information

Form with 10 sections: 1. Name of Applicant, 2. Facility Name or Location, 3. DAQ Plant ID No., 4. Federal Employer ID No., 5. Permit Application Type, 6. Type of Business Entity, 7. Is the Applicant the..., 8. Number of onsite employees, 9. Governmental Code, 10. Business Confidentiality Claims.

<b>11. Mailing Address</b>		
Street or P.O. Box: 1515 Arapahoe Street, Tower 1, Suite 1600		
City: Denver	State: CO	Zip: 80202-2137
Telephone Number: (303) 925-9200	Fax Number: (303) 290-8769	

<b>12. Facility Location</b>		
Street: 14624 North Fork Road	City: Smithfield	County: Wetzel
UTM Easting: 538.099 km	UTM Northing: 4,378.315 km	Zone: <input checked="" type="checkbox"/> 17 or <input type="checkbox"/> 18
<b>Directions:</b> Head northwest on WV-20 N toward Co Rd 7/8 (1.1 mi). Turn right onto Co Rd 7/8 (2.8 mi), continue onto Co Rd 80/Fallen Timber Rd/Shuman Hill (0.8 mi), turn left onto Sheep Run (0.4 mi), turn right to stay on Sheep Run, facility is on the right.		
<b>Portable Source?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
<b>Is facility located within a nonattainment area?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>If yes, for what air pollutants?</b>	
<b>Is facility located within 50 miles of another state?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, name the affected state(s).</b> Pennsylvania, Ohio	
<b>Is facility located within 100 km of a Class I Area<sup>1</sup>?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  <b>If no, do emissions impact a Class I Area<sup>1</sup>?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, name the area(s).</b> Otter Creek Wilderness Area	
<sup>1</sup> Class I areas include Dolly Sods and Otter Creek Wilderness Areas in West Virginia, and Shenandoah National Park and James River Face Wilderness Area in Virginia.		

<b>13. Contact Information</b>		
<b>Responsible Official:</b> Leanne Meyer		<b>Title:</b> VP of EH&S
<b>Street or P.O. Box:</b> 1515 Arapahoe Street, Tower 1, Suite 1600		
<b>City:</b> Denver	<b>State:</b> CO	<b>Zip:</b> 80202-2137
<b>Telephone Number:</b> (303) 925-9299	<b>Fax Number:</b> ( ) -	
<b>E-mail address:</b> lmeyer@markwest.com		
<b>Environmental Contact:</b> Nathan Wheldon		<b>Title:</b> Environmental Manager
<b>Street or P.O. Box:</b> 1515 Arapahoe Street, Tower 1, Suite 1600		
<b>City:</b> Denver	<b>State:</b> CO	<b>Zip:</b> 80202-2137
<b>Telephone Number:</b> (303) 542-0686	<b>Fax Number:</b> ( ) -	
<b>E-mail address:</b> nwheldon@markwest.com		
<b>Application Preparer:</b> Dan Michaud		<b>Title:</b> Senior Environmental Engineer
<b>Company:</b> MarkWest Liberty Midstream and Resources, L.L.C.		
<b>Street or P.O. Box:</b> 1515 Arapahoe Street, Tower 1, Suite 1600		
<b>City:</b> Denver	<b>State:</b> CO	<b>Zip:</b> 80202-2137
<b>Telephone Number:</b> (303) 542-1212	<b>Fax Number:</b> ( ) -	
<b>E-mail address:</b> dmichaud@markwest.com		

**14. Facility Description**

List all processes, products, NAICS and SIC codes for normal operation, in order of priority. Also list any process, products, NAICS and SIC codes associated with any alternative operating scenarios if different from those listed for normal operation.

Process	Products	NAICS	SIC
Natural Gas Processing	Pipeline grade natural gas and natural gas liquids	211112	1311

**Provide a general description of operations.**  
 Natural gas from surrounding area wells enters the facility and undergoes separation, filtration, and dehydration. Separation serves to remove any free liquids entrained in the gas. Filtration serves to remove any impurities. Dehydration removes any additional moisture remaining in the gas prior to processing. The gas is subsequently sent through a cryogenic process which serves to remove any natural gas liquids (propane and heavier components) from the gas stream. At this point the gas is saleable, and is compressed prior to leaving the facility via pipeline. The natural gas liquids are transported off site via pipeline.

- 15. Provide an **Area Map** showing plant location as **ATTACHMENT A**.
- 16. Provide a **Plot Plan(s)**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is located as **ATTACHMENT B**. For instructions, refer to "Plot Plan - Guidelines."
- 17. Provide a detailed **Process Flow Diagram(s)** showing each process or emissions unit as **ATTACHMENT C**. Process Flow Diagrams should show all emission units, control equipment, emission points, and their relationships.

**Section 2: Applicable Requirements**

<b>18. Applicable Requirements Summary</b>	
Instructions: Mark all applicable requirements.	
<input type="checkbox"/> SIP	<input type="checkbox"/> FIP
<input checked="" type="checkbox"/> Minor source NSR (45CSR13)	<input type="checkbox"/> PSD (45CSR14)
<input checked="" type="checkbox"/> NESHAP (45CSR34)	<input type="checkbox"/> Nonattainment NSR (45CSR19)
<input checked="" type="checkbox"/> Section 111 NSPS	<input type="checkbox"/> Section 112(d) MACT standards
<input type="checkbox"/> Section 112(g) Case-by-case MACT	<input checked="" type="checkbox"/> 112(r) RMP
<input type="checkbox"/> Section 112(i) Early reduction of HAP	<input type="checkbox"/> Consumer/commercial prod. reqts., section 183(e)
<input type="checkbox"/> Section 129 Standards/Reqs.	<input type="checkbox"/> Stratospheric ozone (Title VI)
<input type="checkbox"/> Tank vessel reqt., section 183(f)	<input type="checkbox"/> Emissions cap 45CSR§30-2.6.1
<input type="checkbox"/> NAAQS, increments or visibility (temp. sources)	<input type="checkbox"/> 45CSR27 State enforceable only rule
<input checked="" type="checkbox"/> 45CSR4 State enforceable only rule	<input type="checkbox"/> Acid Rain (Title IV, 45CSR33)
<input type="checkbox"/> Emissions Trading and Banking (45CSR28)	<input type="checkbox"/> Compliance Assurance Monitoring (40CFR64)
<input type="checkbox"/> CAIR NO <sub>x</sub> Annual Trading Program (45CSR39)	<input type="checkbox"/> CAIR NO <sub>x</sub> Ozone Season Trading Program (45CSR40)
<input type="checkbox"/> CAIR SO <sub>2</sub> Trading Program (45CSR41)	

## 19. Non Applicability Determinations

List all requirements which the source has determined not applicable and for which a permit shield is requested. The listing shall also include the rule citation and the reason why the shield applies.

**State Implementation Plan:** This application does not involve a stationary source to be located in a non-attainment area subject to a SIP.

**Federal Implementation Plan:** No Federal Implementation Plan is in effect where this stationary source is located.

**45 CSR 14 – Prevention of Significant Deterioration:** The facility is not a major stationary source as defined by the PSD rule, and is therefore not subject to the provisions of this rule.

**45 CSR 19 – Nonattainment New Source Review:** The facility is not located in a non-attainment area, therefore this rule does apply.

**45 CSR 27 – Toxic Air Pollutants:** The facility is not a chemical process unit as defined in the rule, therefore this rule does not apply.

**45 CSR 28 – Emissions Trading and Banking:** MarkWest does not voluntarily choose to participate in an emission reduction credit trading program.

**45 CSR 30-2.6.1:** The facility is not subject to any emissions caps as provided by this rule.

**45 CSR 33 – Acid Rain Program:** The facility is not an affected source under the provisions of the Acid Rain Program, therefore this rule does not apply.

**45 CSR 39 – CAIR NO<sub>x</sub> Annual Trading Program:** There are no CAIR NO<sub>x</sub> Annual units present at the facility, therefore the requirements of this rule do not apply.

**45 CSR 40 – CAIR NO<sub>x</sub> Ozone Season Trading Program:** There are no CAIR NO<sub>x</sub> Ozone Season units present at the facility, therefore the requirements of this rule do not apply.

**45 CSR 41 – CAIR SO<sub>2</sub> Annual Trading Program:** There are no CAIR SO<sub>2</sub> Annual units present at the facility, therefore the requirements of this rule do not apply.

**Section 112(d) MACT standards:** The facility is not a major source of hazardous air pollutants, therefore this rule does not apply.

**Section 112(g) MACT standards:** The facility is not a major source of hazardous air pollutants, therefore this rule does not apply.

**Section 112(i) MACT standards:** The facility is not a major source of hazardous air pollutants, therefore this rule does not apply.

**Section 183(e) Consumer/commercial Product Requirements:** Operation of the facility does not involve the manufacture or sale of consumer or commercial products and will not be subject to this regulatory provision.

**Section 129 Standards/Requirements:** Operation of this facility does not involve solid waste combustion or incineration; therefore, this rule does not apply.

**Section 183(f) – Tank Vessel Requirements:** There are no marine tank vessels present at the facility, therefore this rule does not apply.

**NAAQS, increment or visibility (temp. sources):** There are no temporary sources present at the facility, therefore this rule does not apply.

**Stratospheric Ozone (Title IV):** The facility does not use Class I ozone-depleting substances (ODS) including chlorofluorocarbons (CFC) and Class II ODS, which are hydrochlorofluorocarbons (HCFC), so this provision does not apply.

Permit Shield

## 20. Facility-Wide Applicable Requirements

List all facility-wide applicable requirements. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*).

### Permit R13-2878C Conditions:

- 3.1.1 Open burning [45CSR§6-3.1]
- 3.1.2 Open burning exemptions [45CSR§6-3.2]
- 3.1.3 Asbestos [40CFR§61.145(b) and 45CSR§34]
- 3.1.4 Odor [45CSR§4-3.1]
- 3.1.5 Permanent shutdown [45CSR§13-10.5.]
- 3.1.6 Standby plan for reducing emissions [45CSR§11-5.2.]
- 3.3.1 Stack Testing [WV Code § 22-5-4(a)(14-15) and 45CSR13]
- 3.4.1 Retention of Records
- 3.4.2 Odors [45CSR§4]
- 3.5.1 Responsible Official
- 3.5.2 Confidential Information [W.Va. Code § 22-5-10 and 45CSR31]
- 3.5.3 Correspondence
- 3.5.4 Operating Fee [45 CSR 30]
- 3.5.5 Emission Inventory

Permit Shield

**For all facility-wide applicable requirements listed above, provide monitoring/testing / recordkeeping / reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number and/or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)**

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
3.1.1	Presence of open burning	NA	NA	Notification	45CSR§6-3.1
3.1.2	NA	NA	NA	Notification	45CSR§6-3.2
3.1.3	NA	NA	Asbestos inspection	Notification	40CFR§61.145 (b), 45CSR§34
3.1.4	Odors	NA	NA	NA	45CSR§4-3.1
3.1.5	NA	NA	NA	Permit application as necessary	45CSR§13-10.5
3.1.6	NA	NA	Prepare standby plans when requested by the Secretary	NA	45CSR§11-5.2
3.3.1	NA	Stack testing	NA	Results of stack test	WV Code§22-5-4(a)(14-15), 45CSR§13
3.4.1	NA	Na	Maintain all required records for 5 years. Maintain most recent two years of records on site.	NA	3.4.1
3.4.2	NA	NA	Odor complaints	NA	45CSR§4
3.5.1	NA	NA	NA	Certification by responsible official for any application form, report, or compliance certification required by the permit	3.5.1
3.5.2	NA	NA	NA	May request confidential treatment for the submission of reports	WV Code§22-5-10 and 45CSR§31
3.5.3	NA	NA	NA	Submissions must be made in writing to the listed addresses for DAQ and US EPA	3.5.3
3.5.4	NA	NA	Emissions inventory receipt	Certified emissions statement	45CSR30
3.5.5	NA	NA	NA	Emission inventory	3.5.5

**Are you in compliance with all facility-wide applicable requirements?**  Yes  No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.





Section 3: Facility-Wide Emissions

23. Facility-Wide Emissions Summary [Tons per Year]	
Criteria Pollutants	Potential Emissions
Carbon Monoxide (CO)	68.58
Nitrogen Oxides (NO <sub>x</sub> )	100.29
Lead (Pb)	
Particulate Matter (PM <sub>2.5</sub> ) <sup>1</sup>	13.77
Particulate Matter (PM <sub>10</sub> ) <sup>1</sup>	13.77
Total Particulate Matter (TSP)	13.77
Sulfur Dioxide (SO <sub>2</sub> )	0.65
Volatile Organic Compounds (VOC)	70.73
Hazardous Air Pollutants <sup>2</sup>	Potential Emissions
Acetaldehyde	3.74
Acrolein	2.68
Benzene	0.80
Formaldehyde	3.55
Methanol	2.04
n-Hexane	1.83
Total HAPS	15.37
Regulated Pollutants other than Criteria and HAP	Potential Emissions
CO <sub>2</sub> (e)	145,185.87

<sup>1</sup>PM<sub>2.5</sub> and PM<sub>10</sub> are components of TSP.  
<sup>2</sup>For HAPs that are also considered PM or VOCs, emissions should be included in both the HAPs section and the Criteria Pollutants section.

MarkWest Liberty Midstream & Resources L.L.C.  
Mobley Gas Plant

Summary of Potential Emissions

Criteria Pollutant Potential Emissions

Process/Facility	Potential Emissions (lb/hr)						
	NOx	CO	VOC	SO <sub>2</sub>	PM <sup>1</sup>	HAPs	
Waukesha P9390 GSI Compressor Engines (6)	5.22	6.84	3.12	0.06	1.8	1.26	
Caterpillar G3616 LE Compressor Engines (2)	10.44	2.88	5.26	0.04	0.7	1.76	
Regeneration Gas Heater H-741	0.43	0.33	0.04	0.00	0.05	0.01	
Heat Medium Oil Heater H-781	2.31	1.94	0.13	0.01	0.18	0.04	
Regeneration Gas Heater H-1741	0.36	0.28	0.03	0.00	0.05	0.01	
Heat Medium Oil Heater H-1781	1.61	1.35	0.09	0.01	0.12	0.03	
Regeneration Gas Heater H-3741	0.41	0.32	0.04	0.00	0.06	0.01	
Regeneration Gas Heater H-4741	0.41	0.32	0.04	0.00	0.06	0.01	
Heat Medium Oil Heater H-3781	1.58	1.32	0.09	0.01	0.12	0.03	
Emergency Flare FL-991	0.11	0.09	0.01	0.01	0.01	0.08	
Fugitives	--	--	3.63	--	--	0.07	
Blowdowns	--	--	--	--	--	0.00	
<b>Facility-Wide Potential Emissions</b>	<b>22.87</b>	<b>15.67</b>	<b>12.48</b>	<b>0.16</b>	<b>3.14</b>	<b>3.33</b>	

<sup>1</sup> PM = PM<sub>10</sub> = PM<sub>2.5</sub>

Process/Facility	Potential Emissions (tpy)						
	NOx	CO	VOC	SO <sub>2</sub>	PM <sup>1</sup>	HAPs	
Waukesha P9390 GSI Compressor Engines (6)	22.98	29.94	13.74	0.24	7.86	5.52	
Caterpillar G3616 LE Compressor Engines (2)	45.72	12.58	23.04	0.18	3.1	7.68	
Regeneration Gas Heater H-741	1.88	1.46	0.17	0.02	0.24	0.06	
Heat Medium Oil Heater H-781	10.13	8.51	0.56	0.06	0.77	0.19	
Regeneration Gas Heater H-1741	1.59	1.23	0.15	0.02	0.20	0.05	
Heat Medium Oil Heater H-1781	7.03	5.91	0.39	0.04	0.53	0.13	
Regeneration Gas Heater H-3741	1.79	1.38	0.18	0.02	0.25	0.06	
Regeneration Gas Heater H-4741	1.79	1.38	0.18	0.02	0.25	0.06	
Heat Medium Oil Heater H-3781	6.90	5.80	0.38	0.04	0.52	0.13	
Emergency Flare FL-991	0.48	0.40	0.03	0.01	0.04	--	
Fugitives	--	--	15.90	--	--	0.31	
Blowdowns	--	--	16.01	--	--	1.17	
<b>Facility-Wide Potential Emissions</b>	<b>100.29</b>	<b>68.58</b>	<b>70.73</b>	<b>0.65</b>	<b>13.77</b>	<b>15.37</b>	

<sup>1</sup> PM = PM<sub>10</sub> = PM<sub>2.5</sub>

**Hazardous Air Pollutant Potential Emissions**

Process/Facility	HAPs - Potential Emissions (lb/hr)									
	Acetaldehyde	Acrolein	Benzene	Ethylbenzene	Formaldehyde	Methanol	n-Hexane	Toluene	Xylenes	
Waukesha P9390 GSI Compressor Engines (6)	0.24	0.24	0.12	0.06	0.24	0.30	--	0.06	0.06	0.06
Caterpillar G3616 LE Compressor Engines (2)	0.6	0.36	0.01	0.02	0.54	0.18	--	0.02	0.02	0.02
Regeneration Gas Heater H-741	--	--	0.00	--	0.00	--	--	0.00	0.00	--
Heat Medium Oil Heater H-781	--	--	0.00	--	0.00	--	0.04	0.00	0.00	--
Regeneration Gas Heater H-1741	--	--	0.00	--	0.00	--	0.01	0.00	0.00	--
Heat Medium Oil Heater H-1781	--	--	0.00	--	0.00	--	0.04	0.00	0.00	--
Regeneration Gas Heater H-3741	--	--	0.00	--	0.00	--	0.03	0.00	0.00	--
Regeneration Gas Heater H-4741	--	--	0.00	--	0.00	--	0.01	0.00	0.00	--
Heat Medium Oil Heater H-4741	--	--	0.00	--	0.00	--	0.01	0.00	0.00	--
Heat Medium Oil Heater H-3781	--	--	0.00	--	0.00	--	0.03	0.00	0.00	--
Emergency Flare FL-991	--	--	--	--	--	--	--	--	--	--
Fugitives	--	--	--	--	--	--	--	--	--	--
Blowdowns	--	--	--	--	--	--	--	--	--	--
<b>Facility-Wide Potential Emissions</b>	<b>0.84</b>	<b>0.60</b>	<b>0.13</b>	<b>0.08</b>	<b>0.79</b>	<b>0.48</b>	<b>0.15</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>

Process/Facility	HAPs - Potential Emissions (tpy)									
	Acetaldehyde	Acrolein	Benzene	Ethylbenzene	Formaldehyde	Methanol	n-Hexane	Toluene	Xylenes	
Waukesha P9390 GSI Compressor Engines (6)	1.14	1.08	0.66	0.06	1.14	1.26	--	0.24	0.06	0.06
Caterpillar G3616 LE Compressor Engines (2)	2.6	1.6	0.14	0.02	2.38	0.78	--	0.12	0.12	0.06
Regeneration Gas Heater H-741	--	--	0.00	--	0.00	--	0.06	0.00	0.00	--
Heat Medium Oil Heater H-781	--	--	0.00	--	0.01	--	0.18	0.00	0.00	--
Regeneration Gas Heater H-1741	--	--	0.00	--	0.00	--	0.05	0.00	0.00	--
Heat Medium Oil Heater H-1781	--	--	0.00	--	0.01	--	0.13	0.00	0.00	--
Regeneration Gas Heater H-3741	--	--	0.00	--	0.00	--	0.06	0.00	0.00	--
Regeneration Gas Heater H-4741	--	--	0.00	--	0.00	--	0.06	0.00	0.00	--
Heat Medium Oil Heater H-3781	--	--	0.00	--	0.01	--	0.12	0.00	0.00	--
Emergency Flare FL-991	--	--	--	--	--	--	--	--	--	--
Fugitives	--	--	--	--	--	--	--	--	--	--
Blowdowns	--	--	0.00	0.00	--	--	1.17	0.00	0.00	0.00
<b>Facility-Wide Potential Emissions</b>	<b>3.74</b>	<b>2.68</b>	<b>0.80</b>	<b>0.08</b>	<b>3.55</b>	<b>2.04</b>	<b>1.83</b>	<b>0.36</b>	<b>0.12</b>	<b>0.12</b>

**Greenhouse Gas Potential Emissions**

Process/Facility	GHG
	CO <sub>2</sub> e (tpy)
Waukesha P9390 GSI Compressor Engines (6)	52,226.09
Caterpillar G3616 LE Compressor Engines (2)	39,601.58
Regeneration Gas Heater H-741	4,580.70
Heat Medium Oil Heater H-781	14,667.25
Regeneration Gas Heater H-1741	3,858.62
Heat Medium Oil Heater H-1781	10,182.46
Regeneration Gas Heater H-3741	4,338.12
Regeneration Gas Heater H-4741	4,338.12
Heat Medium Oil Heater H-3781	9,065.49
Emergency Flare FL-991	759.05
Fugitives	316.89
Blowdowns	1250.92
<b>Total</b>	<b>145,185.87</b>

**Section 4: Insignificant Activities**

<b>24. Insignificant Activities (Check all that apply)</b>	
<input checked="" type="checkbox"/>	1. Air compressors and pneumatically operated equipment, including hand tools.
<input checked="" type="checkbox"/>	2. Air contaminant detectors or recorders, combustion controllers or shutoffs.
<input checked="" type="checkbox"/>	3. Any consumer product used in the same manner as in normal consumer use, provided the use results in a duration and frequency of exposure which are not greater than those experienced by consumer, and which may include, but not be limited to, personal use items; janitorial cleaning supplies, office supplies and supplies to maintain copying equipment.
<input checked="" type="checkbox"/>	4. Bathroom/toilet vent emissions.
<input checked="" type="checkbox"/>	5. Batteries and battery charging stations, except at battery manufacturing plants.
<input checked="" type="checkbox"/>	6. Bench-scale laboratory equipment used for physical or chemical analysis, but not lab fume hoods or vents. Many lab fume hoods or vents might qualify for treatment as insignificant (depending on the applicable SIP) or be grouped together for purposes of description.
<input type="checkbox"/>	7. Blacksmith forges.
<input type="checkbox"/>	8. Boiler water treatment operations, not including cooling towers.
<input type="checkbox"/>	9. Brazing, soldering or welding equipment used as an auxiliary to the principal equipment at the source.
<input type="checkbox"/>	10. CO <sub>2</sub> lasers, used only on metals and other materials which do not emit HAP in the process.
<input type="checkbox"/>	11. Combustion emissions from propulsion of mobile sources, except for vessel emissions from Outer Continental Shelf sources.
<input checked="" type="checkbox"/>	12. Combustion units designed and used exclusively for comfort heating that use liquid petroleum gas or natural gas as fuel.
<input checked="" type="checkbox"/>	13. Comfort air conditioning or ventilation systems not used to remove air contaminants generated by or released from specific units of equipment.
<input type="checkbox"/>	14. Demineralized water tanks and demineralizer vents.
<input type="checkbox"/>	15. Drop hammers or hydraulic presses for forging or metalworking.
<input type="checkbox"/>	16. Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substances being processed in the ovens or autoclaves or the boilers delivering the steam.
<input type="checkbox"/>	17. Emergency (backup) electrical generators at residential locations.
<input type="checkbox"/>	18. Emergency road flares.
<input type="checkbox"/>	19. Emission units which do not have any applicable requirements and which emit criteria pollutants (CO, NO <sub>x</sub> , SO <sub>2</sub> , VOC and PM) into the atmosphere at a rate of less than 1 pound per hour and less than 10,000 pounds per year aggregate total for each criteria pollutant from all emission units.  Please specify all emission units for which this exemption applies along with the quantity of criteria pollutants emitted on an hourly and annual basis:  _____ _____ _____ _____ _____ _____ _____ _____ _____

<b>24. Insignificant Activities (Check all that apply)</b>	
<input type="checkbox"/>	<p>20. Emission units which do not have any applicable requirements and which emit hazardous air pollutants into the atmosphere at a rate of less than 0.1 pounds per hour and less than 1,000 pounds per year aggregate total for all HAPs from all emission sources. This limitation cannot be used for any source which emits dioxin/furans nor for toxic air pollutants as per 45CSR27.</p> <p>Please specify all emission units for which this exemption applies along with the quantity of hazardous air pollutants emitted on an hourly and annual basis:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
<input type="checkbox"/>	21. Environmental chambers not using hazardous air pollutant (HAP) gases.
<input type="checkbox"/>	22. Equipment on the premises of industrial and manufacturing operations used solely for the purpose of preparing food for human consumption.
<input type="checkbox"/>	23. Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.
<input checked="" type="checkbox"/>	24. Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis.
<input type="checkbox"/>	25. Equipment used for surface coating, painting, dipping or spray operations, except those that will emit VOC or HAP.
<input checked="" type="checkbox"/>	26. Fire suppression systems.
<input checked="" type="checkbox"/>	27. Firefighting equipment and the equipment used to train firefighters.
<input type="checkbox"/>	28. Flares used solely to indicate danger to the public.
<input checked="" type="checkbox"/>	29. Fugitive emission related to movement of passenger vehicle provided the emissions are not counted for applicability purposes and any required fugitive dust control plan or its equivalent is submitted.
<input type="checkbox"/>	30. Hand-held applicator equipment for hot melt adhesives with no VOC in the adhesive formulation.
<input checked="" type="checkbox"/>	31. Hand-held equipment for buffing, polishing, cutting, drilling, sawing, grinding, turning or machining wood, metal or plastic.
<input type="checkbox"/>	32. Humidity chambers.
<input checked="" type="checkbox"/>	33. Hydraulic and hydrostatic testing equipment.
<input type="checkbox"/>	34. Indoor or outdoor kerosene heaters.
<input checked="" type="checkbox"/>	35. Internal combustion engines used for landscaping purposes.
<input type="checkbox"/>	36. Laser trimmers using dust collection to prevent fugitive emissions.
<input type="checkbox"/>	37. Laundry activities, except for dry-cleaning and steam boilers.
<input checked="" type="checkbox"/>	38. Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.
<input type="checkbox"/>	39. Oxygen scavenging (de-aeration) of water.
<input type="checkbox"/>	40. Ozone generators.

<b>24. Insignificant Activities (Check all that apply)</b>	
<input checked="" type="checkbox"/>	41. Plant maintenance and upkeep activities (e.g., grounds-keeping, general repairs, cleaning, painting, welding, plumbing, re-tarring roofs, installing insulation, and paving parking lots) provided these activities are not conducted as part of a manufacturing process, are not related to the source's primary business activity, and not otherwise triggering a permit modification. (Cleaning and painting activities qualify if they are not subject to VOC or HAP control requirements. Asphalt batch plant owners/operators must still get a permit if otherwise requested.)
<input type="checkbox"/>	42. Portable electrical generators that can be moved by hand from one location to another. "Moved by Hand" means that it can be moved without the assistance of any motorized or non-motorized vehicle, conveyance, or device.
<input type="checkbox"/>	43. Process water filtration systems and demineralizers.
<input checked="" type="checkbox"/>	44. Repair or maintenance shop activities not related to the source's primary business activity, not including emissions from surface coating or de-greasing (solvent metal cleaning) activities, and not otherwise triggering a permit modification.
<input checked="" type="checkbox"/>	45. Repairs or maintenance where no structural repairs are made and where no new air pollutant emitting facilities are installed or modified.
<input type="checkbox"/>	46. Routing calibration and maintenance of laboratory equipment or other analytical instruments.
<input type="checkbox"/>	47. Salt baths using nonvolatile salts that do not result in emissions of any regulated air pollutants. Shock chambers.
<input type="checkbox"/>	48. Shock chambers.
<input type="checkbox"/>	49. Solar simulators.
<input type="checkbox"/>	50. Space heaters operating by direct heat transfer.
<input type="checkbox"/>	51. Steam cleaning operations.
<input type="checkbox"/>	52. Steam leaks.
<input type="checkbox"/>	53. Steam sterilizers.
<input type="checkbox"/>	54. Steam vents and safety relief valves.
<input type="checkbox"/>	55. Storage tanks, reservoirs, and pumping and handling equipment of any size containing soaps, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions, provided appropriate lids and covers are utilized.
<input checked="" type="checkbox"/>	56. Storage tanks, vessels, and containers holding or storing liquid substances that will not emit any VOC or HAP. Exemptions for storage tanks containing petroleum liquids or other volatile organic liquids should be based on size limits such as storage tank capacity and vapor pressure of liquids stored and are not appropriate for this list.
<input type="checkbox"/>	57. Such other sources or activities as the Director may determine.
<input checked="" type="checkbox"/>	58. Tobacco smoking rooms and areas.
<input type="checkbox"/>	59. Vents from continuous emissions monitors and other analyzers.

*Section 5: Emission Units, Control Devices, and Emission Points*

<b>25. Equipment Table</b>
Fill out the <b>Title V Equipment Table</b> and provide it as <b>ATTACHMENT D</b> .
<b>26. Emission Units</b>
For each emission unit listed in the <b>Title V Equipment Table</b> , fill out and provide an <b>Emission Unit Form</b> as <b>ATTACHMENT E</b> .
For each emission unit not in compliance with an applicable requirement, fill out a <b>Schedule of Compliance Form</b> as <b>ATTACHMENT F</b> .
<b>27. Control Devices</b>
For each control device listed in the <b>Title V Equipment Table</b> , fill out and provide an <b>Air Pollution Control Device Form</b> as <b>ATTACHMENT G</b> .
For any control device that is required on an emission unit in order to meet a standard or limitation for which the potential pre-control device emissions of an applicable regulated air pollutant is greater than or equal to the Title V Major Source Threshold Level, refer to the <b>Compliance Assurance Monitoring (CAM) Form(s)</b> for CAM applicability. Fill out and provide these forms, if applicable, for each Pollutant Specific Emission Unit (PSEU) as <b>ATTACHMENT H</b> .

**Section 6: Certification of Information**

**28. Certification of Truth, Accuracy and Completeness and Certification of Compliance**

*Note: This Certification must be signed by a responsible official. The **original**, signed in **blue ink**, must be submitted with the application. Applications without an **original** signed certification will be considered as incomplete.*

**a. Certification of Truth, Accuracy and Completeness**

I certify that I am a responsible official (as defined at 45CSR§30-2.38) and am accordingly authorized to make this submission on behalf of the owners or operators of the source described in this document and its attachments. I certify under penalty of law that I have personally examined and am familiar with the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine and/or imprisonment.

**b. Compliance Certification**

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

**Responsible official (type or print)**

Name: Leanne M. Meyer

Title: VP of EH&S

**Responsible official's signature:**

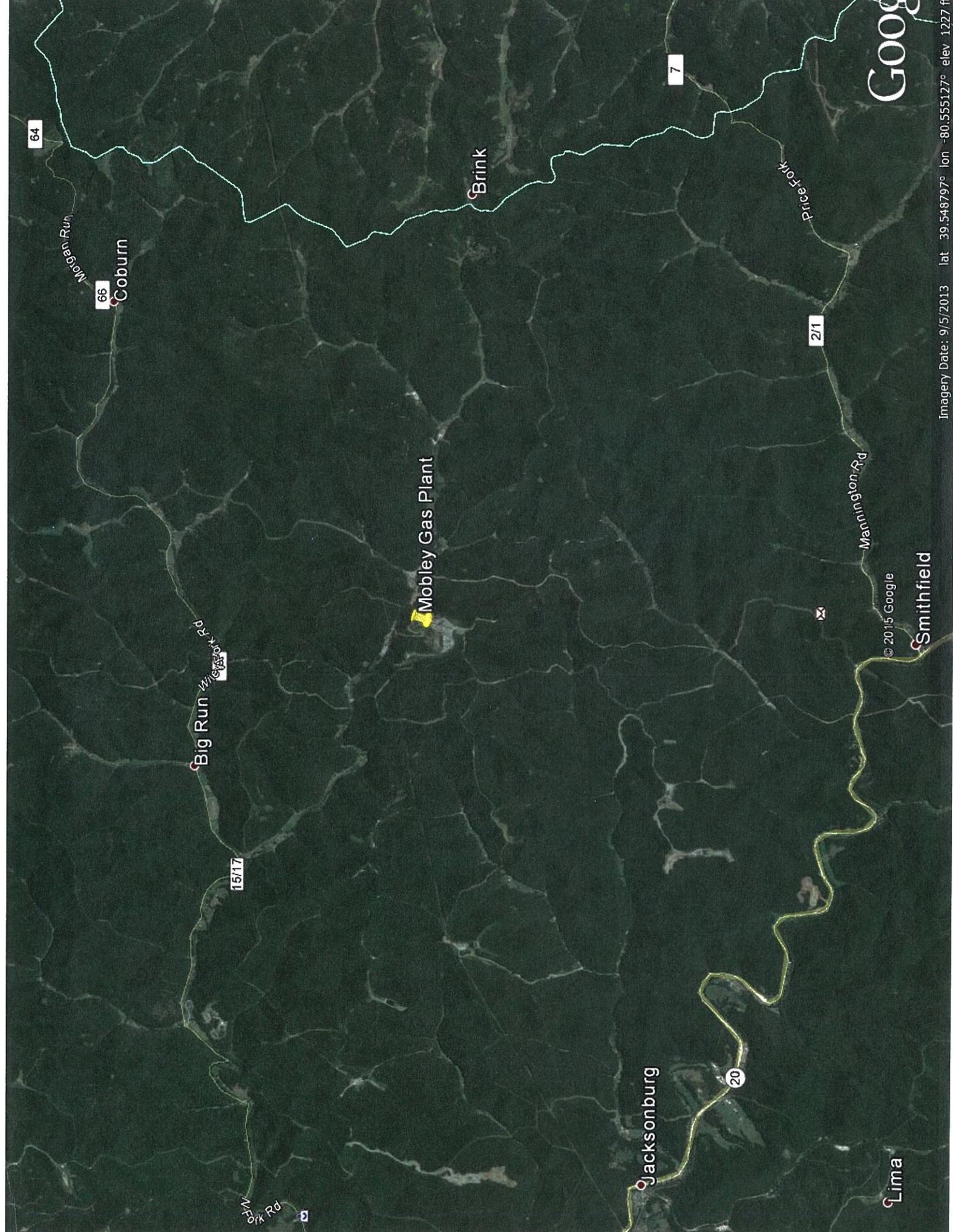
Signature:  Signature Date: 12-10-15  
(Must be signed and dated in blue ink)

**Note: Please check all applicable attachments included with this permit application:**

<input checked="" type="checkbox"/>	ATTACHMENT A: Area Map
<input checked="" type="checkbox"/>	ATTACHMENT B: Plot Plan(s)
<input checked="" type="checkbox"/>	ATTACHMENT C: Process Flow Diagram(s)
<input checked="" type="checkbox"/>	ATTACHMENT D: Equipment Table
<input checked="" type="checkbox"/>	ATTACHMENT E: Emission Unit Form(s)
<input type="checkbox"/>	ATTACHMENT F: Schedule of Compliance Form(s)
<input checked="" type="checkbox"/>	ATTACHMENT G: Air Pollution Control Device Form(s)
<input type="checkbox"/>	ATTACHMENT H: Compliance Assurance Monitoring (CAM) Form(s)

*All of the required forms and additional information can be found and downloaded from, the DEP website at [www.dep.wv.gov/dag](http://www.dep.wv.gov/dag), requested by phone (304) 926-0475, and/or obtained through the mail.*

## **Attachment A - Area Map**





Mobley Gas Plant

N Fork Rd

1513

1517

80

Sheep Run

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Google

Imagery Date: 9/5/2013 lat 39.553289° lon -80.556639° elev 1412

## **Attachment B - Plot Plan**



Mobley IV

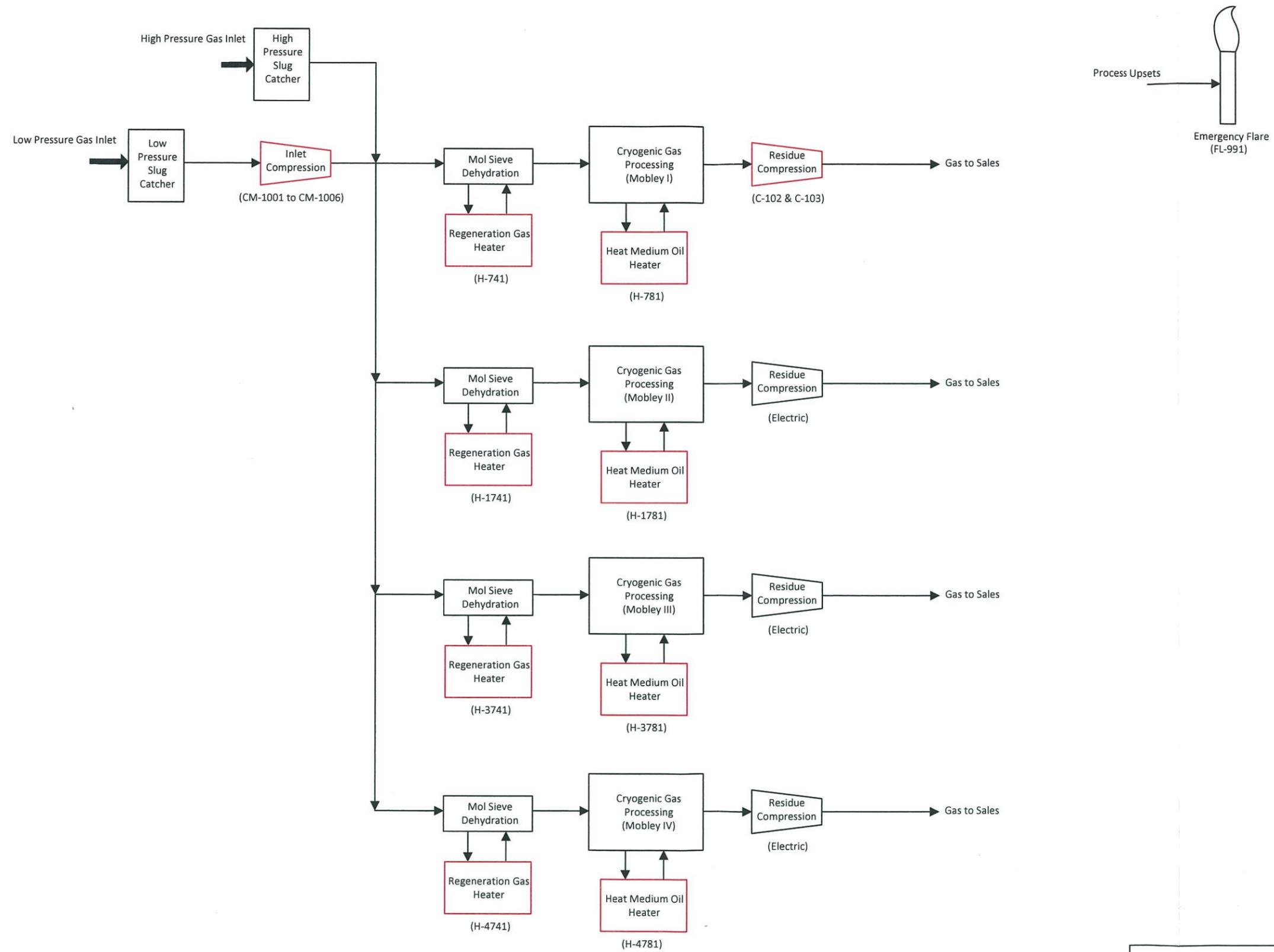
Mobley III

Mobley I

Mobley II



## **Attachment C – Process Flow Diagram**



Mobley Gas Plant - Process Flow Diagram  
 (Emission Units in Red)

## **Attachment D – Title V Equipment Table**

**ATTACHMENT D - Title V Equipment Table**  
(includes all emission units at the facility except those designated as insignificant activities in Section 4, Item 24 of the General Forms)

Emission Point ID <sup>1</sup>	Control Device <sup>1</sup>	Emission Unit ID <sup>1</sup>	Emission Unit Description	Design Capacity	Year Installed/Modified
CM-1001	NSCR	CM-1001	Waukesha P9390 GSI Engine	1,980 hp	2012
CM-1002	NSCR	CM-1002	Waukesha P9390 GSI Engine	1,980 hp	2012
CM-1003	NSCR	CM-1003	Waukesha P9390 GSI Engine	1,980 hp	2012
CM-1004	NSCR	CM-1004	Waukesha P9390 GSI Engine	1,980 hp	2012
CM-1005	NSCR	CM-1005	Waukesha P9390 GSI Engine	1,980 hp	2013
CM-1006	NSCR	CM-1006	Waukesha P9390 GSI Engine	1,980 hp	2012
C-102	Oxid. Cat.	C-102	Caterpillar G3616 LE Engine	4,735 hp	2012
C-103	Oxid. Cat.	C-103	Caterpillar G3616 LE Engine	4,735 hp	2012
H-741	N/A	H-741	Regeneration Gas Heater	8.12 mmbtu/hr	2012
H-781	N/A	H-781	Heat Medium Oil Heater	26.00 mmbtu/hr	2012
H-1741	N/A	H-1741	Regeneration Gas Heater	6.84 mmbtu/hr	2013
H-1781	N/A	H-1781	Heat Medium Oil Heater	18.05 mmbtu/hr	2013
FL-991	N/A	FL-991	Emergency Flare	68,600 scf/min	2012
H-3741	N/A	H-3741	Regeneration Gas Heater	7.69 mmbtu/hr	2013
H-4741	N/A	H-4741	Regeneration Gas Heater	7.69 mmbtu/hr	2014
H-3781	N/A	H-3781	Heat Medium Oil Heater	16.07 mmbtu/hr	2014
FUG-004	N/A	FUG-004	Fugitive Equipment Leaks	N/A	2012/2014
1B	N/A	1B	Compressor Blowdowns	N/A	2012/2014
2B	Flare	2B	Facility Blowdowns	N/A	2012/2014

<sup>1</sup>For 45CSR13 permitted sources, the numbering system used for the emission points, control devices, and emission units should be consistent with the numbering system used in the 45CSR13 permit. For grandfathered sources, the numbering system should be consistent with registrations or emissions inventory previously submitted to DAQ. For emission points, control devices, and emissions units which have not been previously labeled, use the following 45CSR13 numbering system: 1S, 2S, 3S,... or other appropriate description for emission units; 1C, 2C, 3C,... or other appropriate designation for control devices; 1E, 2E, 3E, ... or other appropriate designation for emission points.

## **Attachment E – Emission Unit Form**

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> CM-1001	<b>Emission unit name:</b> Waukesha P9390 GSI Compressor Engine	<b>List any control devices associated with this emission unit:</b> NSCR/AFRC
--	---	---

**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
1,980 hp natural gas fired 4-stroke rich-burn compressor engine

<b>Manufacturer:</b> Waukesha	<b>Model number:</b> P9390 GSI	<b>Serial number:</b> 5283701413
<b>Construction date:</b> 08/01/2011	<b>Installation date:</b> 11/28/2012	<b>Modification date(s):</b> NA

**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 1,980 hp

<b>Maximum Hourly Throughput:</b>	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year
-----------------------------------	-----------------------------------	--

**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
--	---

<b>Maximum design heat input and/or maximum horsepower rating:</b> 15.43 mmbtu/hr 1,980 hp	<b>Type and Btu/hr rating of burners:</b> N/A
--	--

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
13,726 scf/hr  
120.2 mmscf/yr

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

<b>Emissions Data</b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.14	4.99
Nitrogen Oxides (NO <sub>x</sub> )	0.87	3.83
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.30	1.31
Particulate Matter (PM <sub>10</sub> )	0.30	1.31
Total Particulate Matter (TSP)	0.30	1.31
Sulfur Dioxide (SO <sub>2</sub> )	0.01	0.04
Volatile Organic Compounds (VOC)	0.52	2.29
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.04	0.19
Acrolein	0.04	0.18
Formaldehyde	0.04	0.19
Methanol	0.05	0.21
Total HAPs	0.21	0.92
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	1,987.32	8,704.45
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub>, CO, VOC, HCHO: Manufacturer specified emission factors (g/hp-hr) for engine and NSCR          -PM<sub>2.5</sub>, PM<sub>10</sub>, TSP, SO<sub>2</sub>, HAPs (excluding HCHO): AP-42 Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines          -CO<sub>2</sub>(e): 40 CFR 98 Table C-1. Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors for Various Types of Fuel</p>		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Permit R13-2878C

- 4.1.1
- 4.1.2
- 4.1.3 [45CSR§13-5.11]
- 4.1.4
- 4.1.5
- 4.2.1
- 5.1.1
- 5.1.2
- 5.1.5 a.
- 5.1.5 c.
- 5.1.5 d.
- 5.1.5 e.
- 5.2
- 5.3
- 5.4
- 5.5
- 7.1.2 [40CFR§60.5385, Reciprocating Compressor Engines]
- 7.2.1 [40CFR§60.5410]
- 7.3 [40CFR§60.5415]
- 7.4.1 [40 CFR§60.5385(d), 40 CFR§60.5420(a)]
- 7.4.2 [40 CFR§60.5420(b)(4) and (7)]
- 7.4.3 [40 CFR§60.5420(c)(3)]
- 9.1 [40 CFR§60.4230(a)(b)(c)(d)(e)]
- 9.2 [40 CFR §60.4233(e)(f)(h), 40 CFR §60.4234]
- 9.3 [40CFR§60.4243(b)(c)(e)(g)(h)]
- 9.4 [40CFR§60.4244(a)(b)(c)(d)(e)(f)(g)]
- 9.5 [40CFR§60.4245(a)(b)(c)(d)]

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.1.3	Operate and maintain monitoring equipment in a manner consistent with safety and good air pollution control practices	NA	NA	NA	45CSR§13-5.11
4.1.4	NA	NA	Control equipment malfunction events during which excess emissions occurred	NA	4.1.4
4.1.5	NA	NA	Records of fuel usage	NA	4.2.1
5.1.1	NA	NA	Fuel consumption	NA	5.4

5.1.2	NA	Stack testing of NOx, CO, VOC, and HCHO	Records of stack testing and emission calculations	Notification of stack testing. Submit stack testing report	3.3, 5.3.1, 9.4, 40CSR§60, Subpart JJJ, WV Code § 22-5-4(a)(14-15) and 45CSR13
5.1.5. a	Exhaust gas temperature and exhaust oxygen content	NA	NA	NA	5.1.5. a
5.1.5. c	Masking, poisoning or overrich air/fuel ratio	NA	NA	NA	5.1.5. c
5.1.5. d	Check air/fuel ratio every 1,500 service hours. Monitor temperature to inlet of catalyst. Inspect for thermal deactivation	NA	Records of checks and adjustments	NA	5.1.5. d
5.1.5. e	Monitor that catalyst is in operation continuously	NA	NA	NA	5.1.5. e
5.2	Regularly inspect catalytic reduction devices and auxiliary air pollution control devices	NA	NA	NA	5.2
5.3	NA	Testing in accordance with Section 3.3 and Section 9.4	NA	NA	5.3, 3.3, 9.4
5.4	NA	NA	Amount and type of fuel consumed and hours of operation	Make records available for inspection and review. Any records provided must be certified by a responsible official.	5.4.1
5.5	NA	NA	NA	Reporting in accordance with Section 3.5 and Section 9.5.	5.5, 3.5, 9.5
7.1.2	Monitor hours of operation. Replace rod packing every 26,000 hours or prior to 36 months.	NA	Hours of operation or number of months since last rod packing replacement. Date and time of each rod packing replacement. Deviations.	Notifications and Annual report	40CFR§60.5385, Reciprocating Compressor Engines
7.2.1	During initial compliance period continuously monitor hours of operation or track number of months since last rod packing replacement.	NA	Hours of operation or number of months since last rod packing replacement. Date and time of each rod packing replacement. Deviations.	Notifications. Initial annual report.	40CFR§60.5410
7.3	Continuously monitor number of hours of operation or track number of months since most recent rod packing replacement.	NA	Hours of operation or number of months since last rod packing replacement. Date and time of each rod packing replacement. Deviations.	Annual report	40CFR§60.5415
7.4.1	NA	NA	NA	Initial notification	40 CFR§60.5385(d), 40 CFR§60.5420(a)
7.4.2	NA	NA	NA	Annual report including recorded hours of operation since previous rod packing and any deviations that occurred during the reporting period.	40CFR§60.5420(b)(4)
7.4.3	NA	NA	Maintain the following records for 5 years: Hours of operation or number of months since last rod packing replacement. Date and time of each rod	NA	40CFR§60.5420(c)(3)

			packing replacement. Deviations.		
9.2	NA	Initial performance test and subsequent annual performance testing	NA	NA	9.3.1 b., 40CFR§60.4243(b)
9.3	NA	Initial performance test and subsequent annual performance testing. Performance test required if operating over 100 hours using propane fuel.	Keep a maintenance plan and records of conducted maintenance. Record operating hours when using propane fuel.	NA	40CFR§60.4243(c), 40CFR§60.4243(e), 40CFR§60.4243(g)
9.4	NA	NOx, CO, and VOC performance testing	NA	NA	40CFR§60.4244 (a),(b),(c),(d),(e),(f),(g)
9.5	NA	Notifications, maintenance, manufacturer certifications, emissions testing documentation	NA	Notification and testing reports	40CFR§60.4245 (a),(b),(c),(d)

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

**Emission unit ID number:**  
CM-1002

**Emission unit name:**  
Waukesha P9390 GSI  
Compressor Engine

**List any control devices associated with this emission unit:** NSCR/AFRC

**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
1,980 hp natural gas fired 4-stroke rich-burn compressor engine

**Manufacturer:**  
Waukesha

**Model number:**  
P9390 GSI

**Serial number:**  
5283701281

**Construction date:**  
06/01/2011

**Installation date:**  
07/18/2012

**Modification date(s):**  
NA

**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 1,980 hp

**Maximum Hourly Throughput:**

**Maximum Annual Throughput:**

**Maximum Operating Schedule:**  
8,760 hrs/year

**Fuel Usage Data (fill out all applicable fields)**

**Does this emission unit combust fuel?**  Yes  No

**If yes, is it?**

Indirect Fired  Direct Fired

**Maximum design heat input and/or maximum horsepower rating:**  
15.43 mmbtu/hr  
1,980 hp

**Type and Btu/hr rating of burners:**  
NA

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
13,726 scf/hr  
120.2 mmscf/yr

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

<b>Emissions Data</b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.14	4.99
Nitrogen Oxides (NO <sub>x</sub> )	0.87	3.83
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.30	1.31
Particulate Matter (PM <sub>10</sub> )	0.30	1.31
Total Particulate Matter (TSP)	0.30	1.31
Sulfur Dioxide (SO <sub>2</sub> )	0.01	0.04
Volatile Organic Compounds (VOC)	0.52	2.29
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.04	0.19
Acrolein	0.04	0.18
Formaldehyde	0.04	0.19
Methanol	0.05	0.21
Total HAPs	0.21	0.92
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	1,987.32	8,704.45
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub>, CO, VOC, HCHO: Manufacturer specified emission factors (g/hp-hr) for engine and NSCR          -PM<sub>2.5</sub>, PM<sub>10</sub>, TSP, SO<sub>2</sub>, HAPs (excluding HCHO): AP-42 Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines          -CO<sub>2</sub>(e): 40 CFR 98 Table C-1. Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors for Various Types of Fuel</p>		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

SEE APPLICABLE REQUIREMENTS LISTED FOR CM-1001

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

SEE MONITORING/TESTING/RECORDKEEPING/REPORTING LISTED FOR CM-1001

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the Schedule of Compliance Form as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

<i>Emission Unit Description</i>			
<b>Emission unit ID number:</b> CM-1003	<b>Emission unit name:</b> Waukesha P9390 GSI Compressor Engine	<b>List any control devices associated with this emission unit:</b> NSCR/AFRC	
<b>Provide a description of the emission unit (type, method of operation, design parameters, etc.):</b> 1,980 hp natural gas fired 4-stroke rich-burn compressor engine			
<b>Manufacturer:</b> Waukesha	<b>Model number:</b> P9390 GSI	<b>Serial number:</b> C-17736/1A	
<b>Construction date:</b> 09/01/2011	<b>Installation date:</b> 07/18/2012	<b>Modification date(s):</b> NA	
<b>Design Capacity (examples: furnaces - tons/hr, tanks - gallons):</b> 1,980 hp			
<b>Maximum Hourly Throughput:</b>	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year	
<b>Fuel Usage Data (fill out all applicable fields)</b>			
<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired	
<b>Maximum design heat input and/or maximum horsepower rating:</b> 15.43 mmbtu/hr 1,980 hp		<b>Type and Btu/hr rating of burners:</b> NA	
<b>List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.</b> Natural Gas 13,726 scf/hr 120.2 mmscf/yr			
<b>Describe each fuel expected to be used during the term of the permit.</b>			
Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

<b>Emissions Data</b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.14	4.99
Nitrogen Oxides (NO <sub>x</sub> )	0.87	3.83
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.30	1.31
Particulate Matter (PM <sub>10</sub> )	0.30	1.31
Total Particulate Matter (TSP)	0.30	1.31
Sulfur Dioxide (SO <sub>2</sub> )	0.01	0.04
Volatile Organic Compounds (VOC)	0.52	2.29
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.04	0.19
Acrolein	0.04	0.18
Formaldehyde	0.04	0.19
Methanol	0.05	0.21
Total HAPs	0.21	0.92
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	1,987.32	8,704.45
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub>, CO, VOC, HCHO: Manufacturer specified emission factors (g/hp-hr) for engine and NSCR          -PM<sub>2.5</sub>, PM<sub>10</sub>, TSP, SO<sub>2</sub>, HAPs (excluding HCHO): AP-42 Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines          -CO<sub>2</sub>(e): 40 CFR 98 Table C-1. Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors for Various Types of Fuel</p>		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

SEE APPLICABLE REQUIREMENTS LISTED FOR CM-1001

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

SEE MONITORING/TESTING/RECORDKEEPING/REPORTING LISTED FOR CM-1001

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> CM-1004	<b>Emission unit name:</b> Waukesha P9390 GSI Compressor Engine	<b>List any control devices associated with this emission unit:</b> NSCR/AFRC
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
1,980 hp natural gas fired 4-stroke rich-burn compressor engine

<b>Manufacturer:</b> Waukesha	<b>Model number:</b> P9390 GSI	<b>Serial number:</b> 5283701414
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<b>Construction date:</b> 09/01/2011	<b>Installation date:</b> 09/26/2012	<b>Modification date(s):</b> NA
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 1,980 hp

<b>Maximum Hourly Throughput:</b>	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b> 15.43 mmbtu/hr 1,980 hp	<b>Type and Btu/hr rating of burners:</b> NA
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
13,726 scf/hr  
120.2 mmscf/yr

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

<b>Emissions Data</b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.14	4.99
Nitrogen Oxides (NO <sub>x</sub> )	0.87	3.83
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.30	1.31
Particulate Matter (PM <sub>10</sub> )	0.30	1.31
Total Particulate Matter (TSP)	0.30	1.31
Sulfur Dioxide (SO <sub>2</sub> )	0.01	0.04
Volatile Organic Compounds (VOC)	0.52	2.29
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.04	0.19
Acrolein	0.04	0.18
Formaldehyde	0.04	0.19
Methanol	0.05	0.21
Total HAPs	0.21	0.92
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	1,987.32	8,704.45
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub>, CO, VOC, HCHO: Manufacturer specified emission factors (g/hp-hr) for engine and NSCR          -PM<sub>2.5</sub>, PM<sub>10</sub>, TSP, SO<sub>2</sub>, HAPs (excluding HCHO): AP-42 Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines          -CO<sub>2</sub>(e): 40 CFR 98 Table C-1. Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors for Various Types of Fuel</p>		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

SEE APPLICABLE REQUIREMENTS LISTED FOR CM-1001

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

SEE MONITORING/TESTING/RECORDKEEPING/REPORTING LISTED FOR CM-1001

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> CM-1005	<b>Emission unit name:</b> Waukesha P9390 GSI Compressor Engine	<b>List any control devices associated with this emission unit:</b> NSCR/AFRC
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
1,980 hp natural gas fired 4-stroke rich-burn compressor engine

<b>Manufacturer:</b> Waukesha	<b>Model number:</b> P9390 GSI	<b>Serial number:</b> C-10905/1
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<b>Construction date:</b> 10/ /2014	<b>Installation date:</b> 03/07/2013	<b>Modification date(s):</b> NA
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 1,980 hp

<b>Maximum Hourly Throughput:</b>	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
<b>Maximum design heat input and/or maximum horsepower rating:</b> 15.43 mmbtu/hr 1,980 hp	<b>Type and Btu/hr rating of burners:</b> NA

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
13,726 scf/hr  
120.2 mmscf/yr

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

<i>Emissions Data</i>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.14	4.99
Nitrogen Oxides (NO <sub>x</sub> )	0.87	3.83
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.30	1.31
Particulate Matter (PM <sub>10</sub> )	0.30	1.31
Total Particulate Matter (TSP)	0.30	1.31
Sulfur Dioxide (SO <sub>2</sub> )	0.01	0.04
Volatile Organic Compounds (VOC)	0.52	2.29
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.04	0.19
Acrolein	0.04	0.18
Formaldehyde	0.04	0.19
Methanol	0.05	0.21
Total HAPs	0.21	0.92
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	1,987.32	8,704.45
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub>, CO, VOC, HCHO: Manufacturer specified emission factors (g/hp-hr) for engine and NSCR          -PM<sub>2.5</sub>, PM<sub>10</sub>, TSP, SO<sub>2</sub>, HAPs (excluding HCHO): AP-42 Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines          -CO<sub>2</sub>(e): 40 CFR 98 Table C-1. Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors for Various Types of Fuel</p>		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

SEE APPLICABLE REQUIREMENTS LISTED FOR CM-1001

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

SEE MONITORING/TESTING/RECORDKEEPING/REPORTING LISTED FOR CM-1001

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> CM-1006	<b>Emission unit name:</b> Waukesha P9390 GSI Compressor Engine	<b>List any control devices associated with this emission unit:</b> NSCR/AFRC
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
 1,980 hp natural gas fired 4-stroke rich-burn compressor engine

<b>Manufacturer:</b> Waukesha	<b>Model number:</b> P9390 GSI	<b>Serial number:</b> 5283702043
<b>Construction date:</b> 06/01/2012	<b>Installation date:</b> 11/28/2012	<b>Modification date(s):</b> NA

**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 1,980 hp

<b>Maximum Hourly Throughput:</b>	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
<b>Maximum design heat input and/or maximum horsepower rating:</b> 15.43 mmbtu/hr 1,980 hp	<b>Type and Btu/hr rating of burners:</b> NA

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
 13,726 scf/hr  
 120.2 mmscf/yr

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

<i>Emissions Data</i>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.14	4.99
Nitrogen Oxides (NO <sub>x</sub> )	0.87	3.83
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.30	1.31
Particulate Matter (PM <sub>10</sub> )	0.30	1.31
Total Particulate Matter (TSP)	0.30	1.31
Sulfur Dioxide (SO <sub>2</sub> )	0.01	0.04
Volatile Organic Compounds (VOC)	0.52	2.29
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.04	0.19
Acrolein	0.04	0.18
Formaldehyde	0.04	0.19
Methanol	0.05	0.21
Total HAPs	0.21	0.92
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	1,987.32	8,704.45
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub>, CO, VOC, HCHO: Manufacturer specified emission factors (g/hp-hr) for engine and NSCR  -PM<sub>2.5</sub>, PM<sub>10</sub>, TSP, SO<sub>2</sub>, HAPs (excluding HCHO): AP-42 Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines  -CO<sub>2</sub>(e): 40 CFR 98 Table C-1. Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors for Various Types of Fuel</p>		

***Applicable Requirements***

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or **construction permit** with the condition number. (*Note: Title V permit condition numbers alone are not the underlying applicable requirements*). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

SEE APPLICABLE REQUIREMENTS LISTED FOR CM-1001

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (*Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.*)

SEE MONITORING/TESTING/RECORDKEEPING/REPORTING LISTED FOR CM-1001

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> C-102	<b>Emission unit name:</b> Caterpillar G3616 LE Compressor Engine	<b>List any control devices associated with this emission unit:</b> Oxidation Catalyst
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
4,735 hp natural gas fired 4-stroke lean-burn compressor engine

<b>Manufacturer:</b> Caterpillar	<b>Model number:</b> G3616 LE	<b>Serial number:</b> BLB00724
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<b>Construction date:</b> 07/07/2011	<b>Installation date:</b> 11/28/2012	<b>Modification date(s):</b> NA
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 4,375 hp

<b>Maximum Hourly Throughput:</b>	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b> 35.44 mmbtu/hr 4,735 hp	<b>Type and Btu/hr rating of burners:</b> NA
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
31,527 scf/hr  
276.2 mmscf/yr

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

<i>Emissions Data</i>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.44	6.29
Nitrogen Oxides (NO <sub>x</sub> )	5.22	22.86
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.35	1.55
Particulate Matter (PM <sub>10</sub> )	0.35	1.55
Total Particulate Matter (TSP)	0.35	1.55
Sulfur Dioxide (SO <sub>2</sub> )	0.02	0.09
Volatile Organic Compounds (VOC)	2.63	11.52
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.30	1.30
Acrolein	0.18	0.80
Formaldehyde	0.27	1.19
Methanol	0.09	0.39
Total HAPs	0.88	3.84
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	4,520.73	19,800.79
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub>, CO, VOC, HCHO: Manufacture specified emission factors (g/hp-hr) for engine and NSCR          -PM<sub>2.5</sub>, PM<sub>10</sub>, TSP, SO<sub>2</sub>, HAPs (excluding HCHO): AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines          -CO<sub>2</sub>(e): 40 CFR 98 Table C-1. Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors for Various Types of Fuel</p>		
<i>Applicable Requirements</i>		
<p><b>List all applicable requirements for this emission unit. For each applicable requirement, include the</b></p>		

underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Permit R13-2878C

- 4.1.1
- 4.1.2
- 4.1.3 [45CSR§13-5.11]
- 4.1.4
- 4.1.5
- 4.2.1
- 5.1.3
- 5.1.4
- 5.1.5 a.
- 5.1.5 c.
- 5.1.5 d.
- 5.1.5 e.
- 5.2
- 5.3
- 5.4
- 5.5
- 7.1.2 [40CFR§60.5385, Reciprocating Compressor Engines]
- 7.2.1 [40CFR§60.5410]
- 7.3 [40CFR§60.5415]
- 7.4.1 [40 CFR§60.5385(d), 40 CFR§60.5420(a)]
- 7.4.2 [40 CFR§60.5420(b)(4) and (7)]
- 7.4.3 [40 CFR§60.5420(c)(3)]
- 9.1 [40 CFR§60.4230(a)(b)(c)(d)(e)]
- 9.2 [40 CFR §60.4233(e)(f)(h), 40 CFR §60.4234]
- 9.3 [40CFR§60.4243(b)(c)(e)(g)(h)]
- 9.4 [40CFR§60.4244(a)(b)(c)(d)(e)(f)(g)]
- 9.5 [40CFR§60.4245(a)(b)(c)(d)]

Permit Shield

**For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)**

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.1.3	Operate and maintain monitoring equipment in a manner consistent with safety and good air pollution control practices	NA	NA	NA	45CSR§13-5.11
4.1.4	NA	NA	Control equipment malfunction events during which excess emissions occurred	NA	4.1.4
4.1.5	NA	NA	Records of fuel usage	NA	4.2.1
5.1.3	NA	NA	Fuel consumption	NA	5.4
5.1.4	NA	Stack testing of NO <sub>x</sub> , CO, VOC, and HCHO	Records of stack testing and emission calculations	Notification of stack testing. Submit stack testing report	3.3, 5.3.1, 9.4, 40CSR§60, Subpart IJJJ, WV Code § 22-5-4(a)(14-15) and 45CSR13

5.1.5. a	Exhaust gas temperature and exhaust oxygen content	NA	NA	NA	5.1.5. a
5.1.5. c	Masking, poisoning or overrich air/fuel ratio	NA	NA	NA	5.1.5. c
5.1.5. d	Check air/fuel ratio every 1,500 service hours. Monitor temperature to inlet of catalyst. Inspect for thermal deactivation	NA	Records of checks and adjustments	NA	5.1.5. d
5.1.5. e	Monitor that catalyst is in operation continuously	NA	NA	NA	5.1.5. e
5.2	Regularly inspect catalytic reduction devices and auxiliary air pollution control devices	NA	NA	NA	5.2
5.3	NA	Testing in accordance with Section 3.3 and Section 9.4	NA	NA	5.3, 3.3, 9.4
5.4	NA	NA	Amount and type of fuel consumed and hours of operation	Make records available for inspection and review. Any records provided must be certified by a responsible official.	5.4.1
5.5	NA	NA	NA	Reporting in accordance with Section 3.5 and Section 9.5.	5.5, 3.5, 9.5
7.1.2	Monitor hours of operation. Replace rod packing every 26,000 hours or prior to 36 months.	NA	Hours of operation or number of months since last rod packing replacement. Date and time of each rod packing replacement. Deviations.	Notifications and Annual report	40CFR§60.5385, Reciprocating Compressor Engines
7.2.1	During initial compliance period continuously monitor hours of operation or track number of months since last rod packing replacement.	NA	Hours of operation or number of months since last rod packing replacement. Date and time of each rod packing replacement. Deviations.	Notifications. Initial annual report.	40CFR§60.5410
7.3	Continuously monitor number of hours of operation or track number of months since most recent rod packing replacement.	NA	Hours of operation or number of months since last rod packing replacement. Date and time of each rod packing replacement. Deviations.	Annual report	40CFR§60.5415
7.4.1	NA	NA	NA	Initial notification	40 CFR§60.5385(d), 40 CFR§60.5420(a)
7.4.2	NA	NA	NA	Annual report including recorded hours of operation since previous rod packing and any deviations that occurred during the reporting period.	40CFR§60.5420(b)(4)
7.4.3	NA	NA	Maintain the following records for 5 years: Hours of operation or number of months since last rod packing replacement. Date and time of each rod packing replacement. Deviations.	NA	40CFR§60.5420(c)(3)
9.2	NA	Initial performance test and subsequent annual	NA	NA	9.3.1 b., 40CFR§60.4243(b)

		performance testing			
9.3	NA	Initial performance test and subsequent annual performance testing. Performance test required if operating over 100 hours using propane fuel.	Keep a maintenance plan and records of conducted maintenance. Record operating hours when using propane fuel.	NA	40CFR§60.4243(c), 40CFR§60.4243(e), 40CFR§60.4243(g)
9.4	NA	NOx, CO, and VOC performance testing	NA	NA	40CFR§60.4244 (a),(b),(c),(d),(e),(f),(g)
9.5	NA	Notifications, maintenance, manufacturer certifications, emissions testing documentation	NA	Notification and testing reports	40CFR§60.4245 (a),(b),(c),(d)

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> C-103	<b>Emission unit name:</b> Caterpillar G3616 LE Compressor Engine	<b>List any control devices associated with this emission unit:</b> Oxidation Catalyst	
<b>Provide a description of the emission unit (type, method of operation, design parameters, etc.):</b> 4,735 hp natural gas fired 4-stroke lean-burn compressor engine			
<b>Manufacturer:</b> Caterpillar	<b>Model number:</b> G3616 LE	<b>Serial number:</b> BLB00725	
<b>Construction date:</b> 07/06/2011	<b>Installation date:</b> 11/28/2012	<b>Modification date(s):</b> NA	
<b>Design Capacity (examples: furnaces - tons/hr, tanks - gallons):</b> 4,375 hp			
<b>Maximum Hourly Throughput:</b>	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year	
<b>Fuel Usage Data (fill out all applicable fields)</b>			
<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired	
<b>Maximum design heat input and/or maximum horsepower rating:</b> 35.44 mmbtu/hr 4,735 hp		<b>Type and Btu/hr rating of burners:</b> NA	
<b>List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.</b> Natural Gas 31,527 scf/hr 276.2 mmscf/yr			
<b>Describe each fuel expected to be used during the term of the permit.</b>			
Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

<b>Emissions Data</b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.44	6.29
Nitrogen Oxides (NO <sub>x</sub> )	5.22	22.86
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.35	1.55
Particulate Matter (PM <sub>10</sub> )	0.35	1.55
Total Particulate Matter (TSP)	0.35	1.55
Sulfur Dioxide (SO <sub>2</sub> )	0.02	0.09
Volatile Organic Compounds (VOC)	2.63	11.52
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Acetaldehyde	0.30	1.30
Acrolein	0.18	0.80
Formaldehyde	0.27	1.19
Methanol	0.09	0.39
Total HAPs	0.88	3.84
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	4,520.73	19,800.79
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub>, CO, VOC, HCHO: Manufacture specified emission factors (g/hp-hr) for engine and NSCR          -PM<sub>2.5</sub>, PM<sub>10</sub>, TSP, SO<sub>2</sub>, HAPs (excluding HCHO): AP-42 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines          -CO<sub>2</sub>(e): 40 CFR 98 Table C-1. Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2. Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors for Various Types of Fuel</p>		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

SEE APPLICABLE REQUIREMENTS LISTED FOR C-102

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

SEE MONITORING/TESTING/RECORDKEEPING/REPORTING LISTED FOR C-102

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> H-741	<b>Emission unit name:</b> Heatec Molecular Sieve Regeneration Heater	<b>List any control devices associated with this emission unit:</b> NA
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
8.12 mmbtu/hr natural gas-fired molecular sieve regeneration heater

<b>Manufacturer:</b> Heatec	<b>Model number:</b>	<b>Serial number:</b>
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<b>Construction date:</b> MM/DD/YYYY	<b>Installation date:</b> 12/2012	<b>Modification date(s):</b> NA
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 8.12 mmbtu/hr

<b>Maximum Hourly Throughput:</b>	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b> 8.12 mmbtu/hr	<b>Type and Btu/hr rating of burners:</b> Helical coil 8.12 mmbtu/hr
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
7,224.20 scf/hr  
63.28 mmscf/yr

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

**Emissions Data**

Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.33	1.46
Nitrogen Oxides (NO <sub>x</sub> )	0.43	1.89
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.05	0.24
Particulate Matter (PM <sub>10</sub> )	0.05	0.24
Total Particulate Matter (TSP)	0.05	0.24
Sulfur Dioxide (SO <sub>2</sub> )	0.00	0.02
Volatile Organic Compounds (VOC)	0.04	0.17
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.00
n-Hexane	0.01	0.06
Total HAPs	0.01	0.06
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	1,045.82	4,580.70
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub> and CO: Manufacturer specified emission factors (lb/mmbtu)          -All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion          -GHG: Table C-1 Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors and High Heat Values for Various Types of Fuel</p>		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

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- 4.1.1
- 4.1.2
- 4.2
- 6.1.1
- 6.1.2
- 6.1.13
- 6.2 [40CFR60, Appendix A]
- 6.3 [45CSR§2-3.2.]
- 6.4.1
- 6.4.2
- 6.5

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.1	Natural gas consumption	NA	Natural gas consumption	NA	6.1.1
6.1.2	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.1.2
6.1.13	Method 9	NA	Method 9 observations	NA	6.2
6.2	Method 9	NA	Method 9 observations	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	45CSR§2-3.2.
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the Schedule of Compliance Form as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> H-781	<b>Emission unit name:</b> Heatec Hot Oil Heater	<b>List any control devices associated with this emission unit:</b> NA
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
26.00 mmbtu/hr natural gas-fired hot oil heater

<b>Manufacturer:</b> Heatec	<b>Model number:</b>	<b>Serial number:</b>
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<b>Construction date:</b> MM/DD/YYYY	<b>Installation date:</b> 12/2012	<b>Modification date(s):</b> NA
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 26.00 mmbtu/hr

<b>Maximum Hourly Throughput:</b>	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b> 26.00 mmbtu/hr	<b>Type and Btu/hr rating of burners:</b> Helical coil 26.00 mmbtu/hr
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
23,131.67 scf/hr  
202.63 mmscf/yr

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

**Emissions Data**

Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.94	8.51
Nitrogen Oxides (NO <sub>x</sub> )	2.31	10.13
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.18	0.77
Particulate Matter (PM <sub>10</sub> )	0.18	0.77
Total Particulate Matter (TSP)	0.18	0.77
Sulfur Dioxide (SO <sub>2</sub> )	0.01	0.06
Volatile Organic Compounds (VOC)	0.13	0.56
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.01
n-Hexane	0.04	0.18
Total HAPs	0.04	0.18
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	3,348.69	14,667.25
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub> and CO: AP-42 Table 1.4-1 Emission Factors for NO<sub>x</sub> and CO from Natural Gas Combustion          -All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion          -GHG: Table C-1 Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors and High Heat Values for Various Types of Fuel</p>		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

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- 4.1.1
- 4.1.2
- 4.2
- 6.1.3
- 6.1.4
- 6.1.13
- 6.2 [40CFR60, Appendix A]
- 6.3 [45CSR§2-3.2.]
- 6.4.1
- 6.4.2
- 6.5

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.3	Natural gas consumption	NA	Natural gas consumption	NA	6.1.1
6.1.4	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.1.2
6.1.13	Method 9	NA	Method 9 observations	NA	6.1.13
6.2	Method 9	NA	Method 9 observations	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	45CSR§2-3.2.
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> H-1741	<b>Emission unit name:</b> Heatec Molecular Sieve Regeneration Heater	<b>List any control devices associated with this emission unit:</b> NA
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
 6.84 mmbtu/hr natural gas-fired molecular sieve regeneration heater

<b>Manufacturer:</b> Heatec	<b>Model number:</b>	<b>Serial number:</b>
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<b>Construction date:</b> MM/DD/YYYY	<b>Installation date:</b> 2/2013	<b>Modification date(s):</b> NA
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 6.84 mmbtu/hr

<b>Maximum Hourly Throughput:</b>	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b> 6.84 mmbtu/hr	<b>Type and Btu/hr rating of burners:</b> Helical coil 6.84 mmbtu/hr
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
 6,085.41 scf/hr  
 53.31 mmscf/yr

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

**Emissions Data**

Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.28	1.23
Nitrogen Oxides (NO <sub>x</sub> )	0.36	1.59
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.05	0.20
Particulate Matter (PM <sub>10</sub> )	0.05	0.20
Total Particulate Matter (TSP)	0.05	0.20
Sulfur Dioxide (SO <sub>2</sub> )	0.00	0.02
Volatile Organic Compounds (VOC)	0.03	0.15
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.00
n-Hexane	0.01	0.05
Total HAPs	0.01	0.05
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	880.96	3,858.62
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub> and CO: Manufacturer specified emission factors (lb/mmbtu)          -All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion          -GHG: Table C-1 Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors and High Heat Values for Various Types of Fuel</p>		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

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- 4.1.1
- 4.1.2
- 4.2
- 6.1.5
- 6.1.6
- 6.1.13
- 6.2 [40CFR60, Appendix A]
- 6.3 [45CSR§2-3.2.]
- 6.4.1
- 6.4.2
- 6.5

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.5	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.4.1
6.1.6	Natural gas consumption	NA	NA	NA	6.4.1
6.1.13	Method 9	NA	Monitoring data	Deviations	6.1.13
6.2	Method 9	NA	NA	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	6.3
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the Schedule of Compliance Form as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> H-1781	<b>Emission unit name:</b> Heatec Hot Oil Heater	<b>List any control devices associated with this emission unit:</b> NA
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
18.05 mmbtu/hr natural gas-fired hot oil heater

<b>Manufacturer:</b> Heatec	<b>Model number:</b>	<b>Serial number:</b>
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<b>Construction date:</b> MM/DD/YYYY	<b>Installation date:</b> 12/2013	<b>Modification date(s):</b> NA
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 18.05 mmbtu/hr

<b>Maximum Hourly Throughput:</b>	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b> 18.05 mmbtu/hr	<b>Type and Btu/hr rating of burners:</b> Helical coil 18.05 mmbtu/hr
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
16,058.72 scf/hr  
140.67 mmscf/yr

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

**Emissions Data**

Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.35	5.91
Nitrogen Oxides (NO <sub>x</sub> )	1.61	7.03
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.12	0.53
Particulate Matter (PM <sub>10</sub> )	0.12	0.53
Total Particulate Matter (TSP)	0.12	0.53
Sulfur Dioxide (SO <sub>2</sub> )	0.01	0.04
Volatile Organic Compounds (VOC)	0.09	0.39
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.01
n-Hexane	0.03	0.13
Total HAPs	0.03	0.13
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	2,324.76	10,182.46
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub> and CO: AP-42 Table 1.4-1 Emission Factors for NO<sub>x</sub> and CO from Natural Gas Combustion          -All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion          -GHG: Table C-1 Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors and High Heat Values for Various Types of Fuel</p>		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

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- 4.1.1
- 4.1.2
- 4.2
- 6.1.7
- 6.1.8
- 6.1.13
- 6.2 [40CFR60, Appendix A]
- 6.3 [45CSR§2-3.2.]
- 6.4.1
- 6.4.2
- 6.5

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.7	Natural gas consumption	NA	Natural gas consumption	NA	6.4.1
6.1.8	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.4.1
6.1.13	Method 9	NA	Monitoring data	Deviations	6.1.13
6.2	Method 9	NA	NA	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	6.3
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> H-3741	<b>Emission unit name:</b> Heatec Molecular Sieve Regeneration Heater	<b>List any control devices associated with this emission unit:</b> NA
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
7.69 mmbtu/hr natural gas-fired molecular sieve regeneration heater

<b>Manufacturer:</b> Heatec	<b>Model number:</b>	<b>Serial number:</b>
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<b>Construction date:</b> MM/DD/YYYY	<b>Installation date:</b> 12/2013	<b>Modification date(s):</b> NA
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 7.69 mmbtu/hr

<b>Maximum Hourly Throughput:</b>	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b> 7.69 mmbtu/hr	<b>Type and Btu/hr rating of burners:</b> Helical coil 7.69 mbbtu/hr
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas  
6,841.64 scf/hr  
59.93 mmscf/yr

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

**Emissions Data**

Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.32	1.38
Nitrogen Oxides (NO <sub>x</sub> )	0.41	1.79
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.06	0.25
Particulate Matter (PM <sub>10</sub> )	0.06	0.25
Total Particulate Matter (TSP)	0.06	0.25
Sulfur Dioxide (SO <sub>2</sub> )	0.00	0.02
Volatile Organic Compounds (VOC)	0.04	0.18
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.00
n-Hexane	0.01	0.06
Total HAPs	0.01	0.06
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	990.44	4,338.12

**List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).**

-NO<sub>x</sub> and CO: AP-42 Table 1.4-1 Emission Factors for NO<sub>x</sub> and CO from Natural Gas Combustion  
 -All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion  
 -GHG: Table C-1 Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors and High Heat Values for Various Types of Fuel

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

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- 4.1.1
- 4.1.2
- 6.1.9
- 6.1.10
- 6.1.13
- 6.2 [40CFR60, Appendix A]
- 6.3 [45CSR§2-3.2.]
- 6.4.1
- 6.4.2
- 6.5

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.9	Natural gas consumption	NA	Natural gas consumption	NA	6.4.1
6.1.10	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.4.1
6.1.13	Method 9	NA	Monitoring data	Deviations	6.1.13
6.2	Method 9	NA	NA	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	6.3
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the Schedule of Compliance Form as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> H-4741	<b>Emission unit name:</b> Heatec Molecular Sieve Regeneration Heater	<b>List any control devices associated with this emission unit:</b> NA
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
7.69 mmbtu/hr natural gas-fired molecular sieve regeneration heater

<b>Manufacturer:</b> Heatec	<b>Model number:</b>	<b>Serial number:</b>
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<b>Construction date:</b> MM/DD/YYYY	<b>Installation date:</b> 12/2014	<b>Modification date(s):</b> NA
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):** 7.69 mmbtu/hr

<b>Maximum Hourly Throughput:</b> 7.69 mmbtu/hr	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>If yes, is it?</b>  <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired
--	---

<b>Maximum design heat input and/or maximum horsepower rating:</b> 7.69 mmbtu/hr	<b>Type and Btu/hr rating of burners:</b> Helical coil 7.69 mmbtu/hr
---	--

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**  
Natural Gas  
6,841.64 scf/hr  
59.93 mmscf/yr

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

<b>Emissions Data</b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.32	1.38
Nitrogen Oxides (NO <sub>x</sub> )	0.41	1.79
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.06	0.25
Particulate Matter (PM <sub>10</sub> )	0.06	0.25
Total Particulate Matter (TSP)	0.06	0.25
Sulfur Dioxide (SO <sub>2</sub> )	0.00	0.02
Volatile Organic Compounds (VOC)	0.04	0.18
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.01
n-Hexane	0.04	0.18
Total HAPs	0.04	0.19
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	990.44	4,338.12
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub> and CO: AP-42 Table 1.4-1 Emission Factors for NO<sub>x</sub> and CO from Natural Gas Combustion          -All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion          -GHG: Table C-1 Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors and High Heat Values for Various Types of Fuel</p>		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

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4.1.1

4.1.2

6.1.9

6.1.10

6.1.13

6.2 [40CFR60, Appendix A]

6.3 [45CSR§2-3.2.]

6.4.1

6.4.2

6.5

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.9	Natural gas consumption	NA	Natural gas consumption	NA	6.4.1
6.1.10	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.4.1
6.1.13	Method 9	NA	Monitoring data	Deviations	6.1.13
6.2	Method 9	NA	NA	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	6.3
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

<i>Emission Unit Description</i>			
<b>Emission unit ID number:</b> H-3781	<b>Emission unit name:</b> Heatec Hot Medium Oil Heater	<b>List any control devices associated with this emission unit:</b> NA	
<b>Provide a description of the emission unit (type, method of operation, design parameters, etc.):</b> 16.07 mmbtu/hr natural gas-fired hot oil heater			
<b>Manufacturer:</b> Heatec	<b>Model number:</b>	<b>Serial number:</b>	
<b>Construction date:</b> MM/DD/YYYY	<b>Installation date:</b> 12/2014	<b>Modification date(s):</b> NA	
<b>Design Capacity (examples: furnaces - tons/hr, tanks - gallons):</b> 16.07 mmbtu/hr			
<b>Maximum Hourly Throughput:</b>	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year	
<b>Fuel Usage Data (fill out all applicable fields)</b>			
<b>Does this emission unit combust fuel?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<b>If yes, is it?</b> <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired	
<b>Maximum design heat input and/or maximum horsepower rating:</b> 16.07 mmbtu/hr		<b>Type and Btu/hr rating of burners:</b> Helical coil 16.07 mmbtu/hr	
<b>List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.</b> Natural Gas 14,297.15 scf/hr 125.24 mmscf/yr			
<b>Describe each fuel expected to be used during the term of the permit.</b>			
Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf
<b>Emissions Data</b>			

Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	1.32	5.80
Nitrogen Oxides (NO <sub>x</sub> )	1.58	6.90
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.12	0.52
Particulate Matter (PM <sub>10</sub> )	0.12	0.52
Total Particulate Matter (TSP)	0.12	0.52
Sulfur Dioxide (SO <sub>2</sub> )	0.01	0.04
Volatile Organic Compounds (VOC)	0.09	0.38
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde	0.00	0.01
n-Hexane	0.03	0.12
Total HAPs	0.03	0.13
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	2,069.75	9,065.49
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub> and CO: AP-42 Table 1.4-1 Emission Factors for NO<sub>x</sub> and CO from Natural Gas Combustion          -All other criteria pollutants and HAPs: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion and Table 1.4-3 Emissions Factors for Speciated Organic Compounds from Natural Gas Combustion          -GHG: Table C-1 Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors and High Heat Values for Various Types of Fuel</p>		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

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4.1.1

4.1.2

4.2

6.1.11

6.1.12

6.1.13

6.2 [40CFR60, Appendix A]

6.3 [45CSR§2-3.2.]

6.4.1

6.4.2

6.5

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.2	NA	NA	Monthly fuel usage records	NA	4.2
6.1.11	Natural gas consumption	NA	Natural gas consumption	NA	6.4.1
6.1.12	NA	NA	Emission calculations for NOx, CO, and PM	NA	6.4.1
6.1.13	Method 9	NA	Monitoring data	Deviations	6.1.13
6.2	Method 9	NA	NA	NA	40CFR60, Appendix A
6.3	NA	Method 9	NA	NA	6.3
6.4.1	NA	NA	Natural gas consumption	NA	6.4.1
6.4.2	NA	NA	Method 9 observations	NA	6.4.2
6.5	NA	NA	NA	Deviations	6.5

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

**Emission unit ID number:**

FL-991

**Emission unit name:**

Emergency Flare

**List any control devices associated with this emission unit: NA**

**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**

Emergency flare pilot and purge gas combustion

**Manufacturer:**

Callidus

**Model number:**

**Serial number:**

**Construction date:**

MM/DD/YYYY

**Installation date:**

12/2012

**Modification date(s):**

NA

**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):**

**Maximum Hourly Throughput:**

4.18 mmscf/hr

**Maximum Annual Throughput:**

36,073.68 mmscf/yr

**Maximum Operating Schedule:**

8,760 hrs/year

**Fuel Usage Data (fill out all applicable fields)**

**Does this emission unit combust fuel?**  Yes  No

**If yes, is it?**

Indirect Fired  Direct Fired

**Maximum design heat input and/or maximum horsepower rating:**

**Type and Btu/hr rating of burners:**

9,883 btu/hr

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

Natural Gas (Pilot + purge gas)

1,095.60 scf/hr

9.60 mmscf/yr

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	0%	0%	1,124 btu/scf

**Emissions Data**

Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	0.09	0.40
Nitrogen Oxides (NO <sub>x</sub> )	0.11	0.48
Lead (Pb)	0.00	0.00
Particulate Matter (PM <sub>2.5</sub> )	0.01	0.04
Particulate Matter (PM <sub>10</sub> )	0.01	0.04
Total Particulate Matter (TSP)	0.01	0.04
Sulfur Dioxide (SO <sub>2</sub> )	< 0.01	< 0.01
Volatile Organic Compounds (VOC)	0.01	< 0.03
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	173.30	759.05
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>-NO<sub>x</sub> and CO: AP-42 Table 1.4-1 Emission Factors for NO<sub>x</sub> and CO from Natural Gas Combustion          -All other criteria pollutants: AP-42 Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion          -GHG: Table C-1 Default CO<sub>2</sub> Emission Factors and High Heat Values for Various Types of Fuel and Table C-2 Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors and High Heat Values for Various Types of Fuel</p>		

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

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- 4.1.1
- 4.1.2
- 4.1.3 [45CSR§13-5.11]
- 4.1.4
- 4.1.5
- 4.2
- 8.1.1
- 8.1.2
- 8.1.3
- 8.1.4
- 8.1.5
- 8.1.6 [45CSR§6-4.3.]
- 8.1.7 [45CSR§6-4.4.]
- 8.1.8 [45CSR§6-4.6.]
- 8.2.1
- 8.2.2
- 8.3.1
- 8.3.2
- 8.4.1
- 8.4.2
- 8.4.3
- 8.4.4
- 8.4.5
- 8.4.6
- 8.4.7
- 8.5.1
- 8.5.2
- 8.5.3

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.1.3	NA	NA	NA	NA	45CSR§13-5.11
4.1.4	NA	NA	Control equipment malfunction events	NA	4.1.4
4.1.5	Fuel usage	NA	NA	NA	4.1.5
4.2	NA	NA	Fuel usage	NA	4.2
8.1.1	Control VOC for emergency situations only	NA	NA	NA	8.1.1

8.1.2	Maximum hourly and annual emissions of NOx and CO	NA	NA	NA	8.1.2
8.1.3	NA	NA	HAP Emissions	NA	40CFR63, Subpart HH
8.1.4	Presence of a flare pilot flame	NA	NA	NA	8.1.4
8.1.5	NA	NA	NA	As requested by the Director	8.1.5
8.1.6	Opacity	NA	NA	NA	8.1.6, 45CSR§6-4.3
8.1.7	Opacity	NA	NA	NA	8.1.7, 45CSR§6-4.4
8.1.8	NA	NA	NA	NA	8.1.8, 45CSR§6-4.6
8.2.1	Presence or absence of a flame using thermocouple	NA	NA	NA	8.2.1
8.2.2	Monthly throughput of wet natural gas	NA	NA	NA	8.2.2
8.3.1	NA	Method 22	NA	NA	8.3.1, 40 CFR 60 Appendix A
8.3.2	NA	Compliance test as requested by the Director	NA	NA	8.3.2
8.4.1	NA	NA	Times and duration when pilot flame was absent	NA	8.4.1
8.4.2	NA	NA	Flare design evaluation	NA	8.4.2
8.4.3	NA	NA	Records of all monitoring required by 8.2 and 8.3	NA	8.4.3
8.4.4	NA	NA	Opacity tests	NA	8.4.4
8.4.5	NA	NA	PTE HAP calculations	NA	8.4.5
8.4.6	NA	NA	Maintain records on site or in readily accessible off-site location for five years.	Records submitted to the agency that are requested by the Director shall be certified by a responsible official	8.4.6
8.4.7	NA	NA	Wet natural gas throughput to the flare	Records submitted to the agency that are requested by the Director shall be certified by a responsible official	8.4.7
8.5.1	NA	Compliance demonstrations as requested by the Director	NA	Testing protocol, notification, and testing report	8.5.1
8.5.2	NA	NA	NA	Deviations	8.5.2
8.5.3	NA	NA	NA	Deviations	8.5.3

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

## ATTACHMENT E - Emission Unit Form

*Emission Unit Description*

<b>Emission unit ID number:</b> FUG-004	<b>Emission unit name:</b> Fugitive Equipment Leaks	<b>List any control devices associated with this emission unit:</b> NA
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
 Fugitive equipment leaks from valves, connectors, flanges, pump seals, and other equipment.

<b>Manufacturer:</b> N/A	<b>Model number:</b>	<b>Serial number:</b>
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<b>Construction date:</b> MM/DD/YYYY	<b>Installation date:</b> 2012	<b>Modification date(s):</b> 2014
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):**

<b>Maximum Hourly Throughput:</b>	<b>Maximum Annual Throughput:</b>	<b>Maximum Operating Schedule:</b> 8,760 hrs/year
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> ___Yes ___X___ No	<b>If yes, is it?</b> ___ Indirect Fired ___ Direct Fired
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<b>Maximum design heat input and/or maximum horsepower rating:</b>	<b>Type and Btu/hr rating of burners:</b> NA
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**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

<b>Emissions Data</b>		
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)		
Nitrogen Oxides (NO <sub>x</sub> )		
Lead (Pb)		
Particulate Matter (PM <sub>2.5</sub> )		
Particulate Matter (PM <sub>10</sub> )		
Total Particulate Matter (TSP)		
Sulfur Dioxide (SO <sub>2</sub> )		
Volatile Organic Compounds (VOC)	3.63	15.90
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Total HAPs	0.07	0.31
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO <sub>2</sub> (e)	72.35	316.89

**List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).**

Table 2-4: Oil & Gas Production Operations Average Emission Factors, Protocol for Equipment Leak Emission Estimates, EPA 453/R-95-017, November 1995. Emission factors based on average measured TOC from component types indicated in gas service at O&G Production Operations. A control factor is applied to the leak rates of valves in gas and light liquid service as well as pumps in light liquid service to account for LDAR program as per NSPS OOOO

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Permit R13-2878C

- 4.1.1
- 4.1.2
- 4.1.3 [45CSR§13-5.11]
- 4.1.4
- 7.1.1
- 7.1.3 [40CFR§60.5400, Onshore Natural Gas Processing Plant]
- 7.1.4 [40CFR§60.5401, Onshore Natural Gas Processing Plant]
- 7.1.5 [40CFR§60.5402, Onshore Natural Gas Processing Plant]
- 7.2.1 f. [40CFR§60.5400]
- 7.3.2
- 7.3.3 [40CFR§60.5415]
- 7.4.1 [40CFR§60.5420]
- 7.4.2 [40CFR§60.5420]
- 7.4.3 [40CFR§60.5420]
- 7.4.4 [40CFR§60.5421, Onshore Natural Gas Processing Plant]
- 7.4.5 [40CFR§60.5422, Onshore Natural Gas Processing Plant]
- 7.5

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Section	Monitoring	Testing	Recordkeeping	Reporting	Condition or Citation
4.1.1	NA	NA	Records of monitoring	NA	4.1.1
4.1.2	NA	NA	Total HAP emission calculations	NA	4.1.2
4.1.3	NA	NA	NA	NA	45CSR§13-5.11
4.1.4	NA	NA	Control equipment malfunction events	NA	4.1.4
7.1.1	Wet natural gas throughput	NA	NA	NA	7.1.1
7.1.3	NA	NA	NA	NA	7.1.3, 40 CFR §60.5400 Onshore Natural Gas Processing Plant
7.1.4	NA	Exception to equipment leak standards	NA	NA	7.1.4, 40CFR§65.5401
7.1.5	NA	Alternative emission limitations			7.1.5, 40CFR§65.5402
7.2.1 f.	NA	Per 40CFR§60.5400	Per 40CFR§60.5400	Per 40CFR§60.5400	40CFR§60.5400
7.3.2	NA	Per 40CFR§60.5400	Per 40CFR§60.5400	Per 40CFR§60.5400	40CFR§60.5400

7.3.3	NA	NA	NA	If seeking to assert affirmative defense, submit affirmative defense report	40CFR§60.5415
7.4.1	NA	NA	NA	Notification	40CFR§60.5420
7.4.2	NA	NA	NA	Annual report	40CFR§60.5420
7.4.4	NA	NA	Leak detection and repair program	NA	40CFR§60.5421, Onshore Natural Gas Processing Plant
7.4.5	NA	NA	NA	Semiannual report	40CFR§60.5422, Onshore Natural Gas Processing Plant
7.5	NA	NA	Amount of natural gas processed	As requested by the Director	7.5

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the Schedule of Compliance Form as ATTACHMENT F.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> 1B	<b>Emission unit name:</b> Compressor Blowdowns	<b>List any control devices associated with this emission unit:</b> NA
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
Gas venting to atmosphere resulting from compressor blowdowns

<b>Manufacturer:</b> N/A	<b>Model number:</b>	<b>Serial number:</b>
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<b>Construction date:</b> MM/DD/YYYY	<b>Installation date:</b> 2012	<b>Modification date(s):</b>
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):**  
Compressor volumes (scf): 662.46 (CM-1001 to CM-1006), 1,584.21 (C-1102 & C-1103), 224.60 (All other compressors)

<b>Maximum Hourly Throughput</b> N/A	<b>Maximum Annual Throughput:</b> 16,575 scf/compressor/yr (CM-1001 to CM-1006) 15,850 scf/compressor/yr (C-1102 & C-1103) 7,425 scf/compressor/yr (All other compressors)	<b>Maximum Operating Schedule:</b> 25 events/compressor/yr (CM-1001 to CM-1006) 10 events/compressor/yr (C-1102 & C-1103) 3 events/compressor/yr (All other compressors)
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> ___Yes <input checked="" type="checkbox"/> No	<b>If yes, is it?</b> ___ Indirect Fired ___ Direct Fired
<b>Maximum design heat input and/or maximum horsepower rating:</b>	<b>Type and Btu/hr rating of burners:</b> NA

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

<b>Emissions Data</b>			
Criteria Pollutants	Potential Emissions		
	PPH	TPY	
Carbon Monoxide (CO)			
Nitrogen Oxides (NO <sub>x</sub> )			
Lead (Pb)			
Particulate Matter (PM <sub>2.5</sub> )			
Particulate Matter (PM <sub>10</sub> )			
Total Particulate Matter (TSP)			
Sulfur Dioxide (SO <sub>2</sub> )			
Volatile Organic Compounds (VOC)		0.54	
Hazardous Air Pollutants	Potential Emissions		
	PPH	TPY	
Total HAPs		0.05	
Regulated Pollutants other than Criteria and HAP	Potential Emissions		
	PPH	TPY	
CO <sub>2</sub> (e)		55.23	
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>Engineering estimation</p>			

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

## ATTACHMENT E - Emission Unit Form

**Emission Unit Description**

<b>Emission unit ID number:</b> 2B	<b>Emission unit name:</b> Facility Blowdowns	<b>List any control devices associated with this emission unit:</b> NA
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**Provide a description of the emission unit (type, method of operation, design parameters, etc.):**  
Gas venting to atmosphere resulting from facility blowdowns

<b>Manufacturer:</b> N/A	<b>Model number:</b>	<b>Serial number:</b>
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<b>Construction date:</b> MM/DD/YYYY	<b>Installation date:</b> 2012	<b>Modification date(s):</b>
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**Design Capacity (examples: furnaces - tons/hr, tanks - gallons):**  
Blowdown Volume: 250,000 scf/process train/event

<b>Maximum Hourly Throughput</b> N/A	<b>Maximum Annual Throughput:</b> 1,000,000 scf/process train/yr	<b>Maximum Operating Schedule:</b> 4 events/process train/yr
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**Fuel Usage Data (fill out all applicable fields)**

<b>Does this emission unit combust fuel?</b> ___Yes ___X___ No	<b>If yes, is it?</b> ___ Indirect Fired ___ Direct Fired
<b>Maximum design heat input and/or maximum horsepower rating:</b>	<b>Type and Btu/hr rating of burners:</b> NA

**List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.**

**Describe each fuel expected to be used during the term of the permit.**

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value

<b>Emissions Data</b>			
Criteria Pollutants	Potential Emissions		
	PPH	TPY	
Carbon Monoxide (CO)			
Nitrogen Oxides (NO <sub>x</sub> )			
Lead (Pb)			
Particulate Matter (PM <sub>2.5</sub> )			
Particulate Matter (PM <sub>10</sub> )			
Total Particulate Matter (TSP)			
Sulfur Dioxide (SO <sub>2</sub> )			
Volatile Organic Compounds (VOC)		15.48	
Hazardous Air Pollutants	Potential Emissions		
	PPH	TPY	
Total HAPs		1.5	
Regulated Pollutants other than Criteria and HAP	Potential Emissions		
	PPH	TPY	
CO <sub>2</sub> (e)		1,594.25	
<p><b>List the method(s) used to calculate the potential emissions (include dates of any stack tests conducted, versions of software used, source and dates of emission factors, etc.).</b></p> <p>Engineering estimation</p>			

**Applicable Requirements**

List all applicable requirements for this emission unit. For each applicable requirement, include the underlying rule/regulation citation and/or construction permit with the condition number. (Note: Title V permit condition numbers alone are not the underlying applicable requirements). If an emission limit is calculated based on the type of source and design capacity or if a standard is based on a design parameter, this information should also be included.

Permit Shield

For all applicable requirements listed above, provide monitoring/testing/recordkeeping/reporting which shall be used to demonstrate compliance. If the method is based on a permit or rule, include the condition number or citation. (Note: Each requirement listed above must have an associated method of demonstrating compliance. If there is not already a required method in place, then a method must be proposed.)

Are you in compliance with all applicable requirements for this emission unit?  Yes  No

If no, complete the **Schedule of Compliance Form** as **ATTACHMENT F**.

**Attachment G – Air Pollution Control Device Form**

## ATTACHMENT G - Air Pollution Control Device Form

<b>Control device ID number:</b> C-1001	<b>List all emission units associated with this control device.</b> CM-1001
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<b>Manufacturer:</b> Johnson Matthey	<b>Model number:</b>	<b>Installation date:</b> 11/28/2012
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**Type of Air Pollution Control Device:**

<input type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input checked="" type="checkbox"/> Other (describe): <u>Non-Selective Catalytic Reduction</u>
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

**List the pollutants for which this device is intended to control and the capture and control efficiencies.**

Pollutant	Capture Efficiency	Control Efficiency
NOx		98.8%
CO		94.4%
VOC		60%
HCHO		80%

**Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).**

Catalyst inlet temperature: 850 °F  
 Maximum exhaust flow rate: 13,713 lb/hr

**Is this device subject to the CAM requirements of 40 C.F.R. 64?**  Yes  No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

**Describe the parameters monitored and/or methods used to indicate performance of this control device.**

- Exhaust gas temperature and exhaust oxygen content
- Masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element
- Check air/fuel ratio every 1,500 service hours and adjust in accordance to the manufacturer's specifications
- Monitor the temperature to the catalyst inlet, and in accordance with manufacturer's specifications a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs.

Inspect for thermal deactivation before restarting the engine.

## ATTACHMENT G - Air Pollution Control Device Form

<b>Control device ID number:</b> C-1002	<b>List all emission units associated with this control device.</b> CM-1002
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<b>Manufacturer:</b> Johnson Matthey	<b>Model number:</b>	<b>Installation date:</b> 7/8/2012
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**Type of Air Pollution Control Device:**

<input type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input checked="" type="checkbox"/> Other (describe): <u>Non-Selective Catalytic Reduction (NSCR)</u>
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

**List the pollutants for which this device is intended to control and the capture and control efficiencies.**

Pollutant	Capture Efficiency	Control Efficiency
NOx		98.8%
CO		94.4%
VOC		60%
HCHO		80%

**Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).**

Catalyst inlet temperature: 850 °F  
 Maximum exhaust flow rate: 13,713 lb/hr

**Is this device subject to the CAM requirements of 40 C.F.R. 64?**  Yes  No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

**Describe the parameters monitored and/or methods used to indicate performance of this control device.**

- Exhaust gas temperature and exhaust oxygen content
- Masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element
- Check air/fuel ratio every 1,500 service hours and adjust in accordance to the manufacturer's specifications
- Monitor the temperature to the catalyst inlet, and in accordance with manufacturer's specifications a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs.

Inspect for thermal deactivation before restarting the engine.

## ATTACHMENT G - Air Pollution Control Device Form

<b>Control device ID number:</b> C-1003	<b>List all emission units associated with this control device.</b> CM-1003
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<b>Manufacturer:</b> Johnson Matthey	<b>Model number:</b>	<b>Installation date:</b> 7/8/2012
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**Type of Air Pollution Control Device:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Baghouse/Fabric Filter               | <input type="checkbox"/> Venturi Scrubber                     | <input type="checkbox"/> Multiclone   |
| <input type="checkbox"/> Carbon Bed Adsorber                  | <input type="checkbox"/> Packed Tower Scrubber                | <input type="checkbox"/> Single Cyclone   |
| <input type="checkbox"/> Carbon Drum(s)                       | <input type="checkbox"/> Other Wet Scrubber                   | <input type="checkbox"/> Cyclone Bank   |
| <input type="checkbox"/> Catalytic Incinerator                | <input type="checkbox"/> Condenser                            | <input type="checkbox"/> Settling Chamber   |
| <input type="checkbox"/> Thermal Incinerator                  | <input type="checkbox"/> Flare                                | <input checked="" type="checkbox"/> Other (describe): <u>Non-Selective Catalytic Reduction (NSCR)</u> |
| <input type="checkbox"/> Wet Plate Electrostatic Precipitator | <input type="checkbox"/> Dry Plate Electrostatic Precipitator |   |

**List the pollutants for which this device is intended to control and the capture and control efficiencies.**

Pollutant	Capture Efficiency	Control Efficiency
NOx		98.8%
CO		94.4%
VOC		60%
HCHO		80%

**Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).**

Catalyst inlet temperature: 850 °F  
 Maximum exhaust flow rate: 13,713 lb/hr

**Is this device subject to the CAM requirements of 40 C.F.R. 64?**  Yes  No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

**Describe the parameters monitored and/or methods used to indicate performance of this control device.**

- Exhaust gas temperature and exhaust oxygen content
  - Masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element
  - Check air/fuel ratio every 1,500 service hours and adjust in accordance to the manufacturer's specifications
  - Monitor the temperature to the catalyst inlet, and in accordance with manufacturer's specifications a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs.
- Inspect for thermal deactivation before restarting the engine.

## ATTACHMENT G - Air Pollution Control Device Form

<b>Control device ID number:</b> C-1004	<b>List all emission units associated with this control device.</b> CM-1004
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<b>Manufacturer:</b> Johnson Matthey	<b>Model number:</b>	<b>Installation date:</b> 9/26/2012
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**Type of Air Pollution Control Device:**

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Baghouse/Fabric Filter               | <input type="checkbox"/> Venturi Scrubber                     | <input type="checkbox"/> Multiclone   |
| <input type="checkbox"/> Carbon Bed Adsorber                  | <input type="checkbox"/> Packed Tower Scrubber                | <input type="checkbox"/> Single Cyclone   |
| <input type="checkbox"/> Carbon Drum(s)                       | <input type="checkbox"/> Other Wet Scrubber                   | <input type="checkbox"/> Cyclone Bank   |
| <input type="checkbox"/> Catalytic Incinerator                | <input type="checkbox"/> Condenser                            | <input type="checkbox"/> Settling Chamber   |
| <input type="checkbox"/> Thermal Incinerator                  | <input type="checkbox"/> Flare                                | <input checked="" type="checkbox"/> Other (describe): <u>Non-Selective Catalytic Reduction (NSCR)</u> |
| <input type="checkbox"/> Wet Plate Electrostatic Precipitator | <input type="checkbox"/> Dry Plate Electrostatic Precipitator |   |

**List the pollutants for which this device is intended to control and the capture and control efficiencies.**

Pollutant	Capture Efficiency	Control Efficiency
NOx		98.8%
CO		94.4%
VOC		60%
HCHO		80%

**Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).**

Catalyst inlet temperature: 850 °F  
 Maximum exhaust flow rate: 13,713 lb/hr

**Is this device subject to the CAM requirements of 40 C.F.R. 64?**  Yes  No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

**Describe the parameters monitored and/or methods used to indicate performance of this control device.**

- Exhaust gas temperature and exhaust oxygen content
  - Masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element
  - Check air/fuel ratio every 1,500 service hours and adjust in accordance to the manufacturer's specifications
  - Monitor the temperature to the catalyst inlet, and in accordance with manufacturer's specifications a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs.
- Inspect for thermal deactivation before restarting the engine.

## ATTACHMENT G - Air Pollution Control Device Form

<b>Control device ID number:</b> C-1005	<b>List all emission units associated with this control device.</b> CM-1005
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<b>Manufacturer:</b> Johnson Matthey	<b>Model number:</b>	<b>Installation date:</b> 3/7/2013
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**Type of Air Pollution Control Device:**

<input type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input checked="" type="checkbox"/> Other (describe): <u>Non-Selective Catalytic Reduction (NSCR)</u>
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

**List the pollutants for which this device is intended to control and the capture and control efficiencies.**

Pollutant	Capture Efficiency	Control Efficiency
NO <sub>x</sub>		98.8%
CO		94.4%
VOC		60%
HCHO		80%

**Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).**

Catalyst inlet temperature: 850 °F  
 Maximum exhaust flow rate: 13,713 lb/hr

**Is this device subject to the CAM requirements of 40 C.F.R. 64?**  Yes  No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

**Describe the parameters monitored and/or methods used to indicate performance of this control device.**

- Exhaust gas temperature and exhaust oxygen content
- Masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element
- Check air/fuel ratio every 1,500 service hours and adjust in accordance to the manufacturer's specifications
- Monitor the temperature to the catalyst inlet, and in accordance with manufacturer's specifications a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs.

Inspect for thermal deactivation before restarting the engine.

## ATTACHMENT G - Air Pollution Control Device Form

<b>Control device ID number:</b> C-1006	<b>List all emission units associated with this control device.</b> CM-1006
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<b>Manufacturer:</b> Johnson Matthey	<b>Model number:</b>	<b>Installation date:</b> 11/28/2012
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**Type of Air Pollution Control Device:**

<input type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input checked="" type="checkbox"/> Other (describe): <u>Non-Selective Catalytic Reduction (NSCR)</u>
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

**List the pollutants for which this device is intended to control and the capture and control efficiencies.**

Pollutant	Capture Efficiency	Control Efficiency
NOx		98.8%
CO		94.4%
VOC		60%
HCHO		80%

**Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).**

Catalyst inlet temperature: 850 °F  
 Maximum exhaust flow rate: 13,713 lb/hr

**Is this device subject to the CAM requirements of 40 C.F.R. 64?**  Yes  No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

**Describe the parameters monitored and/or methods used to indicate performance of this control device.**

- Exhaust gas temperature and exhaust oxygen content
- Masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element
- Check air/fuel ratio every 1,500 service hours and adjust in accordance to the manufacturer's specifications
- Monitor the temperature to the catalyst inlet, and in accordance with manufacturer's specifications a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs.

Inspect for thermal deactivation before restarting the engine.

## ATTACHMENT G - Air Pollution Control Device Form

**Control device ID number:**  
C-102

**List all emission units associated with this control device.**  
CM-102

**Manufacturer:**  
Miratech

**Model number:**  
SP-RHSIGA-72S3624x61-  
20x2/30-XH4B2

**Installation date:**  
11/28/2012

**Type of Air Pollution Control Device:**

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Baghouse/Fabric Filter               | <input type="checkbox"/> Venturi Scrubber      | <input type="checkbox"/> Multiclone   |
| <input type="checkbox"/> Carbon Bed Adsorber                  | <input type="checkbox"/> Packed Tower Scrubber | <input type="checkbox"/> Single Cyclone   |
| <input type="checkbox"/> Carbon Drum(s)                       | <input type="checkbox"/> Other Wet Scrubber    | <input type="checkbox"/> Cyclone Bank   |
| <input type="checkbox"/> Catalytic Incinerator                | <input type="checkbox"/> Condenser             | <input type="checkbox"/> Settling Chamber                                       |
| <input type="checkbox"/> Thermal Incinerator                  | <input type="checkbox"/> Flare                 | <input checked="" type="checkbox"/> Other (describe): <u>Oxidation Catalyst</u> |
| <input type="checkbox"/> Wet Plate Electrostatic Precipitator |  | <input type="checkbox"/> Dry Plate Electrostatic Precipitator                   |

**List the pollutants for which this device is intended to control and the capture and control efficiencies.**

Pollutant	Capture Efficiency	Control Efficiency
NOx		N/A
CO		95%
VOC		75%
HCHO		90%

**Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).**

Catalyst inlet temperature: 550 – 1250 °F  
 Catalyst outlet temperature: 1350 °F  
 Exhaust flow rate: 32,008 acfm  
 Exhaust temperature: 856 °F  
 Pressure drop: 6.0 in. of WC

**Is this device subject to the CAM requirements of 40 C.F.R. 64?**  Yes  No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

**Describe the parameters monitored and/or methods used to indicate performance of this control device.**

5.2.1 a. The permittee shall regularly inspect, properly maintain and/or replace catalytic reduction devices and auxiliary air pollution control devices to ensure functional and effective operation of the engine's physical and operational design. The permittee shall ensure proper operation, maintenance and performance of catalytic reduction devices and auxiliary air pollution control devices by:

1. Maintaining proper operation of the automatic air/fuel ratio controller or automatic feedback controller.
2. Following operating and maintenance recommendations of the catalyst element manufacturer.

## ATTACHMENT G - Air Pollution Control Device Form

<b>Control device ID number:</b> C-103	<b>List all emission units associated with this control device.</b> CM-103
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<b>Manufacturer:</b> Miratech	<b>Model number:</b> SP-RHSIGA-72S3624x61-20x2/30-XH4B2	<b>Installation date:</b> 11/28/2012
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**Type of Air Pollution Control Device:**

<input type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input checked="" type="checkbox"/> Other (describe): <u>Oxidation Catalyst</u>
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

**List the pollutants for which this device is intended to control and the capture and control efficiencies.**

Pollutant	Capture Efficiency	Control Efficiency
NOx		N/A
CO		95%
VOC		75%
HCHO		90%

**Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).**

Catalyst inlet temperature: 550 – 1250 °F  
 Catalyst outlet temperature: 1350 °F  
 Exhaust flow rate: 32,008 acfm  
 Exhaust temperature: 856 °F  
 Pressure drop: 6.0 in. of WC

**Is this device subject to the CAM requirements of 40 C.F.R. 64?**  Yes  No

If Yes, **Complete ATTACHMENT H**

If No, **Provide justification.** Compressor engine is subject to the emission limitations of 40 CFR 60 Subpart JJJJ.

**Describe the parameters monitored and/or methods used to indicate performance of this control device.**

5.2.1 a. The permittee shall regularly inspect, properly maintain and/or replace catalytic reduction devices and auxiliary air pollution control devices to ensure functional and effective operation of the engine's physical and operational design. The permittee shall ensure proper operation, maintenance and performance of catalytic reduction devices and auxiliary air pollution control devices by:

1. Maintaining proper operation of the automatic air/fuel ratio controller or automatic feedback controller.
2. Following operating and maintenance recommendations of the catalyst element manufacturer.

## ATTACHMENT G - Air Pollution Control Device Form

<b>Control device ID number:</b> FL-991	<b>List all emission units associated with this control device.</b> 2B	
<b>Manufacturer:</b> Callidus	<b>Model number:</b>	<b>Installation date:</b> 12/2012
<b>Type of Air Pollution Control Device:</b> <input type="checkbox"/> Baghouse/Fabric Filter <input type="checkbox"/> Venturi Scrubber <input type="checkbox"/> Multiclone <input type="checkbox"/> Carbon Bed Adsorber <input type="checkbox"/> Packed Tower Scrubber <input type="checkbox"/> Single Cyclone <input type="checkbox"/> Carbon Drum(s) <input type="checkbox"/> Other Wet Scrubber <input type="checkbox"/> Cyclone Bank <input type="checkbox"/> Catalytic Incinerator <input type="checkbox"/> Condenser <input type="checkbox"/> Settling Chamber <input type="checkbox"/> Thermal Incinerator <input checked="" type="checkbox"/> Flare <input type="checkbox"/> Other (describe): <input type="checkbox"/> Wet Plate Electrostatic Precipitator <input type="checkbox"/> Dry Plate Electrostatic Precipitator		
<b>List the pollutants for which this device is intended to control and the capture and control efficiencies.</b>		
Pollutant	Capture Efficiency	Control Efficiency
VOC		98%
HAPs		98%
<b>Explain the characteristic design parameters of this control device (flow rates, pressure drops, number of bags, size, temperatures, etc.).</b>  Air-assisted elevated flare. Maximum volumetric flowrate: 68,600 scf/min Six pilot lights at 85,000 btu/hr per pilot		
<b>Is this device subject to the CAM requirements of 40 C.F.R. 64?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, <b>Complete ATTACHMENT H</b> If No, <b>Provide justification.</b> Flare is subject to the general requirements of NSPS Subpart A		
<b>Describe the parameters monitored and/or methods used to indicate performance of this control device.</b>  Flare is operated with a continuous pilot light. Presence of a pilot light is monitored via thermocouple. Should the thermocouple sense a loss of flame, the flame front generator will initiate a re-light cycle and send a common trouble alarm to the plant control system.		