# Eureka Midstream, LLC

# MODIFICATION APPLICATION

## Permit No. R13-3007D

## Carbide Site

## Wetzel County, West Virginia

## JUNE 2016

TECHNOLOGIES

98 Vanadium Road
Bridgeville, PA 15017
(412) 221-1100

# MODIFICATION APPLICATION

## Eureka Midstream, LLC

## Carbide Site

## Wetzel County, West Virginia

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# SECTION I

# Project Overview

# Eureka Midstream, LLC
# Carbide Site
# Project Overview

Eureka Midstream, LLC currently operates its Carbide Site under Permit R13-3007D. It is seeking t modify this permit to reflect the following three physical changes to this facility:

Truck Loading Combustor Upgrade

Eureka is seeking to modify its permit to reflect the replacement of the existing enclosed combustor with a larger unit. It was determined that while the current unit was adequately sized for daily and annual demands, it was undersized for peak demand during the initial phases of the condensate truck loading process. Upon discovery, the old combustor was immediately replaced with a larger unit capable of better handling the peak demand to ensure safe operation during truck loading of condensate. The annual maximum loading to this unit (and subsequent annual emissions) will not change as there is no request to change the annual allowable limit on condensate truck loading or capture and control efficiencies.

Condensate Tanks Replacement

In 2012, the original general permit registration for the Carbide Site was replaced with an R13 permit when the current series of ten 630 BBL condensate tanks and associated VRU control were installed. In 2015 an EPA Region III evaluation of the tanks determined that the safety relief vents on these tanks were undersized and placed Eureka under a Consent Order (provided at the end of Attachment G) to upgrade the safety relief vents to properly sized units. Eureka determined that the safest approach was to replace the tanks entirely rather than attempt to modify the existing tanks.

At this time, Eureka is seeking modification of the permit to reflect the replacement the ten existing 630 BBL tanks with eight 500 BBL tanks. Again, Eureka is not seeking to increase condensate throughput as a result of the tank replacement. Hence, in of itself, the tank replacement is not anticipated to impact annual potential emissions. The tank replacement is proceeding in a timeframe to comply with the terms of the Consent Agreement. It is expected to begin on or about July 18, 2016.

Tank VRU Backup Combustors

Currently, emissions from the tanks are controlled by a Vapor Recovery Unit (VRU). Eureka is seeking approval to install enclosed combustors to destroy tank vapors in lieu of the VRU as a more cost effective control methodology. At the time of the original R13 Permit, the Department accepted the VRU as a 100% control for the tanks. Hence, the tanks were not listed as emission sources in the permit. It is understood that this is no longer consistent with permitting policies adopted subsequent to the issuance of this permit. Hence, while in reality controls on the tank emissions are reduced, the calculations indicate an increase in emissions due to the lower claim of control efficiency. The combined capture and control efficiency of the enclosed combustors is 99%.

It should be noted that the Promax Model output (provided in Attachment N – Supporting Calculations) presents the annual average hourly condensate tank emissions at the maximum allowable condensate truck loading (600 BBL/Day). However, there is considerable variation in this flow from hour to hour. In reality, the actual maximum hourly condensate vapor generation rate could reach three times the amount presented in the Promax Model. Thus, the total capacity for the enclosed combustors was designed to handle this 3X vapor flow, plus a 20% safety factor.

**No other physical or operational changes are proposed for any other equipment or process.**

Additionally, this Modification also seeks to change the name of the facility owner on the permit to reflect the change in the corporate name as well as the parent company.

Lastly, this Modification seeks to correct the gas consumption and subsequent emissions associated with the pilot flame for the truck loading combustor. It was incorrectly presented at 2.4 MMBTU/Hr rather than 8 MBTU/Hr. This results in a decrease of annual combustion by-product emissions for this source.

# SECTION II

# Application Form

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

**DIVISION OF AIR QUALITY**

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.wvdep.org/daq

# *APPLICATION FOR NSR PERMIT AND TITLE V PERMIT REVISION (OPTIONAL)*

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

☐ **CONSTRUCTION** ☒ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☐ **CLASS II ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

☐ **ADMINISTRATIVE AMENDMENT** ☐ **MINOR MODIFICATION**
☐ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

***FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.***

## *Section I. General*

1. Name of applicant *(as registered with the WV Secretary of State's Office):*
**Eureka Midstream, LLC**

2. Federal Employer ID No. ***(FEIN):***
**27-1657844**

3. Name of facility *(if different from above):*
**Carbide Site**

4. The applicant is the:
☐ **OWNER** ☐ **OPERATOR** ☒ **BOTH**

5A. Applicant's mailing address:
**27710 State Route 7**
**Marietta, Ohio 45750**

5B. Facility's present physical address:
**15448 Shortline Highway**
**Hastings, WV 26419**

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☐ **YES** ☒ **NO**

– If **YES,** provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A.**

– If **NO,** provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A.**

7. If applicant is a subsidiary corporation, please provide the name of parent corporation: **Eureka Midstream Holdings, LLC**

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site?* ☒ **YES** ☐ **NO**

– If **YES,** please explain: **Applicant owns the property**

– If **NO,** you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.): **Natural Gas Compressor Station**

10. Standard Industrial Classification **(SIC)** code for the facility:
**1311**

11A. DAQ Plant ID No. (for existing facilities only):
**103 – 000491**

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
**R13-3007D**

***All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.***

12A.

- For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction** or **Relocation permits,** please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

**From Hastings, proceed east on Route 20 approximately 2 miles to Union Carbide Road. Turn right on this road and follow the gravel road approximately one mile to the facility.**

| | | |
|---|---|---|
| 12.B. New site address (if applicable): | 12C. Nearest city or town: **Hastings** | 12D. County: **Wetzel** |
| 12.E. UTM Northing (KM): **4376.709** | 12F. UTM Easting (KM): **528.7365** | 12G. UTM Zone: **17** |

13. Briefly describe the proposed change(s) at the facility:
**This Modification is being sought to allow installation of replacement control equipment and smaller condensate tanks.**

| | |
|---|---|
| 14A. Provide the date of anticipated installation or change: **July 15, 2016 (tanks)**<br>– If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: | 14B. Date of anticipated Start-Up if a permit is granted: **August 15, 2016 (tanks)** |

14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day **24** Days Per Week **7** Weeks Per Year **52**

16. Is demolition or physical renovation at an existing facility involved? ☐ **YES** ☒ **NO**

17**. Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18**. Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process *(if known).* A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance *(if known).* Provide this information as **Attachment D.**

## *Section II. Additional attachments and supporting documents.*

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan,** e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to ***Plot Plan Guidance***) **.**
– Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F.**

23. Provide a **Process Description** as **Attachment G.**
  – Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

***All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.***

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H.**
– For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I.**

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J.**

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K.**

28. Check all applicable **Emissions Unit Data Sheets** listed below:

☐ Bulk Liquid Transfer Operations
☐ Chemical Processes
☐ Concrete Batch Plant
☐ Grey Iron and Steel Foundry
☐ General Emission Unit, specify:
☐ Natural Gas Compressor Engines
☐ Haul Road Emissions
☐ Hot Mix Asphalt Plant
☐ Incinerator
☐ Indirect Heat Exchanger
☐ Quarry
☐ Solid Materials Sizing, Handling and Storage Facilities
☐ Storage Tanks

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L.**

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

☐ Absorption Systems
☐ Adsorption Systems
☐ Afterburner
☐ Baghouse
☐ Condenser
☐ Electrostatic Precipitator
☐ Flare
☐ Mechanical Collector
☐ Wet Collecting System

☒ Other Collectors, specify: **Enclosed Combustors**

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M.**

30. Provide all **Supporting Emissions Calculations** as **Attachment N,** or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O.**

➢ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and ***Example Legal Advertisement*** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33**. Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

☐ **YES** ☒ **NO**

➢ If **YES,** identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's ***"Precautionary Notice – Claims of Confidentiality"*** guidance found in the ***General Instructions*** as **Attachment Q.**

## *Section III. Certification of Information*

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

☐ Authority of Corporation or Other Business Entity
☐ Authority of Governmental Agency
☐ Authority of Partnership
☐ Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R.**

***All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.***

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

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

I, the undersigned ☒ **Responsible Official** / ☐ **Authorized Representative,** hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

***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.

SIGNATURE _____ DATE: 6/15/16

*(Please use blue ink)* *(Please use blue ink)*

| | | |
|---|---|---|
| 35B. Printed name of signee: **Chris Akers** | | 35C. Title: **Chief Operating Officer** |
| 35D. E-mail: **cakers@ehp.energy** | 36E. Phone: **740/868-1334** | 36F. FAX: |
| 36A. Printed name of contact person (if different from above): | | 36B. Title: |
| 36C. E-mail: | 36D. Phone: | 36E. FAX: |

**PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:**

- ☒ **Attachment A: Business Certificate**
- ☒ **Attachment B: Map(s)**
- ☒ **Attachment C: Installation and Start Up Schedule**
- ☒ **Attachment D: Regulatory Discussion**
- ☒ **Attachment E: Plot Plan**
- ☒ **Attachment F: Detailed Process Flow Diagram(s)**
- ☒ **Attachment G: Process Description**
- ☐ **Attachment H: Material Safety Data Sheets (MSDS)**
- ☒ **Attachment I: Emission Units Table**
- ☒ **Attachment J: Emission Points Data Summary Sheet**
- ☐ **Attachment K: Fugitive Emissions Data Summary Sheet**
- ☒ **Attachment L: Emissions Unit Data Sheet(s)**
- ☒ **Attachment M: Air Pollution Control Device Sheet(s)**
- ☒ **Attachment N: Supporting Emissions Calculations**
- ☒ **Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans**
- ☒ **Attachment P: Public Notice**
- ☐ **Attachment Q: Business Confidential Claims**
- ☐ **Attachment R: Authority Forms**
- ☐ **Attachment S: Title V Permit Revision Information**
- ☒ **Application Fee**

***Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.***

***FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:***

- ☐ *Forward 1 copy of the application to the Title V Permitting Group and:*
- ☐ *For Title V Administrative Amendments:*
  - ☐ *NSR permit writer should notify Title V permit writer of draft permit,*
- ☐ *For Title V Minor Modifications:*
  - ☐ *Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,*
  - ☐ *NSR permit writer should notify Title V permit writer of draft permit.*
- ☐ *For Title V Significant Modifications processed in parallel with NSR Permit revision:*
  - ☐ *NSR permit writer should notify a Title V permit writer of draft permit,*
  - ☐ *Public notice should reference both 45CSR13 and Title V permits,*
  - ☐ *EPA has 45 day review period of a draft permit.*

***All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.***

# SECTION III

# Attachments

# ATTACHMENT A

## Business Registration

# State of West Virginia

# Certificate

***I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that***

the attached true and exact copy of the Articles of Amendment to the Articles of Organization of

**EUREKA HUNTER PIPELINE, LLC**

are filed in my office, signed and verified, as required by the provisions of West Virginia Code §31B-2-204 and conform to law. Therefore, I issue this

## CERTIFICATE OF AMENDMENT TO THE CERTIFICATE OF AUTHORITY

changing the name of the limited liability company to

**EUREKA MIDSTREAM, LLC**

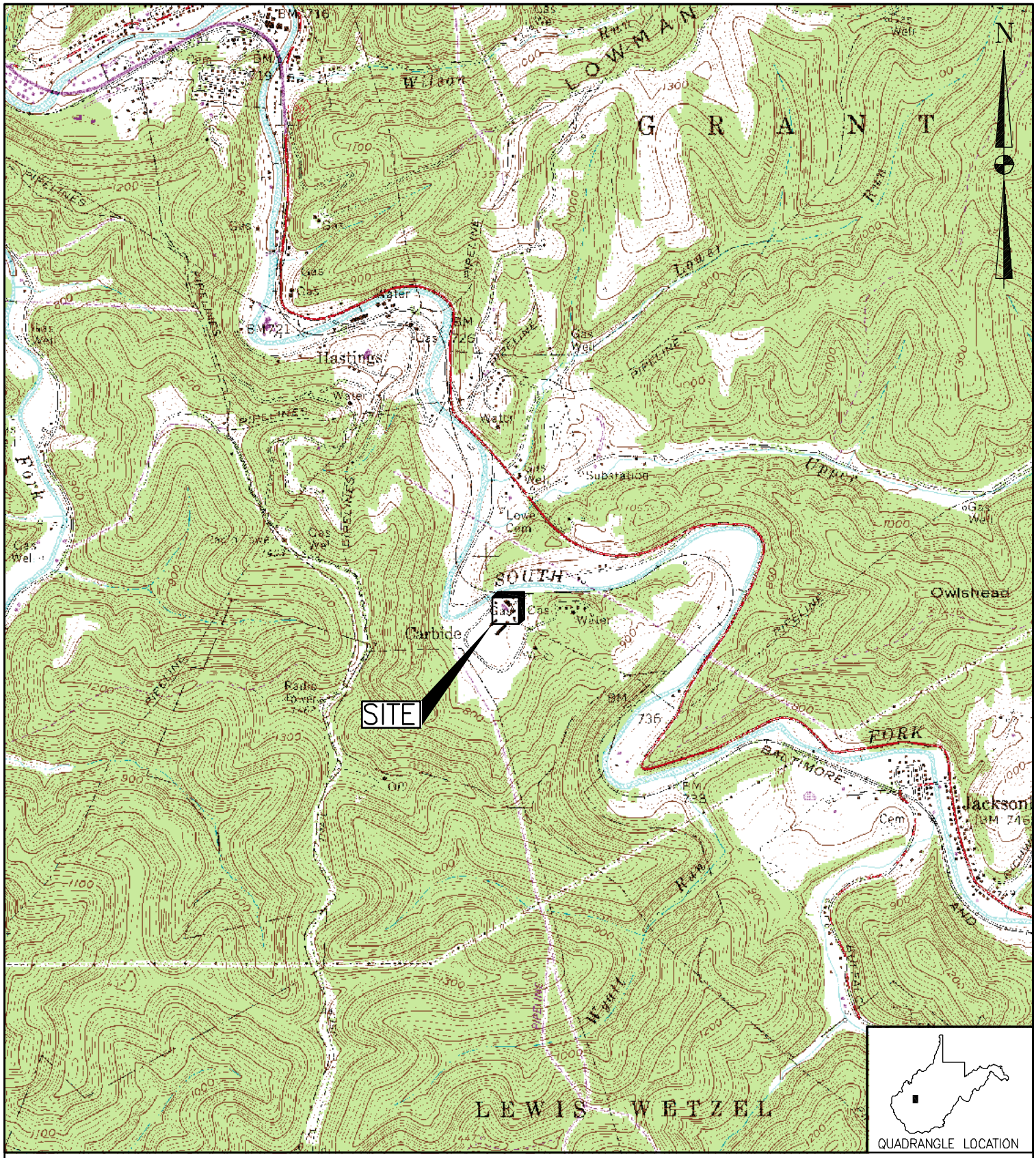
***Given under my hand and the Great Seal of the State of West Virginia on this day of June 16, 2016***

Natalie E Tennant

*Secretary of State*

# ATTACHMENT B

## Site Location Map




REFERENCE: USGS 7.5' QUADRANGLE MAP OF: PINE GROVE, WEST VIRGINIA; DATED 1960, PHOTOREVISED 1976.

| | |
|---|---|
| DRAWN BY | DJF |
| DATE | 8/1/12 |
| CHECKED BY | RAD |
| SET JOB NO. | 212092 |
| SET DWG FILE | CARBIDE STATIONm01.dwg |
| DRAWING SCALE | 1"=2000' |

SE TECHNOLOGIES
98 Vanadium Road Bridgeville, PA 15017 (412) 221-1100

EUREKA HUNTER PIPELINE, LLC

CARBIDE STATION
WETZEL COUNTY, WEST VIRGINIA
SITE LOCATION MAP

DRAWING NO. FIGURE 1

REV. 0

Plot: env045 08/01/2012 11:10 G:\EUREKA HUNTER PIPELINE, LLC\212092\CARBIDE STATIONm01.dwg

# ATTACHMENT C

# Construction Schedule

# ATTACHMENT C
# EUREKA MIDSTREAM, LLC
# Carbide Site
# Construction Schedule

There are three equipment changes addressed in this application, each with a different construction timetable;

Replacement of the Truck Loading Vapor Combustor: The replacement combustor as described in the permit application has been installed prior to submittal of this application due. As noted in Attachment G, this was initiated immediately upon discovery that the existing combustor was under sized to ensure continued safety of operations.

Condensate Tank Replacement:
This equipment replacement is being completed in accordance with a Consent Order from EPA Region III (included in Attachment G). The tanks replacement will take place during the period of July 15 to August 15, 2016

New Combustor Installation:
The proposed combustors to replace the existing VRU will be installed upon receipt of the permit. This equipment is modular and can be installed within one to two weeks of receipt of the permit approval.

# ATTACHMENT D

# Regulatory Analysis

# ATTACHMENT D
# EUREKA MIDSTREAM, LLC
# Carbide Site
# Regulatory Analysis

Both State and Federal environmental regulations governing air emissions apply to Eureka Midstream's Carbide Site near Hastings, West Virginia. The West Virginia Department of Environmental Protection (WVDEP) has been delegated the authority to implement certain federal air quality requirements for the state. Air quality regulations that potentially affect the expansion are discussed herein.

## 1.1 PSD and NSR

The facility will remain a minor source with respect to Prevention of Significant Deterioration (PSD) regulations as it will not have the potential to emit more than the annual emission thresholds of any PSD regulated pollutant.

The facility is not within any area designated as non-attainment for fine particulates (PM2.5) or any other criteria pollutant. Consequently, NSR requirements are not applicable to this project at projected potential emission rates.

## 1.2 Title V Operating Permit Program

West Virginia has incorporated provisions of the federal Title V operating permit program. Thresholds for inclusion under the Title V program are 10 tpy of any single Hazardous Air Pollutant (HAP) or 25 tons of any combination of HAP and/or 100 tpy of all other regulated pollutants. Potential emissions at this facility are below these triggers. Additionally, any facility operating under certain federal standard falls under the Title V program, regardless of emission rates. The facility is regulated under certain New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAPs). However, none of these applicable standards trigger inclusion in the Title V program.

## 1.3 New Source Performance Standards

New Source Performance Standards (NSPS) regulations promulgated under 40 CFR 60 require new and reconstructed facilities to control emissions to the level achievable by Best-Available Control Technology (BACT). Specific NSPS requirements potentially applicable to the planned equipment changes are as follows:

- 40 CFR 60, Subpart OOOO - Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution

- 40 CFR 60, Subpart OOOOa - Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution

1.3.1 Subpart OOOO

This NSPS specifically addresses certain operations and/or equipment within the oil and gas industry for facilities that are constructed or modified after August 23, 2011 and on or before September 18, 2015. This rule is applicable to the Carbide Site. The equipment addition associated with this Modification does not change this status.

1.3.2 Subpart OOOOa

This new NSPS specifically addresses certain operations and/or equipment within the oil and gas industry for facilities that are constructed or modified after September 18, 2015. Although the effective date of the rule is August 2, 2016, the replacement tanks potentially fall under this rule. However, as with the currently applicable Subpart OOOO, the emissions from the replacement tanks will be controlled to less than 6 tpy VOC emissions under an enforceable permit. In accordance with 40 CFR 60.5365a(e), tanks controlled under an enforceable permit to less than 6 tpy VOC emissions are excluded from this rule. Hence, this rule does not apply to the replacement tanks.

## 1.4 National Emission Standards for Hazardous Air Pollutants

National Emission Standards for Hazardous Air Pollutants (NESHAPs) promulgated under 40 CFR 63 regulate the emission of Hazardous Air Pollutants (HAPs) from certain industrial processes. In general, these rules apply to major sources of HAPs with a major source being defined as having the potential to emit more than 10 tpy of any individual HAP or 25 tpy of total HAPs. Emissions standards under these rules have been established as the Maximum Achievable Control Technology (MACT) for each source category. There are no NESHAP source category standards potentially applicable to the planned tank and combustor equipment changes.

## 1.5 Chemical Accident Prevention

Subparts B-D of 40 CFR 68 present the requirements for the assessment and subsequent preparation of a Risk Management Plan (RMP) for a facility that stores more than a threshold quantity of a regulated substance listed in 40 CFR 68.130. If a facility stores, handles or processes one or more regulated substances in an amount greater than its corresponding threshold, the facility must prepare and implement an RMP. The facility will continue to store more than 10,000 lbs of individual substances listed in Table 3 in 40 CFR 68.130 and flammable mixtures again containing several of the substances listed in Table 3 in 40 CFR 68.130. An RMP has been prepared and submitted in accordance with 40 CFR 68.150. The proposed tank changes will require an update to the RMP, triggering a reduction in the potential impact area due to the smaller tank volumes.

## 1.6 West Virginia State Requirements

### 1.6.1 45 CSR 2

The facility is subject to the opacity requirement of 45 CSR 2. Emissions from any emission source at the facility cannot exceed 10% over any six minute period. The new and replacement enclosed combustors will fall under this rule.

### 1.6.2 45 CSR 4

This regulation prohibits the emission of objectionable odors. Eureka is obligated to run the station in a manner that does not produce objectionable odors.

### 1.6.3 45 CSR 6

This regulation regulates the combustion of refuse. The replacement condensate truck loading emission control combustor as well as the combustors proposed as replacement to the tank VRU will fall under this rule.

### 1.6.3 45 CSR 10

This regulation limits emissions of sulfur oxides. As the sulfur content of the Inlet liquid contains no measurable sulfur, anticipated emissions of sulfur oxides is negligible. Thus, while parts of this rule may be applicable to the facility, no actions are required on the part of Eureka to attain compliance.

### 1.6.4 45 CSR 13

The state regulations applicable to the permitting of the replacement tanks and the proposed enclosed combustors are in Title 45 Series 13 of the Code of State Regulations. The facility will continue to have the potential to criteria pollutants in excess of the thresholds that define a Stationary Source. Additionally, as the facility is regulated under a federal New Source Performance Standard, it is required to have a permit.

It is important to note that the facility's potential to emit is less than the thresholds that would classify the facility as a Major Source under 45 CSR 14.

### 1.6.5 45 CSR 16

This series of regulations is an incorporation, by reference, of the New Source Performance Standards codified under 40 CFR 60. As discussed under the federal regulations, the facility is subject to the emission limitations, monitoring, testing and recordkeeping of 40 CFR 60, Subpart JJJJ. The planned changes to the facility do not impact the applicability of this rule.

### 1.6.6 45 CSR 30

The state regulations applicable to Title V operating permits are in Title 45 Series 30. The planned facility, as noted above, does not have the potential to emit any regulated pollutant above the threshold that would define it as a major facility. Although the facility is subject to a New Source Performance Standard, it is not obligated to submit a Title V application and obtain a Title V permit.

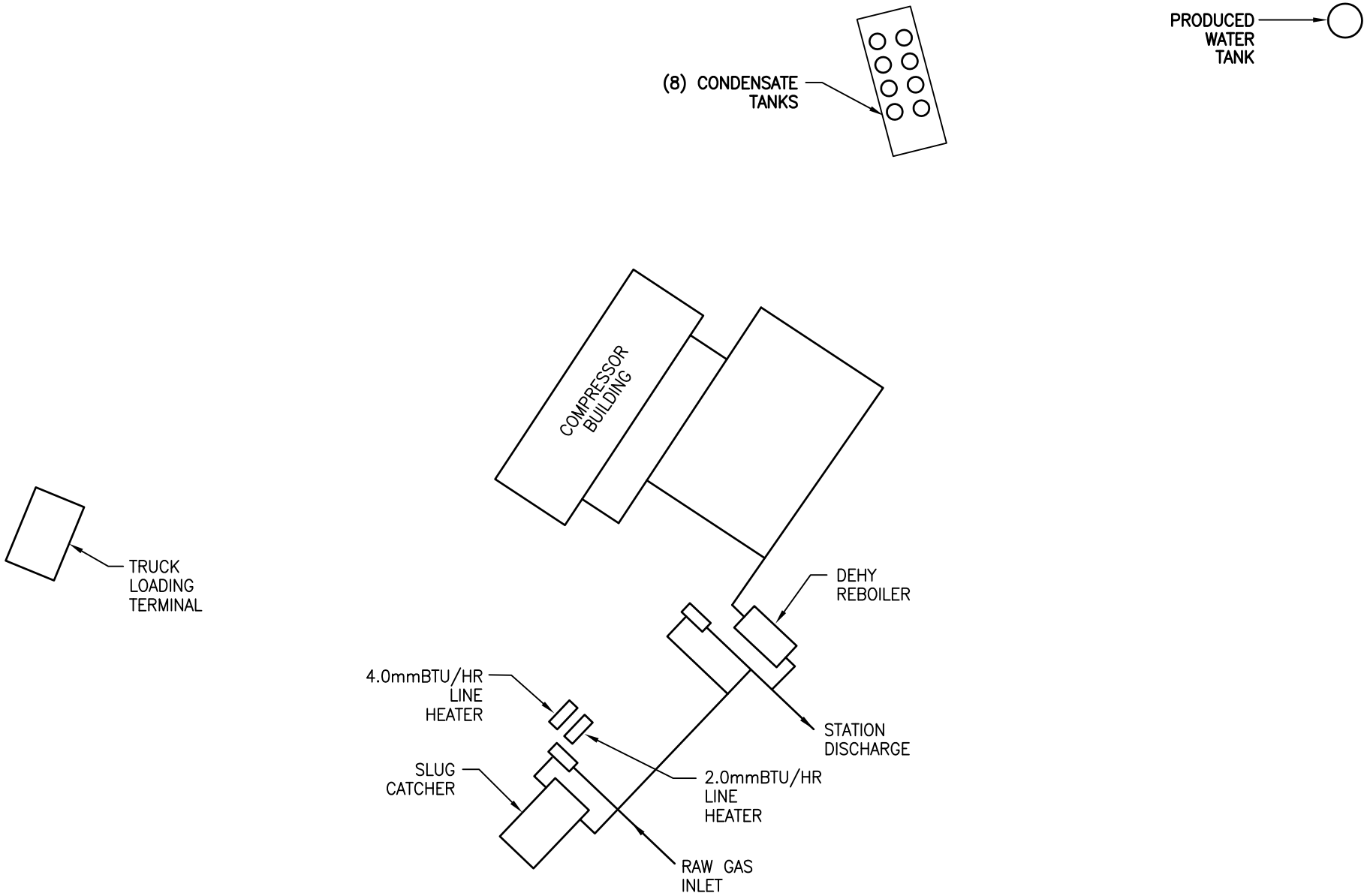
The equipment changes associated with this Modification Update do not change this status.

### 1.6.7 Other Applicable Requirements

Through Series 34, WVDEP has adopted the National Emission Standards for Hazardous Air Pollutants for Source Categories. This topic has been addressed above.

# ATTACHMENT E

## Site Layout Diagram




| | |
|---|---|
| DRAWN BY | DJF |
| DATE | 6/13/16 |
| CHECKED BY | RAD |
| SET JOB NO. | 213066-03 |
| SET DWG FILE | CARBIDE STATIONa01.dwg |
| DRAWING SCALE | N.T.S. |

SE TECHNOLOGIES
98 Vanadium Road Bridgeville, PA 15017 (412) 221-1100

EUREKA HUNTER PIPELINE, LLC

CARBIDE STATION
WETZEL COUNTY, WEST VIRGINIA
SITE LAYOUT

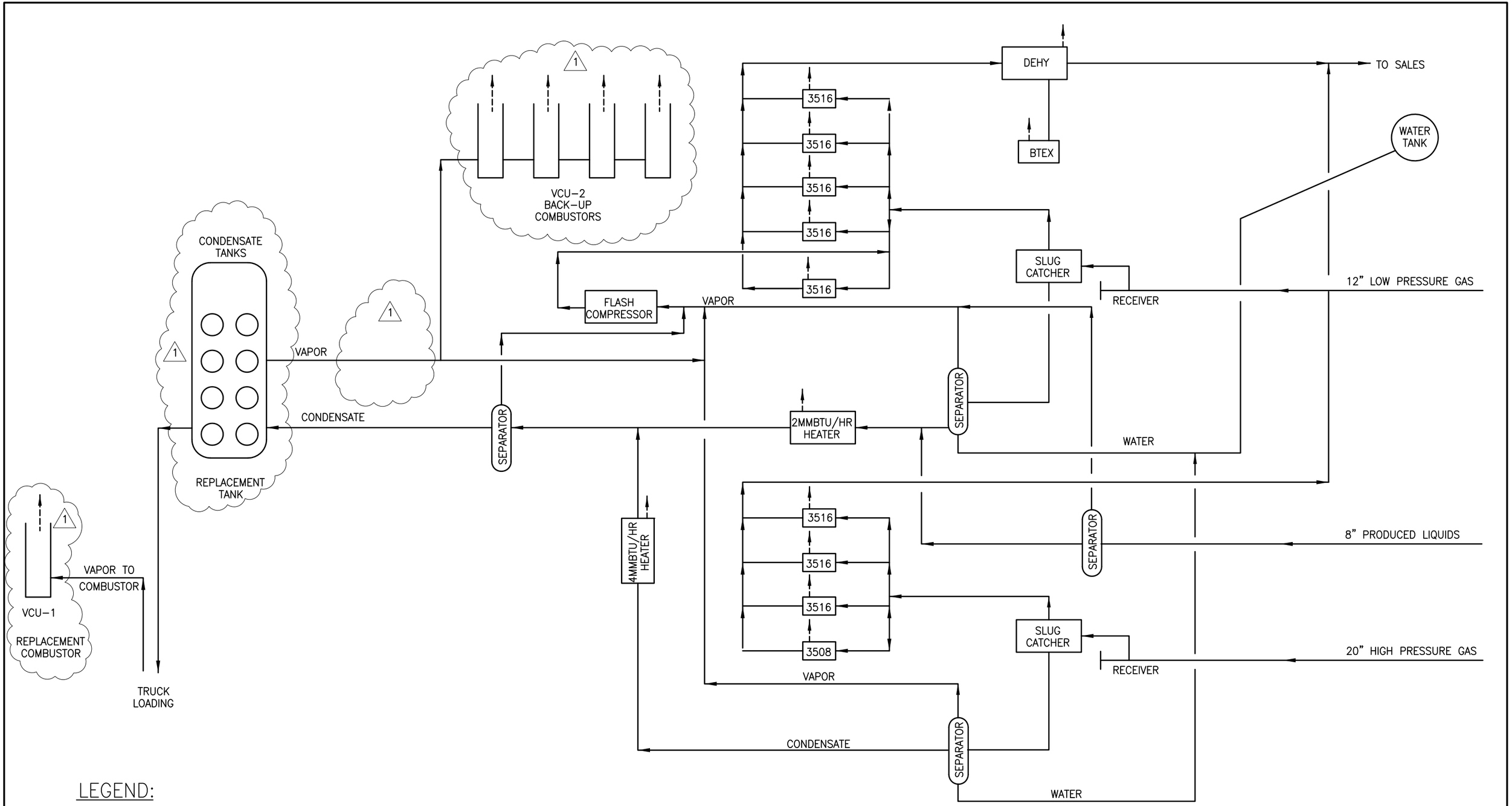
DRAWING NAME: FIGURE 2

REV. 3

Plot: env045 06/13/2016 09:29 G:\EUREKA HUNTER PIPELINE, LLC\213066\CARBIDE STATIONa01.dwg

# ATTACHMENT F

## Process Flow Diagram




## LEGEND:

EMISSION POINT

REVISION 1

| | |
|---|---|
| DRAWN BY | DJF |
| DATE | 6/13/16 |
| CHECKED BY | RAD |
| SET JOB NO. | 213066–03 |
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| DRAWING SCALE | N.T.S. |

SE TECHNOLOGIES
98 Vanadium Road Bridgeville, PA 15017 (412) 221–1100

EUREKA HUNTER PIPELINE, LLC
CARBIDE STATION
WETZEL COUNTY, WEST VIRGINIA
PROCESS FLOW DIAGRAM

DRAWING NAME: FIGURE 2
REV. 1

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# ATTACHMENT G

# Process Description

# ATTACHMENT G
# Eureka Midstream, LLC
# Carbide Site
# Process Description

This natural gas liquids management and gas compression facility currently operates under permit R13-3007D. Raw gas and produced liquids are received at this facility from local production wells via three pipelines entering the station: 8-inch, 12-inch and 20-inch lines. The following text presents an overview of the operations at this facility and a description of the proposed changes Eureka is seeking to permit.

High pressure gas is received via the 20-inch line, passed through a slug catcher and then returned to this high pressure gas line for transportation to a regional natural gas processing facility owned and operated by others. This gas is not passed through any other processes at this facility.

Low pressure inlet gas is received via a 12-inch pipeline and passed through an inlet separator, compressed, dehydrated, blended with the high pressure gas and injected into the 20-inch pipeline for transportation to the regional natural gas processing facility. Liquids separated from this gas stream are sent through a line heater and then to a three-way separator where the pressure is reduced, allowing dissolved gases to flash off. This flash gas is compressed and re-blended with the low pressure inlet gas. The remaining liquids are separated into organic (condensate) and water phases.

Produced Liquids are received at the facility via an 8-inch liquids line. These liquids are mostly produced water (brine), but also contain condensate. This liquid is passed through a line heater and a three-way inlet separator where the pressure is reduced, allowing entrained gas to flash off. This flash gas is also routed to the flash gas compressor referenced above and blended with the low pressure inlet gas prior to compression. The three-way separator also separates the water (brine) and organic phases (condensate), routing them to separate accumulation tanks. Brine is accumulated in a single 2 million gallon tank. This brine is re-used by others for development of wells, thereby minimizing the demand for fresh water for that purpose.

Condensate is currently accumulated in a series of ten 630 BBL tanks prior to truck transportation to others for further processing. Emissions from these atmospheric pressure tanks are collected and compressed by a vapor recovery unit (VRU) where the vapors are sufficiently compressed to be introduced into the low pressure inlet gas line and processed with the low pressure inlet gas.

As noted above, condensate is taken from this facility by tanker truck to a nearby processing plant (owned and operated by others) for processing into individual chemical products. Volatile Organic Compound (VOC) emissions generated during the truck loading process is managed by an enclosed combustor.

Eureka is seeking the following three changes to the operations described above:

<u>Truck Loading Combustor Upgrade</u>
Eureka is seeking to modify its permit to reflect the replacement of the existing enclosed combustor with a larger unit. It was determined that while the current unit was adequately sized for daily and annual demands, it was undersized for peak demand during the initial phases of the condensate truck loading process. Upon discovery, it was immediately replaced with a larger unit capable of better handling the peak demand to ensure safe operation during truck loading of condensate. <u>The annual maximum loading to this unit (and subsequent annual emissions) will not change as there is no</u>

request to change the annual allowable limit on condensate truck loading or capture and control efficiencies.

Condensate Tanks Replacement

In 2012, the original general permit registration was replaced with an R13 permit when the current series of ten 630 BBL condensate tanks and associated VRU control were installed. In 2015 an EPA Region III evaluation of the tanks determined that the safety relief vents were undersized and placed Eureka under a Consent Agreement (provided at the end of this Attachment) to upgrade the safety relief vents to properly sized units. Eureka determined that the safest approach was to replace the tanks entirely rather than attempt to modify the existing tanks.

At this time, Eureka is seeking modification of the permit to reflect the replacement the ten existing 630 BBL tanks with eight 500 BBL tanks. Again, Eureka is not seeking to increase condensate throughput as a result of the tank replacement. Hence, in of itself, the tank replacement is not anticipated to impact annual potential emissions. The tank replacement is proceeding in a timeframe to comply with the terms of the Consent Agreement.

Tank VRU Replacement Combustors

Eureka is seeking approval to install enclosed combustors as replacement to the VRU as the volume of gas captured and returned to the process is no longer cost effective. At the time of the original R13 Permit, the Department accepted the VRU as a 100% control for the tanks. Hence, the tanks were not listed as emission sources in the permit. It is understood that this is no longer consistent with permitting policies adopted subsequent to the issuance of this permit. Hence, while in reality, controls on the tank emissions are improved (emissions reduced), the calculations indicate an increase in emissions due to the lower claim of control efficiency (99%).

**No other physical or operational changes are proposed for any other equipment or process.**

This Modification also seeks to change the name of the facility owner on the permit to reflect the change in the corporate name as well as the parent company.

Lastly, this Modification seeks to correct the gas consumption and subsequent emissions associated with the pilot flame for the truck loading combustor. It was incorrectly presented at 2.4 MMBTU/Hr rather than 8 MBTU/Hr. This correction results in a decrease of annual combustion by-product emissions for that emission source.

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION III**
**1650 ARCH STREET**
**PHILADELPHIA, PA 19103-2029**

| | | |
|---|---|---|
| **IN THE MATTER OF:** | ) | |
| | ) | |
| **Eureka Hunter Pipeline, LLC**<br>**777 Post Oak Boulevard, Suite 910**<br>**Houston, Texas 77056,** | ) | **EPA Docket Number**<br>**CAA-03-2015-0181DA** |
| | ) | |
| **Respondent.** | ) | |
| | ) | **Proceeding Pursuant to** |
| | ) | **Section 113(a)(3)(B) of the Clean** |
| **Carbide Facility**<br>**1 Union Carbide Road**<br>**Hastings, West Virginia 26419,** | ) | **Air Act, as amended, 42 U.S.C.**<br>**§ 7413(a)(3)(B)** |
| | ) | |
| **Facility.** | ) | **ADMINISTRATIVE**<br>**SETTLEMENT AGREEMENT**<br>**AND ORDER ON CONSENT** |
| | ) | |

## ADMINISTRATIVE SETTLEMENT AGREEMENT AND ORDER ON CONSENT

The parties to this Administrative Settlement Agreement and Order on Consent ("Order"), Eureka Hunter Pipeline, LLC ( "Respondent") and the United States Environmental Protection Agency ("EPA" or "the Agency"), having agreed to the entry of this Order, it is therefore Ordered, that:

## I. JURISDICTION AND GENERAL PROVISIONS

1. This Order is issued pursuant to Sections 113(a)(3)(B) of the Clean Air Act, as amended ("CAA" or "the Act"), 42 U.S.C. § 7413(a)(3)(B). Under Section 113(a)(3)(B) of the Act, the Administrator of EPA has the authority to issue orders requiring any person who is in violation of certain sections of the CAA, including Section 112(r)(7), 42 U.S.C. § 7412(r)(7), to comply with such requirements of the CAA. Under Delegation No. 7-6-A, the Administrator has delegated the authority to issue orders under Section 113(a) of the CAA within the geographical jurisdiction of EPA Region III to the Regional Administrator of EPA Region III, and on September 1, 2005, the Regional Administrator re-delegated this authority to the Director of Region III's Hazardous Site Cleanup Division. For purposes of this Order, the geographical jurisdiction of EPA Region III includes the State of West Virginia.

2. All terms and conditions of this Order, including any modifications hereto, are required by this Order. The Respondent agrees to undertake all actions required by the terms and conditions of this Order and to comply with all such terms and conditions.

3. The Respondent consents to and will not contest EPA's authority or jurisdiction to issue or to enforce this Order.

4. This Order requires Respondent to comply with the requirements of Section 112(r)(7) of the CAA, 42 U.S.C. § 7412(r)(7), and the Chemical Accident Prevention Provisions of 40 C.F.R. Part 68, as specifically set forth herein, by ensuring that the equipment at the natural gas processing plant listed in the caption herein complies with recognized and generally accepted good engineering practices.

## II. STATUTORY AND REGULATORY BACKGROUND

5. On November 15, 1990, the President signed into law the CAA Amendments of 1990. The CAA Amendments added Section 112(r) to the CAA, 42 U.S.C. § 7412(r), which requires the Administrator of EPA to, among other things, promulgate regulations in order to prevent accidental releases of certain substances listed pursuant to Section 112(r)(3) of the CAA, 42 U.S.C. § 7412(r)(3).

6. Section 112(r)(3) of the CAA, 42 U.S.C. § 7412(r)(3), mandates the Administrator to promulgate a list of regulated substances, with threshold quantities, and defines the stationary sources that will be subject to the accident prevention regulations mandated by Section 112(r)(7) of the CAA, 42 U.S.C. § 7412(r)(7). Specifically, Section 112(r)(7) requires the Administrator to promulgate regulations that address release prevention, detection, and correction requirements for these listed regulated substances. The list of regulated substances and threshold levels are codified at 40 C.F.R. § 68.130.

7. On June 20, 1996, EPA promulgated a final rule known as the Chemical Accident Prevention Provisions, 40 C.F.R. Part 68, which implements Section 112(r)(7) of the CAA, 42 U.S.C. § 7412(r)(7). The regulations require owners and operators of stationary sources to develop and implement a risk management program that includes a hazard assessment, a prevention program, and an emergency response program. The risk management program is described in a risk management plan ("RMP") that must be submitted to EPA. The RMP must include a hazard assessment to assess the potential effects of an accidental release of any regulated substance, a program for preventing accidental releases of hazardous substances, and a response program providing for specific actions to be taken in response to an accidental release of a regulated substance, so as to protect human health and the environment.

8. Pursuant to Section 112(r)(7)(B)(iii) of the CAA, 42 U.S.C. § 7412(r)(7)(B)(iii), and its regulations at 40 C.F.R. §§ 68.10(a) and 68.150(a), the owner or operator of a stationary source at which a regulated substance is present in more than a threshold quantity must submit an RMP to EPA no later than the latter of June 21, 1999, or the date on which a regulated substance is first present above the threshold quantity in a process.

## III. DEFINITIONS

9. Section 112(r)(2)(C) of the CAA, 42 U.S.C. § 7412(r)(2)(C), defines "stationary source" as, *inter alia*, any buildings, structures, equipment, installations or substance emitting stationary activities which belong to the same industrial group, which are located on one or more contiguous properties, which are under the control of the same person (or persons under common control) and from which an accidental release may occur.

10. Section 302(e) of the CAA, 42 U.S.C. § 7602(e), defines "person" as including an individual, corporation, partnership, association, State, municipality, political subdivision of a State and any agency, department, or instrumentality of the United States and any officer, agent, or employee thereof.

11. The regulations at 40 C.F.R. § 68.3 define "natural gas processing plant (gas plant)" as any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both, classified as North American Industrial Classification System ("NAICS") code 211112 (previously Standard Industrial Classification ("SIC") code 1321).

12. The regulations at 40 C.F.R. § 68.3 define "threshold quantity" as the quantity specified for regulated substances pursuant to Section 112(r)(5) of the CAA, listed in 40 C.F.R. § 68.130, Table 1, and determined to be present at a stationary source as specified in 40 C.F.R. § 68.115.

13. The regulations at 40 C.F.R. § 68.3 define "regulated substance" as any substance listed pursuant to Section 112(r)(3) of the CAA in 40 C.F.R. § 68.130.

14. The regulations at 40 C.F.R. § 68.3 define "process" as any activity involving a regulated substance including any use, storage, manufacturing, handling, or on-site movement of such substances, or combination of these activities. For purposes of this definition, any group of vessels that are interconnected, or separate vessels that are located such that a regulated substance could be involved in a potential release, shall be considered a single process.

15. As used herein, the term "day" shall mean calendar day.

16. All terms not defined herein shall have the meanings set forth in the CAA.

## IV. FINDINGS OF FACT AND CONCLUSIONS OF LAW

17. Respondent, Eureka Hunter Pipeline, LLC, is a limited liability company organized in the State of Delaware, with its principal place of business located at 777 Post Oak Boulevard, Suite 910, in Houston, Texas.

18. Respondent has owned and operated the natural gas processing plant located at 1 Union Carbide Road in Hastings, West Virginia (the "Carbide Facility") since March 6, 2013.

19. The Carbide Facility receives field gas from a pipeline gathering system, removes heavy liquids from the gas stream through separators, compresses the gas, and removes oil and water. Respondent stores the heavy liquids/condensates in storage tanks until the condensate is transferred to trucks. The gas is distributed to a pipeline.

20. On November 18, 2014, EPA conducted an inspection of the Carbide Facility to determine whether Respondent was in compliance with Section 112(r) of the CAA, 42 U.S.C. § 7412(r), and the Chemical Accident Prevention Provisions at 40 C.F.R. Part 68.

21. At the time of the inspection, EPA inspectors observed that Respondent stores condensate in ten 664-barrel atmospheric, aboveground storage tanks.

22. The substances methane, propane, isobutane, butane, isopentane, and pentane are listed on the List of Regulated Flammable Substances, at 40 C.F.R. § 68.130, Table 3.

23. According to the threshold quantity analysis of the condensate, prepared by and provided by Respondent to EPA, the following listed regulated substances are each present at the Carbide Facility in quantities over 10,000 pounds ("lbs"): methane (45,244 lbs), propane (95,349 lbs), isobutane (33,127 lbs), butane (89,882 lbs), isopentane (60,474 lbs) and pentane (80,189 lbs). Further, each of the six listed regulated substances comprise more than 1% of the condensate.

24. The storage and handling of the condensate in the aboveground storage tanks at the Carbide Facility constitutes a process within the meaning of the Chemical Accident Prevention Provisions, 40 C.F.R. § 68.3

25. The Chemical Accident Prevention Provisions require an owner or operator to comply with safety information requirements at 40 C.F.R. § 68.48(a)(5) and (b), *i.e.* to compile codes and standards used to design, build and operate the process, and to ensure that the process is designed in compliance with recognized and generally accepted good engineering practices.

26. "Recognized and generally accepted good engineering practices," for purposes of 40 C.F.R. § 68.48, include, the National Fire Protection Association 30, *Flammable and Combustible Liquids Code* (2008 Edition) ("NFPA 30"), Chapter 22, which includes a provision

addressing the storage of flammable and combustible liquids. Section 22.7.1.1 of NFPA 30 states, "[e]very aboveground storage tank shall have emergency relief venting in the form of construction or a device or devices that will relieve excessive internal pressure caused by an exposure fire."

27. EPA inspectors observed that the 664-barrel aboveground storage tanks at the Carbide Facility described in Paragraph 21 did not have emergency vents.

28. Section 112(r)(7) of the CAA, 42 U.S.C. § 7412(r)(7), and Section 68.150(a) and (b)(3) of the Chemical Accident Prevention Provisions, 40 C.F.R. § 68.150(a) and (b)(3), require the owner and operator of a stationary source to submit an RMP to EPA for its covered processes by the date that a regulated substance is first present above a threshold quantity in a process.

29. At the time of the inspection, Respondent had not submitted an RMP for the Carbide Facility to EPA, as required by Section 112(r)(7) of the CAA, 42 U.S.C. § 7412(r)(7), and 40 C.F.R. § 68.150.

30. Based on information provided by Respondent to EPA during and after the inspection, EPA notified Respondent by letter dated May 8, 2015 that:

a. Respondent had not ensured that the process was designed in compliance with recognized and generally accepted good engineering practices, as required by Section 68.48 of the Chemical Accident Prevention Provisions, 40 C.F.R. § 68.48; and

b. Respondent had not completed its submission of its RMP for the Carbide Facility, as required by Section 112(r)(7) of the Clean Air Act, 42 U.S.C. § 7412(r)(7), and Section 68.150(a) of the Chemical Accident Prevention Provisions, 40 C.F.R. § 68.150(a).

31. Respondent completed its electronic submission of the RMP to EPA on June 30, 2015.

32. As a limited liability company, Respondent Eureka Hunter Pipeline, LLC, is, and at times referred to herein was, a "person" as defined by Section 302(e) of the CAA, 42 U.S.C. § 7602(e), and an owner of the Carbide Facility.

33. Respondent is, and at times referred to herein was, an owner and operator of a "stationary source," as the term is defined at 40 C.F.R. § 68.3.

34. The total quantity of the condensate at the Carbide Facility is counted when determining whether more than a threshold quantity of a listed substance is present in a process,

pursuant to 40 C.F.R. § 68.115(b)(2). The total quantity of condensate at the Carbide Facility totals 404,465 pounds.

35. The threshold quantity for a mixture of flammable substances containing the regulated substances methane, propane, isobutene, butane, isopentane or pentane at a concentration greater than one percent is 10,000 pounds, pursuant to 40 C.F.R. §§ 68.115(b)(2) and 68.130, Table 3.

36. EPA has determined that more than a threshold quantity of a regulated substance is present in a process at the Carbide Facility.

37. The Carbide Facility constitutes a stationary source and a natural gas processing plant, as the terms are defined at 40 C.F.R. § 68.3.

38. Respondent is subject to the requirements of Section 112(r) of the CAA, 40 U.S.C. § 7412(r), and 40 C.F.R. Part 68, at the Carbide Facility because Respondent is an owner or operator of a stationary source that has more than a threshold quantity of a regulated substance in a process.

## V. FINDINGS OF VIOLATION

39. EPA's investigation indicates that Respondent violated the requirements of Section 112(r)(7) of the CAA, 42 U.S.C. § 7412(r)(7), and the Chemical Accident Prevention Provisions of 40 C.F.R. Part 68 to fully implement a risk management program at the Carbide Facility. Respondent failed to submit an RMP in March 2013, when regulated substances were first present above threshold quantities at the Carbide Facility, as required by Section 112(r)(7) of the CAA, 42 U.S.C, § 7412(r)(7), and 40 C.F.R. § 68.150, and Respondent failed to ensure that the storage of flammable chemicals in aboveground storage tanks at the Carbide Facility was designed in accordance with recognized and generally accepted good engineering practices, in accordance with 40 C.F.R. § 68.48(b).

## VI. ORDER

40. EPA hereby issues this Order to Respondent under the authority of Section 113(a)(3)(B) of the CAA, 42 U.S.C. § 7413(a)(3)(B), to address violations alleged in Section IV, Findings of Fact and Conclusions of Law, and Section V, Findings of Violation. EPA and Respondent agree that neither this Order, including Findings of Fact and Conclusions of Law and Findings of Violation in Sections IV and V, respectively, nor the actions undertaken by Respondent hereunder shall constitute or be construed as an admission of liability by Respondent for any purpose. Respondent does not admit, and retains the right to controvert in any proceeding other than proceedings to implement or enforce this Order, the validity of Findings of Fact and Conclusions of Law, or Findings of Violation contained in Sections IV and V, respectively. However, Respondent agrees to undertake the actions specified below.

41. Respondent shall comply with the following requirements (the "Work"):

a. Within thirty (30) days of the effective date of this Order, identify a person, subject to acceptance by EPA, competent to undertake the Work specified herein;

b. Within forty-five (45) days of receipt of EPA's written acceptance of the person competent to undertake the Work, Respondent shall submit to EPA for approval a plan and schedule ("Work Plan and Schedule") for the implementation of the following task, which shall comply with the safety information requirements of the Chemical Accident Prevention Provisions, 40 C.F.R. § 68.48: install emergency venting devices on all of the aboveground storage tanks at the Carbide Facility storing condensate to provide protection consistent with the applicable provisions of NFPA 30, Section 22.7.

c. EPA will review the Work Plan and Schedule and either approve it in writing or request in writing that Respondent make changes and resubmit to EPA the Work Plan and Schedule within thirty (30) days of EPA's written request to do so.

d. Within thirty (30) days of receipt of EPA's final written approval of the Work Plan and Schedule submitted pursuant to Subparagraph 41.b, or as re-submitted pursuant to Subparagraph 41.c, above, Respondent shall proceed to initiate implementation of the EPA-approved Work Plan in accordance with the EPA-approved Schedule.

e. Within thirty (30) days after completing the Work at the Carbide Facility in accordance with the EPA-approved Work Plan and Schedule, Respondent shall submit to EPA, for EPA's approval, a final report which verifies that Respondent has complied with the requirements of Subparagraphs 41.d (the "Final Report").

f. EPA will review the Final Report submitted pursuant to Subparagraph 41.e., above, and will either approve it in writing or identify deficiencies in writing ("Notice of Work Deficiencies") and direct Respondent to correct and/or re-perform any Work disapproved by EPA and resubmit the Final Report, for EPA approval, within thirty (30) days of receiving the Notice of Work Deficiencies.

42. Unless otherwise required by the terms of this Order, any notice, report, plan, certification, data presentation or other document submitted by Respondent under or pursuant to this Order which discusses, describes, demonstrates or supports any finding or makes any representation concerning the Respondent's compliance or non-compliance with any requirement(s) of this Order shall be signed by a responsible official of the Respondent and include the following certification:

> I certify under penalty of law that I have examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

The term "responsible official" means: (i) the president, secretary or vice-president of the corporation in charge of principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. The responsible official of a partnership or sole proprietorship means the general partners or the proprietor, respectively.

43. Respondent shall provide EPA and its representatives, including contractors, with access to the Carbide Facility for the purpose of assessing Respondent's compliance with this Order and with the CAA. Respondent shall also provide EPA and its representatives, including contractors, with access to all records relating to Respondent's implementation of this Order. Nothing herein limits EPA's information-gathering or access authority under the CAA.

44. Respondent shall preserve all non-identical documents and information relating to the activities carried out pursuant to this Order for five (5) years after completion of the Work required by this Order. At the end of the 5-year period, Respondent shall notify EPA at least thirty (30) days before any such document or information is destroyed that such documents and information are available for inspection. Upon request, Respondent shall provide EPA with the originals or copies of such documents and information.

45. All documents submitted by Respondent to EPA in the course of implementing this Order shall be available to the public unless identified as confidential by Respondent pursuant to 40 C.F.R. Part 2, Subpart B, and determined by EPA to merit treatment as confidential business information in accordance with applicable law.

## VII. PARTIES BOUND

46. This Order shall apply to and be binding upon Respondent, its agents, successors, and assigns and upon all persons, contractors and consultants acting under or for the Respondent, or persons acting in concert with Respondent who have actual knowledge of this Order or any combination thereof with respect to matter addressed in this Order. No change in ownership or corporate or partnership status of Respondent will in any way alter the status of the Respondent or its responsibilities under this Order.

47. No change in ownership of any of the Carbide Facility shall in any way affect Respondent's obligations and responsibilities under this Order.

48. In the event of any change in operation or control of the Carbide Facility, before termination of this Order pursuant to Paragraph 65, below, Respondent shall notify EPA in writing at least thirty (30) days in advance of such change and shall provide a copy of this Order to the transferee-in-interest of such Carbide Facility prior to any agreement for transfer.

## VIII. WRITTEN NOTICES

49. Information required to be submitted to Respondent under this Order must be sent to:

Greg Dotson, EHS Director
Eureka Hunter Pipeline, LLC
27710 State Route 7
Marietta, OH 45750
gdotson@ehp.energy

Copies shall be sent to:

Kathy Milenkovski, Esq.
Steptoe & Johnson PLLC
Huntington Center, Suite 2200
41 South High Street, Columbus, OH 43215
kathy.milenkovski@steptoe-johnson.com

50. Information required to be submitted to EPA under this Order must be sent to:

Kevin Daniel, Risk Management Program Coordinator
Oil and Prevention Branch (3HS61)
U.S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029
(215) 814-3247
Email: daniel.kevin@epa.gov

Copies shall be sent to:

Cynthia T. Weiss, Esq.
Office of Regional Counsel (3RC42)
U.S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029
(215) 814-2659
Email: weiss.cynthia@epa.gov

## IX. EFFECT OF ORDER

51. The compliance measures ordered herein in Paragraph 41, above, address the violations alleged in Section IV, Findings of Fact and Conclusions of Law, and Section V, Findings of Violation. As set forth in Section 113(a)(4) of the CAA, 42 U.S.C. § 7413(a)(4), nothing in this Order shall prevent EPA from assessing any penalties, or otherwise affect or limit the United States' authority to enforce other provisions of the CAA, or affect any person's obligations to comply with any Section of the CAA, or with any regulation, term or condition of any permit, or applicable implementation plan promulgated, issued or approved under the CAA. Further, nothing in this Order shall limit or otherwise preclude the United States from taking criminal or additional civil judicial or administrative enforcement action against the Respondent or any third parties with regard to the Carbide Facility pursuant to any federal or state law, regulation or permit condition. Nothing in this Order shall limit or otherwise preclude the United States from taking criminal or additional civil judicial or administrative enforcement action against the Respondent for Respondent's failure to comply with any of the requirements of this Order.

## X. ENFORCEMENT

52. Failure to comply with this Order may result in a civil judicial or administrative action seeking an injunction and/or civil penalties of up to $37,500 per day of violation, pursuant to Section 113(b) and (d) of the CAA, 42 U.S.C. § 7413(b) and (d), the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461, et seq., as amended by the Debt Collection Improvement Act of 1996, 31 U.S.C. § 3701, et seq., as implemented by 40 C.F.R. Part 19, Adjustment of Civil Monetary Penalties for Inflation. EPA retains full authority to enforce the requirements of the CAA, 42 U.S.C. §§ 7401-7642, and nothing in this Order shall be construed to limit this authority.

53. Respondent waives any and all claims for relief and otherwise available rights or remedies to judicial or administrative review which the Respondent may have with respect to any issue of fact or law set forth in this Order, including, but not limited to, any right of judicial review of the Order under the Administrative Procedure Act, 5 U.S.C. §§ 701-708.

54. This Order shall not relieve Respondent of its obligation to comply with all applicable federal, state, and local laws, regulations and other legal requirements, including but

not limited to Section 112(r) of the CAA, 42 U.S.C. § 7412(r), nor shall it be construed to be a ruling on, or determination of, any issue related to any federal, state or local permit.

55. Nothing herein shall limit the power and authority of EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of a regulated substance, extremely hazardous substance, or other hazardous substance on, at, or from the Carbide Facility. This Order shall not constitute or be construed as a release of any liability that the Respondent or any other person may have under the CAA, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601-9675, or any other law.

56. Neither EPA nor the United States, by issuance of this Order, assumes any liability for any acts or omissions by Respondent or Respondent's employees, agents, contractors, or consultants engaged to carry out any action or activity pursuant to this Order, nor shall EPA or the United States be held as a party to any contract entered into by Respondent or by Respondent's employees, agents, contractors, or consultants engaged to carry out the requirements of this Order.

## XI. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

57. Respondent has conferred with EPA concerning the alleged violations set forth herein by negotiating this Order. This Order shall be effective upon receipt by the Respondent of a fully executed copy of the Order.

58. Any reports, plans, specifications, schedules, or other submissions required by this Order are, upon approval by EPA, incorporated into this Order. Any non-compliance with such EPA-approved reports, plans, specifications, schedules, or other submissions shall be considered non-compliance with the requirements of this Order.

59. No informal advice, guidance, suggestions or comments by EPA regarding reports, plans, specifications, schedules, or other submissions by the Respondent or the requirements of this Order will be construed as relieving the Respondent of its obligation to obtain formal approval when required by this Order, and to comply with the requirements of this Order unless formally modified.

60. This Order may be modified or amended in a writing executed by the Director of the Hazardous Site Cleanup Division and the Respondent. Such modifications or amendments shall be effective on the date they are fully executed by the Respondent and the Director of the Hazardous Site Cleanup Division or such other date as set by the Director of the Hazardous Site Cleanup Division. Minor modifications to the Order, the Work Plan and/or Schedule may be approved by EPA's assigned Risk Management Program Coordinator.

## XII. FAILURE TO PERFORM

61. In the event of an inability or anticipated inability on the part of the Respondent to perform any of the actions required by this Order in the time and manner required herein, the Respondent shall notify EPA orally within twenty-four (24) hours of such failure or inability (or, if the failure occurs on a Friday or Saturday, Sunday, or legal holiday, no later than the following business day) and in writing as soon as possible, but in no event more than three (3) days after such action was due. Such notice shall set forth the reason(s) for, and the expected duration of, the inability to perform; the actions taken and to be taken by Respondent to avoid and mitigate the impact of such inability to perform; and the proposed schedule for completing such actions. Such notification shall not relieve Respondent of any obligation of this Order. Respondent shall take all reasonable actions to prevent and minimize any delay.

62. Failure by Respondent to carry out any requirement of this Order in accordance with the terms and conditions specified herein may result in the initiation of an enforcement action against Respondent to require Respondent to perform such actions, in addition to any other relief that may be available to EPA pursuant to applicable law. Respondent reserves all rights, claims and defenses to respond to any enforcement by EPA pursuant to this paragraph or under any authority, except that Respondent shall not contest EPA's authority to enforce this Order, as set forth in Paragraphs 3 and 40, above.

63. Nothing in this Section XII or any other provision of this Order shall be construed so as to limit any powers EPA may have under the CAA or any other law or regulation, nor shall this Order be construed so as to limit any defenses that Respondent may have under the CAA or otherwise.

## XIII. SEVERABILITY

64. If any provision or authority of this Order, or the application of this Order to any party or circumstances, is held by any judicial or administrative authority to be invalid, the application of such provisions to other parties or circumstances and the remainder of the Order shall remain in full force and not be effected thereby.

## XIV. TERMINATION AND SATISFACTION

65. When EPA determines, after EPA's review and approval of the Final Report required pursuant to Paragraph 41.e of this Order, that all Work specified in Section VI of this Order has been fully performed, with the exception of any continuing obligations required by this Order, EPA will provide a notice of termination to the Respondent.

66. Termination of this Order shall not terminate Respondent's obligation to comply with any continuing obligations of any federal, state or local law, statute, ordinance, rule or

regulation, and all continuing obligations shall continue as they did before the termination of the Order.

## XV. COPIES OF ADMINISTRATIVE ORDER

67. Copies of this Order will be provided via email to Scott G. Mandirola, Director, Division of Water and Waste Management, West Virginia Department of Environmental Protection, scott.g.mandirola@wv.gov, 601 57th Street SE, Charleston, WV 25304; and Jesse Adkins, Air Quality Division, Compliance and Enforcement, West Virginia Department of Environmental Protection, jesse.adkins@wv.gov, 601 57th Street SE, Charleston, WV 25304.

FOR EUREKA HUNTER PIPELINE, LLC

Date: 7/1/15

Chris Akers
Executive Vice President and Chief Operating Officer

FOR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

_____ Date: _____

Cecil Rodrigues, Director
Hazardous Site Cleanup Division
Environmental Protection Agency, Region III

# Eureka Hunter Pipeline, LLC
# Carbide Facility
# Work Plan for AOC (USEPA Docket No. CAA-03-2015-0181DA)

## Facility Description

Facility Name: Carbide Facility
Facility Address: 1 Carbide Road
City State Zip: Hastings, WV 26149

## Owner Description

Owner/Operator Name: Eureka Hunter Pipeline (EHP), LLC
Owner/Operator Address: 27710 State Route 7
City State Zip: Marietta, OH 45750
Telephone Number: 740-868-1325

## Project Work Plan

## Purpose

The undertaking of this project is to meet compliance requirements set forth in the Administrative Order of Consent (AOC) issued under USEPA Docket No. CAA-03-2015-0181DA.

## Requirement

EHP is to ensure that the storage of flammable chemicals in aboveground storage tanks at the Carbide Facility is designed in accordance with recognized and generally accepted good engineering practices. "Recognized and generally accepted good engineering practices," for purposes of 40 C.F.R. § 68.48, include, the National Fire Protection Association 30, *Flammable and Combustible Liquids Code* (2008 Edition) ("NFPA 30"), Chapter 22, which includes a provision for addressing the storage of flammable and combustible liquids. Section 22.7.1.1 of NFPA 30 states, "every aboveground storage tank shall have emergency relief venting in the form of construction or a device or devices that will relieve excessive internal pressure caused by an exposure fire."

## Scope

A new tank farm will be constructed of 6 new 750 barrel tanks with the appropriate emergency vents meeting the relief requirements stipulated in 22.7.1.1 of NFPA 30. The new tanks will be located in a new tank farm constructed of concrete. This option of meeting the relief requirement of the AOC was based on the safest means of increasing the relief requirements of NFPA 30 for above ground storage tanks containing flammable or combustible liquids, as well as, meeting the operational requirements needed to meet EHP's contractual business obligations.

## Concept of Construction

The existing tank farm containing the four 667 barrel tanks will be taken out of service first and the new tank farm will be built in its place. Those 4 tanks will be removed and demolished. The remaining 6 tanks will remain in service

until the new tank farm is constructed and placed into service. Once the new tank farm is in service, then the remaining 6 tanks will be taken out of service and demolished. The sequence of events is listed below and noted on the attached schedule.

I. Perform process simulations to determine proper tank size, material composition and mass/energy balance.
II. Evaluate use of vapor recovery options and combustor options.
III. Performing venting calculation per NFPA 30 to determine required venting area.
IV. Develop P&ID's, Specify API 12F tanks and Specify required Vents.
V. Conduct HAZOP on the proposed storage units.
VI. Develop Operational Plan to remove 4 west tanks from service while operating with the 6 west tanks.
VII. Take out of service and demolish the 4 east tanks, including diked area.
VIII. Construct concrete diked area and install 4 new properly sized tanks.
IX. Install new emergency vents.
X. Provide Operator training for new tank facilities.
XI. Commission new tank facilities
XII. Conduct Pre-startup Safety Review and rectify any identify items.
XIII. Start-up the new storage facility
XIV. Take out of service and demolish the 6 west tanks, including diked area.
XV. Compile and Submit final compliance report.

## Summary

This project is not in EHP's 2015 capital budget, which was established prior to receipt of the AOC. It will be included and fully funded in the 2016 capital budget. Completing this project in 2016 will also afford the opportunity to coordinate limited facility shut downs for additional projects being completed during the calendar year.

The tanks and the emergency relief vents have lead times of delivery of nearly 3 months providing there are no problems encountered by the equipment manufacturer and delivery transportation.

Construction is being planned for early spring of 2016 in order to avoid construction delays that are common during the winter months and is projected to take approximately 4 months for completion. Once construction is completed then personnel will be trained on the new equipment and process, then the new tank farm will be commissioned and the planned start date is for August 31, 2016.

Upon completion of the project, then all of the project documentation including all final drawings will be compiled and included into a final report to be issued no later than November 23, 2016.

# ATACHMENT I

# Emission Unit Table

**Attachment I**
**Emission Units Table**
**(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)**

| Emission Unit ID[1] | Emission Point ID[2] | Emission Unit Description | Year Installed/ Modified | Design Capacity | Type[3] & Date of Change | Control Device [4] |
|---|---|---|---|---|---|---|
| S1 | E1 | CAT 3516B ENGINE | 2012 | 1380 HP | EXIST | C1 |
| S2 | E2 | CAT 3516B ENGINE | 2012 | 1380 HP | EXIST | C2 |
| S3 | E3 | CAT 3516B ENGINE | 2012 | 1380 HP | EXIST | C3 |
| S4 | E4 | CAT 3516B ENGINE | 2012 | 1380 HP | EXIST | C4 |
| S5A | E5A | CAT 3406 NA ENGINE | 2013 | 215 HP | EXIST | C5A / NSCR |
| S6A | E6A | CAT 3406 NA ENGINE | 2013 | 215 HP | **REM** | C6A / NSCR |
| S7 | E7 | DEHYDRATION Unit (Reboiler and Still Vent) | 2012 | 1.5 MM BTU/Hr | EXIST | None |
| S8 | E8 | CAT 3516B ENGINE | 2012 | 1380 HP | EXIST | C8 |
| S9 | E9 | CAT 3516B ENGINE | 2012 | 1380 HP | EXIST | C9 |
| S10 | E10 | CAT 3516B ENGINE | 2012 | 1380 HP | EXIST | C10 |
| S11 | E11 | CAT 3516B ENGINE | 2012 | 1380 HP | EXIST | C11 |
| S12 | E12 | CAT 3516B ENGINE | 2012 | 1380 HP | Previously REM | C11 |
| S13 | E13 | CAT 3516B ENGINE | 2012 | 1380 HP | Previously REM | C11 |
| S14 | E16 | TRUCK LOADING (Uncaptured) | 2012 | 4,600,000 gallons/yr | EXIST | VCU-1 (S15) |
| S17 | E17 | LINE HEATER | 2013 | 750 MBTU/Hr | EXIST | None |
| S17-A | E17-A | LINE HEATER | 2016 | 4.0 MMBTU/Hr | EXIST | None |

**Attachment I**
**Emission Units Table**
**(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)**

| | | | | | | |
|---|---|---|---|---|---|---|
| S17-B | E17-B | LINE HEATER | 2016 | 2.0 MMBTU/Hr | EXIST | None |
| S15 | E16 | Truck Loading VCU | 2014 | 2.7 MMBTU/Hr | **REM** | N/A |
| S15-A | E16 | Truck Loading VCU Pilot | 2014 | 551 scf/Hr | **REM** | N/A |
| **S15-B** | **E16-A** | **Truck Loading VCU** | **2016** | **10.0 MMBTU/Hr** | **NEW** | None |
| **S15-C** | **E16-B** | **Truck Loading VCU Pilot** | **2016** | **8.0 MBTU/Hr** | **NEW** | None |
| S18 | E18 | Pigging and Blowdowns | 2012 | N/A | EXIST | None |
| S19 | E19 | Fugitive Emissions | 2012 | N/A | EXIST | None |
| S20 | E20 | CAT 3608B ENGINE | 2015 | 2750 HP | EXIST | C20 |
| T12 | E19 | Condensate Tank | 2012 | 630 BBL | **REM** | VRU |
| T13 | E19 | Condensate Tank | 2012 | 630 BBL | **REM** | VRU |
| T14 | E19 | Condensate Tank | 2012 | 630 BBL | **REM** | VRU |
| T15 | E19 | Condensate Tank | 2012 | 630 BBL | **REM** | VRU |
| T16 | E19 | Condensate Tank | 2012 | 630 BBL | **REM** | VRU |
| T17 | E19 | Condensate Tank | 2012 | 630 BBL | **REM** | VRU |
| T18 | E19 | Condensate Tank | 2012 | 630 BBL | **REM** | VRU |
| T19 | E19 | Condensate Tank | 2012 | 630 BBL | **REM** | VRU |
| T20 | E19 | Condensate Tank | 2012 | 630 BBL | **REM** | VRU |

**Attachment I**
**Emission Units Table**
**(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)**

| | | | | | | |
|---|---|---|---|---|---|---|
| T21 | E19 | Condensate Tank | 2012 | 630 BBL | **REM** | VRU |
| **T33** | **E21** | **Condensate Tank** | **2016** | **500 BBL** | **NEW** | **VCU-2** |
| **T34** | **E21** | **Condensate Tank** | **2016** | **500 BBL** | **NEW** | **VCU-2** |
| **T35** | **E21** | **Condensate Tank** | **2016** | **500 BBL** | **NEW** | **VCU-2** |
| **T36** | **E21** | **Condensate Tank** | **2016** | **500 BBL** | **NEW** | **VCU-2** |
| **T37** | **E21** | **Condensate Tank** | **2016** | **500 BBL** | **NEW** | **VCU-2** |
| **T38** | **E21** | **Condensate Tank** | **2016** | **500 BBL** | **NEW** | **VCU-2** |
| **T39** | **E21** | **Condensate Tank** | **2016** | **500 BBL** | **NEW** | **VCU-2** |
| **T40** | **E21** | **Condensate Tank** | **2016** | **500 BBL** | **NEW** | **VCU-2** |
| **S21-A** | **E21-A** | **Enclosed Combustor** | **2016** | **10.0 MMBTU/Hr** | **NEW** | **N/A** |
| **S21-B** | **E21-B** | **Enclosed Combustor** | **2016** | **10.0 MMBTU/Hr** | **NEW** | **N/A** |
| **S21-C** | **E21-C** | **Enclosed Combustor** | **2016** | **10.0 MMBTU/Hr** | **NEW** | **N/A** |
| **S21-D** | **E21-D** | **Enclosed Combustor** | **2016** | **10.0 MMBTU/Hr** | **NEW** | **N/A** |
| **S22-A** | **E21-A** | **Condensate Tank Combustor Pilot** | **2016** | **8.0 MBTU/Hr** | **NEW** | **N/A** |
| **S22-B** | **E21-B** | **Condensate Tank Combustor Pilot** | **2016** | **8.0 MBTU/Hr** | **NEW** | **N/A** |
| **S22-C** | **E21-C** | **Condensate Tank Combustor Pilot** | **2016** | **8.0 MBTU/Hr** | **NEW** | **N/A** |
| **S22-D** | **E21-D** | **Condensate Tank Combustor Pilot** | **2016** | **8.0 MBTU/Hr** | **NEW** | **N/A** |

[1] For Emission Units (or Sources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation.
[2] For Emission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

# ATTACHMENT J

# Emission Points Data Summary Sheet

**ATTACHMENT J**

**Emission Points Data Summary Sheet**

## Table 1: Emissions Data

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| E1 | Upward Vertical Stack | S1 | Engine #1 | C1 | SCR | C | 8760 | $NO_x$ | 1.52 | 6.66 | 1.52 | 6.66 | Gas | EE | |
| | | | | | | | | CO | 8.82 | 38.64 | 0.61 | 2.67 | Gas | EE | |
| | | | | | | | | VOC | 2.01 | 8.80 | 1.00 | 4.40 | Gas | EE | |
| | | | | | | | | PM10 | 0.103 | 0.45 | 0.103 | 0.45 | Solid | EE | |
| | | | | | | | | SO2 | 0.006 | 0.027 | 0.006 | 0.027 | Gas | EE | |
| | | | | | | | | Benzene (71-43-2) | 0.0008 | 0.00 | 0.0004 | 0.00 | Gas | EE | |
| | | | | | | | | Formaldehyde (50-00-0) | 1.247 | 5.46 | 0.1825 | 0.80 | Gas | EE | |
| E2 | Upward Vertical Stack | S2 | Engine #2 | C2 | SCR | C | 8760 | $NO_x$ | 1.52 | 6.66 | 5.91 | 25.88 | Gas | EE | |
| | | | | | | | | CO | 8.82 | 38.64 | 0.28 | 1.23 | Gas | EE | |
| | | | | | | | | VOC | 2.01 | 8.80 | 0.23 | 1.01 | Gas | EE | |
| | | | | | | | | PM10 | 0.103 | 0.45 | 0.11 | 0.48 | Solid | EE | |
| | | | | | | | | SO2 | 0.006 | 0.027 | 0.007 | 0.029 | Gas | EE | |
| | | | | | | | | Benzene (71-43-2) | 0.0008 | 0.00 | 0.0014 | 0.01 | Gas | EE | |
| | | | | | | | | Formaldehyde (50-00-0) | 1.247 | 5.46 | 0.0369 | 0.16 | Gas | EE | |

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| E3 | Upward Vertical Stack | S3 | Engine #3 | C3 | SCR | C | 8760 | $NO_X$ | 1.52 | 6.66 | 5.91 | 25.88 | Gas | EE | |
| | | | | | | | | CO | 8.82 | 38.64 | 0.28 | 1.23 | Gas | EE | |
| | | | | | | | | VOC | 2.01 | 8.80 | 0.23 | 1.01 | Gas | EE | |
| | | | | | | | | PM10 | 0.103 | 0.45 | 0.11 | 0.48 | Solid | EE | |
| | | | | | | | | SO2 | 0.006 | 0.027 | 0.007 | 0.029 | Gas | EE | |
| | | | | | | | | Benzene (71-43-2) | 0.0008 | 0.00 | 0.0014 | 0.01 | Gas | EE | |
| | | | | | | | | Formaldehyde (50-00-0) | 1.247 | 5.46 | 0.0369 | 0.16 | Gas | EE | |
| E4 | Upward Vertical Stack | S4 | Engine #4 | C4 | SCR | C | 8760 | $NO_X$ | 1.52 | 6.66 | 5.91 | 25.88 | Gas | EE | |
| | | | | | | | | CO | 8.82 | 38.64 | 0.28 | 1.23 | Gas | EE | |
| | | | | | | | | VOC | 2.01 | 8.80 | 0.23 | 1.01 | Gas | EE | |
| | | | | | | | | PM10 | 0.103 | 0.45 | 0.11 | 0.48 | Solid | EE | |
| | | | | | | | | SO2 | 0.006 | 0.027 | 0.007 | 0.029 | Gas | EE | |
| | | | | | | | | Benzene (71-43-2) | 0.0008 | 0.00 | 0.0014 | 0.01 | Gas | EE | |
| | | | | | | | | Formaldehyde (50-00-0) | 1.247 | 5.46 | 0.0369 | 0.16 | Gas | EE | |
| E5A | Upward Vertical Stack | S5A | Flash Gas Comp. | C5A | NSCR | C | 8760 | $NO_X$ | 7.669 | 33.59 | 0.46 | 2.02 | Gas | EE | |
| | | | | | | | | CO | 7.669 | 33.59 | 0.46 | 2.02 | Gas | EE | |
| | | | | | | | | VOC | 0.123 | 0.54 | 0.06 | 0.27 | Gas | EE | |
| | | | | | | | | PM10 | 0.037 | 0.16 | 0.037 | 0.16 | Solid | EE | |
| | | | | | | | | SO2 | 0.00 | 0.01 | 0.00 | 0.01 | Gas | EE | |
| | | | | | | | | Formaldehyde (50-00-0) | 0.128 | 0.56 | 0.06 | 0.28 | Gas | EE | |

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| E6A **(Removed)** | Upward Vertical Stack | S6A | VRU Comp. | C6A | NSCR | C | 8760 | $NO_X$ | 0.00 | 0.00 | 0.00 | 0.00 | Gas | EE | |
| | | | | | | | | CO | 0.00 | 0.00 | 0.00 | 0.00 | Gas | EE | |
| | | | | | | | | VOC | 0.00 | 0.00 | 0.00 | 0.00 | Gas | EE | |
| | | | | | | | | PM10 | 0.00 | 0.00 | 0.00 | 0.00 | Solid | EE | |
| | | | | | | | | SO2 | 0.00 | 0.00 | 0.00 | 0.00 | Gas | EE | |
| | | | | | | | | Formaldehyde (50-00-0) | 0.00 | 0.00 | 0.00 | 0.00 | Gas | EE | |
| E7 | Upward Vertical Stack | S7 | Dehy Reboiler Vent | | None | C | 8760 | $NO_X$ | 0.15 | 0.67 | 0.15 | 0.67 | Gas | EE | |
| | | | | | | | | CO | 0.13 | 0.56 | 0.13 | 0.56 | Gas | EE | |
| | | | | | | | | VOC | 0.23 | 1.01 | 0.23 | 1.01 | Gas | EE | |
| | | | | | | | | PM10 | 0.012 | 0.00 | 0.012 | 0.00 | Solid | EE | |
| | | | | | | | | SO2 | 0.001 | 0.00 | 0.001 | 0.00 | Gas | EE | |
| | | | | | | | | Benzene (71-43-2) | 0.005 | 0.02 | 0.005 | 0.02 | Gas | EE | |
| | | | | | | | | Formaldehyde (50-00-0) | 0.00 | 0.00 | 0.00 | 0.00 | Gas | EE | |

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| E8 | Upward Vertical Stack | S8 | Engine #5 | C8 | SCR | C | 8760 | $NO_X$ | 1.52 | 6.66 | 5.91 | 25.88 | Gas | EE | |
| | | | | | | | | CO | 8.82 | 38.64 | 0.28 | 1.23 | Gas | EE | |
| | | | | | | | | VOC | 2.01 | 8.80 | 0.23 | 1.01 | Gas | EE | |
| | | | | | | | | PM10 | 0.103 | 0.45 | 0.11 | 0.48 | Solid | EE | |
| | | | | | | | | SO2 | 0.006 | 0.027 | 0.007 | 0.029 | Gas | EE | |
| | | | | | | | | Benzene (71-43-2) | 0.0008 | 0.00 | 0.0014 | 0.01 | Gas | EE | |
| | | | | | | | | Formaldehyde (50-00-0) | 1.247 | 5.46 | 0.0369 | 0.16 | Gas | EE | |
| E9 | Upward Vertical Stack | S9 | Engine #6 | C9 | SCR | C | 8760 | $NO_X$ | 1.52 | 6.66 | 5.91 | 25.88 | Gas | EE | |
| | | | | | | | | CO | 8.82 | 38.64 | 0.28 | 1.23 | Gas | EE | |
| | | | | | | | | VOC | 2.01 | 8.80 | 0.23 | 1.01 | Gas | EE | |
| | | | | | | | | PM10 | 0.103 | 0.45 | 0.11 | 0.48 | Solid | EE | |
| | | | | | | | | SO2 | 0.006 | 0.027 | 0.007 | 0.029 | Gas | EE | |
| | | | | | | | | Benzene (71-43-2) | 0.0008 | 0.00 | 0.0014 | 0.01 | Gas | EE | |
| | | | | | | | | Formaldehyde (50-00-0) | 1.247 | 5.46 | 0.0369 | 0.16 | Gas | EE | |

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| E10 | Upward Vertical Stack | S10 | Engine #7 | C10 | SCR | C | 8760 | $NO_X$ | 1.52 | 6.66 | 5.91 | 25.88 | Gas | EE | |
| | | | | | | | | CO | 8.82 | 38.64 | 0.28 | 1.23 | Gas | EE | |
| | | | | | | | | VOC | 2.01 | 8.80 | 0.23 | 1.01 | Gas | EE | |
| | | | | | | | | PM10 | 0.103 | 0.45 | 0.11 | 0.48 | Solid | EE | |
| | | | | | | | | SO2 | 0.006 | 0.027 | 0.007 | 0.029 | Gas | EE | |
| | | | | | | | | Benzene (71-43-2) | 0.0008 | 0.00 | 0.0014 | 0.01 | Gas | EE | |
| | | | | | | | | Formaldehyde (50-00-0) | 1.247 | 5.46 | 0.0369 | 0.16 | Gas | EE | |
| E11 | Upward Vertical Stack | S11 | Engine #8 | C11 | SCR | C | 8760 | $NO_X$ | 1.52 | 6.66 | 5.91 | 25.88 | Gas | EE | |
| | | | | | | | | CO | 8.82 | 38.64 | 0.28 | 1.23 | Gas | EE | |
| | | | | | | | | VOC | 2.01 | 8.80 | 0.23 | 1.01 | Gas | EE | |
| | | | | | | | | PM10 | 0.103 | 0.45 | 0.11 | 0.48 | Solid | EE | |
| | | | | | | | | SO2 | 0.006 | 0.027 | 0.007 | 0.029 | Gas | EE | |
| | | | | | | | | Benzene (71-43-2) | 0.0008 | 0.00 | 0.0014 | 0.01 | Gas | EE | |
| | | | | | | | | Formaldehyde (50-00-0) | 1.247 | 5.46 | 0.0369 | 0.16 | Gas | EE | |

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| E16 | Upward Vertical Stack | S15 | Truck Loading | VCU-1 | Enclosed Combustor | | | $NO_X$ | | | 0.21 | 0.06 | Gas | EE | |
| | | | | | | | | CO | | | 1.13 | 0.31 | Gas | EE | |
| | | | | | | | | VOC | 150 | 41.1 | 1.50 | 0.41 | Gas | EE | |
| | | | | | | | | PM10 | | | <0.01 | <0.01 | Solid | EE | |
| | | | | | | | | SO2 | | | <0.01 | <0.01 | Gas | EE | |
| | | | | | | | | | | | | | Gas | EE | |
| | | | | | | | | | | | | | Gas | EE | |
| E17 | Upward Vertical Stack | S17 | Line Heater | | None | C | 8760 | $NO_X$ | 0.08 | 0.33 | 0.08 | 0.33 | Gas | EE | |
| | | | | | | | | CO | 0.06 | 0.28 | 0.06 | 0.28 | Gas | EE | |
| | | | | | | | | VOC | 0.00 | 0.02 | 0.00 | 0.02 | Gas | EE | |
| | | | | | | | | PM10 | 0.01 | 0.03 | 0.01 | 0.03 | Solid | EE | |
| | | | | | | | | SO2 | 0.00 | 0.00 | 0.00 | 0.00 | Gas | EE | |
| | | | | | | | | | | | | | Gas | EE | |
| | | | | | | | | | | | | | Gas | EE | |

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| E17-A | Upward Vertical Stack | S17-A | Line Heater | | None | C | 8760 | $NO_X$ | 0.40 | 1.75 | 0.40 | 1.75 | Gas | EE | |
| | | | | | | | | CO | 0.34 | 1.47 | 0.34 | 1.47 | Gas | EE | |
| | | | | | | | | VOC | 0.02 | 0.10 | 0.02 | 0.10 | Gas | EE | |
| | | | | | | | | PM10 | 0.03 | 0.13 | 0.03 | 0.13 | Solid | EE | |
| | | | | | | | | SO2 | <0.01 | 0.01 | <0.01 | 0.01 | Gas | EE | |
| | | | | | | | | CO2e | 483 | 2,116 | 483 | 2,116 | Gas | EE | |
| | | | | | | | | Total HAPs | 0.01 | 0.03 | 0.01 | 0.03 | Gas | EE | |
| E17-B | Upward Vertical Stack | S17-B | Line Heater | | None | C | 8760 | $NO_X$ | 0.20 | 0.88 | 0.20 | 0.88 | Gas | EE | |
| | | | | | | | | CO | 0.17 | 0.74 | 0.17 | 0.74 | Gas | EE | |
| | | | | | | | | VOC | 0.01 | 0.05 | 0.01 | 0.05 | Gas | EE | |
| | | | | | | | | PM10 | 0.02 | 0.07 | 0.02 | 0.07 | Solid | EE | |
| | | | | | | | | SO2 | <.01 | <0.01 | <.01 | <0.01 | Gas | EE | |
| | | | | | | | | CO2e | 242 | 1058 | 242 | 1058 | Gas | EE | |
| | | | | | | | | Total HAPs | <0.01 | 0.02 | <0.01 | 0.02 | Gas | EE | |

| Emission Point ID No. *(Must match Emission Units Table & Plot Plan)* | Emission Point Type[1] | Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)* | | Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)* | | Vent Time for Emission Unit *(chemical processes only)* | | All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)* | Maximum Potential Uncontrolled Emissions [4] | | Maximum Potential Controlled Emissions [5] | | Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)* | Est. Method Used [6] | Emission Concentration [7] (ppmv or mg/m$^4$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | ID No. | Source | ID No. | Device Type | Short Term[2] | Max (hr/yr) | | lb/hr | ton/yr | lb/hr | ton/yr | | | |
| E20 | Upward Vertical Stack | S20 | Engine #11 | C20 | SCR | C | 8760 | $NO_X$ | 2.61 | 11.44 | 2.61 | 11.44 | Gas | EE | |
| | | | | | | | | CO | 14.37 | 62.93 | 1.04 | 4.58 | Gas | EE | |
| | | | | | | | | VOC | 5.70 | 24.09 | 1.72 | 7.55 | Gas | EE | |
| | | | | | | | | PM10 | 0.16 | 0.71 | 0.16 | 0.71 | Solid | EE | |
| | | | | | | | | SO2 | 0.01 | 0.04 | 0.01 | 0.04 | Gas | EE | |
| | | | | | | | | CO2e | 2304 | 10,092 | 2304 | 10,092 | Gas | EE | |
| | | | | | | | | | | | | | Gas | EE | |
| **E19/E21** | Upward Vertical Stack | T33-T40 | Cond-ensate Tanks | VCU-2 | Enclosed Combustor | | 8760 | $NO_X$ | | | 1.96 | 2.87 | Gas | EE | |
| | | | | | | | | CO | | | 10.66 | 15.57 | Gas | EE | |
| | | | | | | | | VOC | 459.3 | 2012 | 4.59 | 20.12 | Gas | EE | |
| | | | | | | | | PM10 | | | <0.01 | 0.10 | Solid | EE | |
| | | | | | | | | SO2 | | | <0.01 | <0.01 | Gas | EE | |
| | | | | | | | | CO2e | | | 3,372 | 4,945 | Gas | EE | |
| | | | | | | | | n-Hexane | 69.47 | 304.3 | 0.69 | 3.04 | Gas | EE | |

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that un-captured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g., un-captured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

1. Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.
2. Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (i.e., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).
3. List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, $CS_2$, VOCs, $H_2S$, Inorganics, Lead, Organics, $O_3$, NO, $NO_2$, $SO_2$, $SO_3$, etc. **DO NOT LIST** $CO_2$, $H_2$, $H_2O$, $N_2$, $O_2$, and Noble Gases.
4. Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g., 5 lb VOC/20 minute batch).
5. Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g., 5 lb VOC/20 minute batch).
6. Indicate method used to determine emission rate as follows:
   MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

# ATTACHMENT J

## Emission Points Data Summary Sheet

| Table 2: Release Parameter Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Emission Point ID No. *(Must match Emission Units Table)* | Inner Diameter (ft.) | Exit Gas | | | Emission Point Elevation (ft) | | UTM Coordinates (km) | |
| | | Temp. ($^{o}$F) | Volumetric Flow [1] (acfm) *at operating conditions* | Velocity (fps) | Ground Level *(Height above mean sea level)* | Stack Height [2] *(Release height of emissions above ground level)* | Northing | Easting |
| E1 | 1.67 | 1005 | 9216 | 70 | 740 | 22 | | |
| E2 | 1.67 | 1005 | 9216 | 70 | 740 | 22 | | |
| E3 | 1.67 | 1005 | 9216 | 70 | 740 | 22 | | |
| E4 | 1.67 | 1005 | 9216 | 70 | 740 | 22 | | |
| E5A | 0.5 | 992 | 678 | 57 | 740 | 8 | | |
| E6A | 0.5 | 992 | 447 | 38 | 740 | 8 | | |
| E7 | 0.667 | 600 | 700 (est.) | 30 | 740 | 20 | | |
| E8 | 1.67 | 1005 | 9216 | 70 | 740 | 22 | | |
| E9 | 1.67 | 1005 | 9216 | 70 | 740 | 22 | | |
| E10 | 1.67 | 1005 | 9216 | 70 | 740 | 22 | | |
| E11 | 1.67 | 1005 | 9216 | 70 | 740 | 22 | | |
| E12 | Removed | | | | | | | |
| E13 | Removed | | | | | | | |
| E16 | 1.58 | 1400 | 600 (est.) | 25 | 740 | 20 | | |
| E17 | 0.5 | 1100 | 627 (est. | 53 | 740 | 8 | | |
| E17-A | 0.67 | 1100 | 3326 (est.) | 39 | 740 | 12 | | |
| E17-B | 0.67 | 1100 | 2072 (est.) | 25 | 740 | 12 | | |
| E18 | 2.00 | 1050 | 16,187 | 82 | 740 | 22 | | |
| | 4.50 | 1400 | 30,000 (est.) | 31 | 740 | 20 | | |

[1] Give at operating conditions. Include inerts.
[2] Release height of emissions above ground level.

# ATTACHMENT L

# Emission Unit Data Sheets

# NATURAL GAS FIRED BOILER/LINE HEATER DATA SHEET

| Source ID #[1] | Status[2] | Design Heat Input (mmBtu/hr)[3] | Hours of Operation (hrs/yr)[4] | Fuel Heating Value (Btu/scf)[5] | |
|---|---|---|---|---|---|
| S7 | EXIST | 1.50 mmBTU/Hr | 8760 | 1084 BTU/scf (LHV) | |
| S17 | EXIST | 0.75 mmBTU/Hr | 8760 | 1084 BTU/scf (LHV) | |
| S17-A | EXIST | 4.0 mmBTU/Hr | 8760 | 1084 BTU/scf (LHV) | |
| S17-B | EXIST | 2.0 mmBTU/Hr | 8760 | 1084 BTU/scf (LHV) | |

1. Enter the appropriate Source Identification Numbers (Source ID #) for each boiler or line heater located at the compressor station. Boilers should be designated BLR-1, BLR-2, BLR-3, etc. Heaters or Line Heaters should be designated HTR-1, HTR-2, HTR-3, etc. Enter glycol dehydration unit Reboiler Vent data on the *Glycol Dehydration Unit Data Sheet*.
2. Enter the Status for each boiler or line heater using the following:

   EXIST Existing Equipment
   REM Equipment Removed
   NEW Installation of New Equipment
3. Enter boiler or line heater design heat input in mmBtu/hr.
4. Enter the annual hours of operation in hours/year for each boiler or line heater.
5. Enter the fuel heating value in Btu/standard cubic foot.

# STORAGE TANK DATA SHEET

| Source ID #[1] | Status[2] | Content[3] | Volume[4] | Dia[5] | Throughput[6] | Orientation[7] | Liquid Height[8] |
|---|---|---|---|---|---|---|---|
| T01-T04 | REM | Condensate | 250 BBL Each | 11 | 306,600 Gallons Each | VERT | 12 feet |
| T05 | EXIST | Produced Water | 2 Million | 86 | 30 million gallons | VERT | 30 feet |
| T06-T08 | REM | Lube Oil | 500 Gallon | 4.0 | 1500 Gallons Each | HORZ | 2 feet |
| T09 | EXIST | Used Oil | 300 Gallons | 4.0 | 2000 Gallons | HORZ | 2 feet |
| T10 | EXIST | Ethylene Glycol | 500 Gallon | 4.0 | 2000 Gallons | HORZ | 2 feet |
| T11 | EXIST | TEG | 500 Gallon | 4.0 | 1000 Gallons | HORZ | 2 feet |
| **T12-T21** | **REM** | Condensate | 630 BBL Each | 15 | 550,000 Gallons Each | VERT | 10 feet |
| T22-T30 | EXIST | Lube Oil | 500 Gallon | 4.0 | 1500 Gallons Each | HORZ | 2 feet |
| T31-T32 | EXIST | Lube Oil | 70 Gallon | 2.0 | 210 Gallons Each | HORZ | 1 foot |
| **T33-T40** | **NEW** | Condensate | 500 BBL Each | 15 | 575,000 Gallons Each | VERT | 10 feet |

1. Enter the appropriate Source Identification Numbers (Source ID #) for each storage tank located at the compressor station. Tanks should be designated T01, T02, T03, etc.
2. Enter storage tank Status using the following:

| | | | |
|---|---|---|---|
| EXIST | Existing Equipment | NEW | Installation of New Equipment |
| REM | Equipment Removed | | |

3. Enter storage tank content such as condensate, pipeline liquids, glycol (DEG or TEG), lube oil, etc.
4. Enter storage tank volume in gallons.
5. Enter storage tank diameter in feet.
6. Enter storage tank throughput in gallons per year.
7. Enter storage tank orientation using the following:

| | | | |
|---|---|---|---|
| VERT | Vertical Tank | HORZ | Horizontal Tank |

8. Enter storage tank average liquid height in feet.

# STORAGE VESSEL EMISSION UNIT DATA SHEET

*Provide the following information for each new or modified bulk liquid storage tank.*

## I. GENERAL INFORMATION (required)

| | |
|---|---|
| 1. Bulk Storage Area Name<br>**Condensate Tank Farm** | 2. Tank Name<br>**T33-T40** |
| 3. Emission Unit ID number<br>**Vapors to VRU (E19) or backup combustors (E21)** | 4. Emission Point ID number<br>**E19/E21** |
| 5. Date Installed or Modified *(for existing tanks)* | 6. Type of change:<br>☒ New construction ☐ New stored material ☐ Other |
| 7A. Description of Tank Modification *(if applicable)* **No modification. Replacement of Existing Tanks T12-T21** | |
| 7B. Will more than one material be stored in this tank? *If so, a separate form must be completed for each material.*<br>☐ Yes ☒ No | |
| 7C. Provide any limitations on source operation affecting emissions. (production variation, etc.)<br>**A maximum of 4.6 million gallons throughput for the eight tanks combined.** | |

## II. TANK INFORMATION (required)

| | |
|---|---|
| 8. Design Capacity *(specify barrels or gallons).* Use the internal cross-sectional area multiplied by internal height.<br>**500 BBL** | |
| 9A. Tank Internal Diameter (ft.) **12** | 9B. Tank Internal Height (ft.)**25** |
| 10A. Maximum Liquid Height (ft.)**22** | 10B. Average Liquid Height (ft.) **12** |
| 11A. Maximum Vapor Space Height (ft.) **24** | 11B. Average Vapor Space Height (ft.) **13** |
| 12. Nominal Capacity *(specify barrels or gallons)*. This is also known as "working volume. **440 BBL** | |
| 13A. Maximum annual throughput (gal/yr) **575,000/tank** | 13B. Maximum daily throughput (gal/day) **6500** |
| 14. Number of tank turnovers per year **31(max)** | 15. Maximum tank fill rate (gal/min) **6** |
| 16. Tank fill method ☒ Submerged ☐ Splash ☐ Bottom Loading | |
| 17. Is the tank system a variable vapor space system? ☐ Yes ☒ No<br>If yes, (A) What is the volume expansion capacity of the system (gal)?<br>(B) What are the number of transfers into the system per year? | |
| 18. Type of tank (check all that apply):<br>☒ Fixed Roof __X_ vertical ___ horizontal ___ flat roof ___ cone roof ___ dome roof ___ other (describe)<br><br>☐ External Floating Roof ___ pontoon roof ___ double deck roof<br>☐ Domed External (or Covered) Floating Roof<br>☐ Internal Floating Roof ___ vertical column support ___ self-supporting<br>☐ Variable Vapor Space ___ lifter roof ___ diaphragm<br>☐ Pressurized ___ spherical ___ cylindrical<br>☐ Underground<br>☐ Other (describe) | |

## III. TANK CONSTRUCTION AND OPERATION INFORMATION *(check which one applies)*

| |
|---|
| ☐ Refer to enclosed TANKS Summary Sheets |
| ☒ Refer to the responses to items 19 – 26 in section VII |

## IV. SITE INFORMATION *(check which one applies)*

| |
|---|
| ☐ Refer to enclosed TANKS Summary Sheets |
| ☒ Refer to the responses to items 27 – 33 in section VII |

## V. LIQUID INFORMATION *(check which one applies)*

| |
|---|
| ☐ Refer to enclosed TANKS Summary Sheets |
| ☒ Refer to the responses to items 34 – 39 in section VII |

## VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply):

☐ Does Not Apply ☐ Rupture Disc (psig)

☐ Carbon Adsorption[1] ☐ Inert Gas Blanket of _____

☒ Vent to Vapor Combustion Device[1] (vapor combustors, flares, thermal oxidizers)

☐ Condenser[1] ☐ Conservation Vent (psig

☒ Other[1] (describe) Vacuum Setting Pressure Setting

**Vapor Recovery Unit with Combustor as backup** ☒ Emergency Relief Valve (psig)

[1] Complete appropriate Air Pollution Control Device Sheet

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the application).

| **Material Name and CAS No.** | **Flashing Loss** | | **Breathing Loss** | | **Working Loss** | | **Total Emissions Loss** | | **Estimation Method[1]** |
|---|---|---|---|---|---|---|---|---|---|
| | **lb/hr** | **tpy** | **lb/hr** | **tpy** | **lb/hr** | **tpy** | **lb/hr** | **tpy** | |
| **VOCs** | | | | | | | **666.5** | **973** | Promax Model |
| **(Un-controlled)** | | | | | | | | | (attached in |
| Individual constituents | | | | | | | | | Calculations) |
| In provided Promax | | | | | | | | | |
| Output | | | | | | | | | |
| **Tanks T33-T42 Combined** | | | | | | | **13.35** | **19.46** | Tank Emissions |
| **Emissions** | | | | | | | | | Controlled 98% |
| | | | | | | | | | |
| | | | | | | Note: Hourly Max is 3x hourly rate in ProMax used to determine Annual Maximum | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

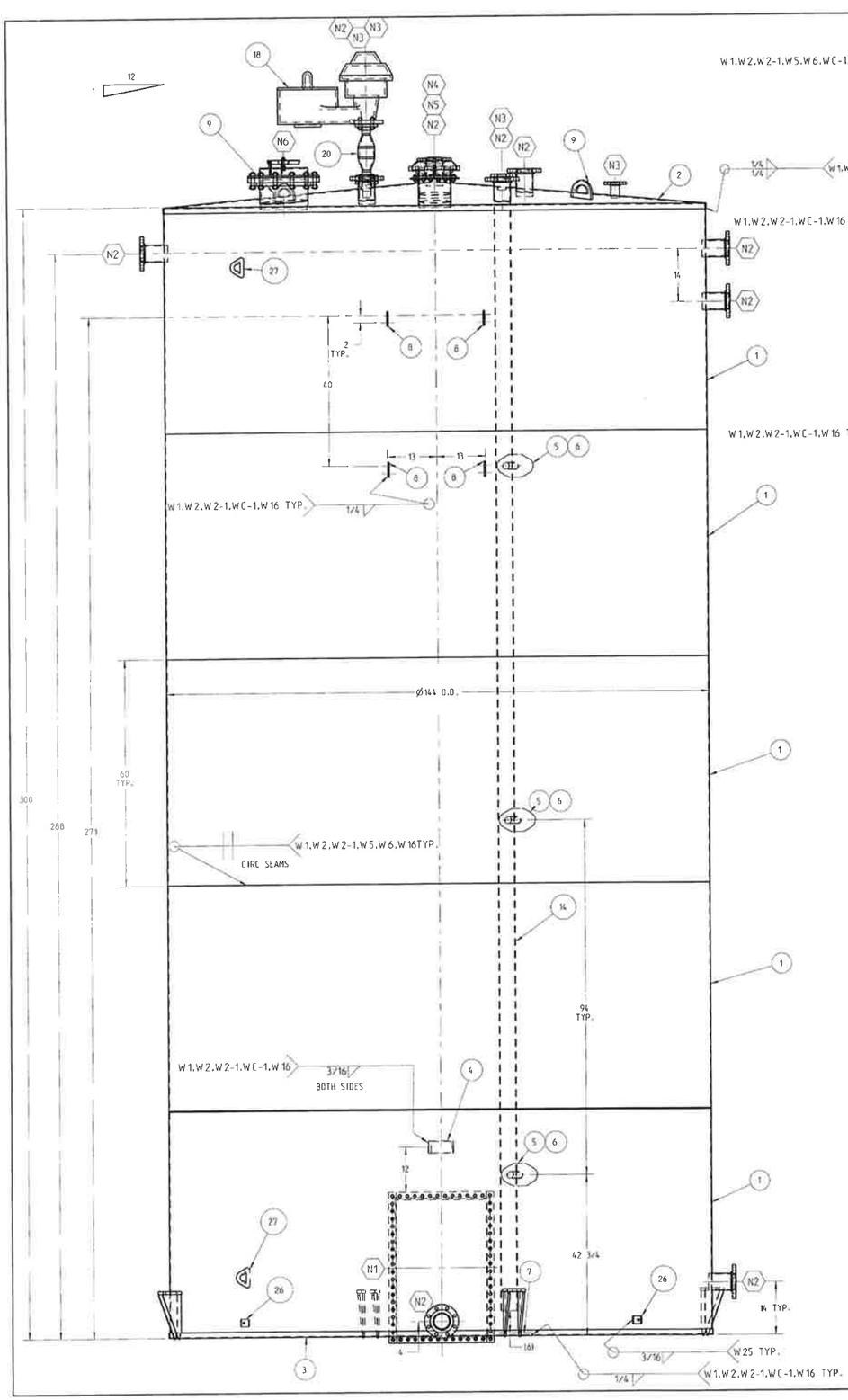
[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

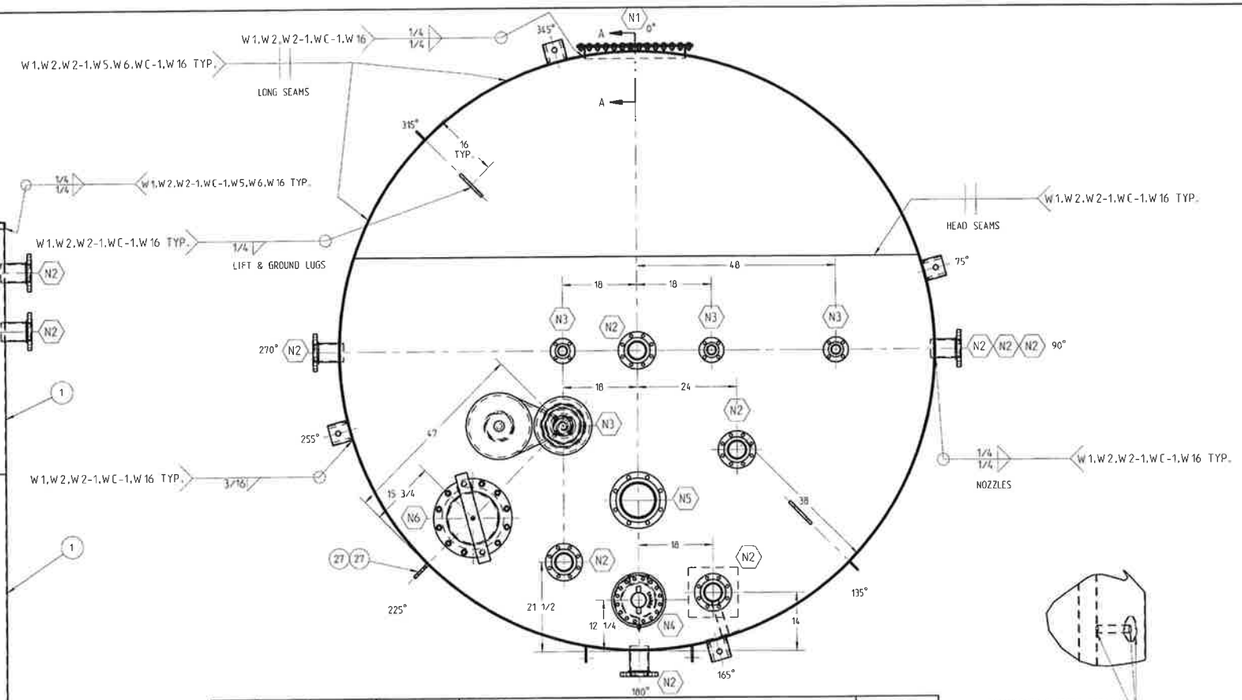
*Remember to attach emissions calculations, including TANKS Summary Sheets and other modeling summary sheets if applicable.*

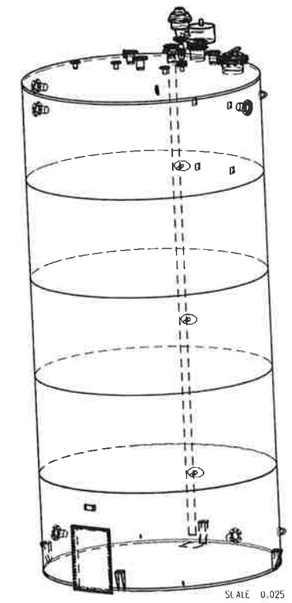
## SECTION VII (required if did not provide TANKS Summary Sheets)

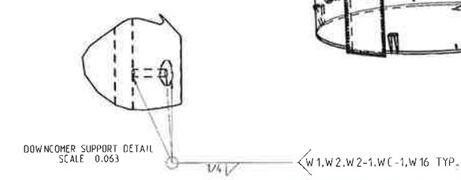
| **TANK CONSTRUCTION AND OPERATION INFORMATION** | | |
|---|---|---|
| 19. Tank Shell Construction: ☐ Riveted ☐ Gunite lined ☐ Epoxy-coated rivets ☒ Other (describe) | | |
| 20A. Shell Color: **White** | 20B. Roof Color: **White** | 20C. Year Last Painted: **NEW** |
| 21. Shell Condition (if metal and unlined): ☒ No Rust ☐ Light Rust ☐ Dense Rust ☐ Not applicable | | |
| 22A. Is the tank heated? ☐ Yes ☒ No | 22B. If yes, operating temperature: | 22C. If yes, how is heat provided to tank? |
| 23. Operating Pressure Range (psig): **Less than 0.3 psig** | | |
| 24. Is the tank a **Vertical Fixed Roof Tank**? ☒ Yes ☐No | 24A. If yes, for dome roof provide radius (ft): **N/A** | 24B. If yes, for cone roof, provide slop (ft/ft) **1/12** |
| 25. Complete item 25 for **Floating Roof Tanks** ☐ Does not apply ☒ | | |
| 25A. Year Internal Floaters Installed: | | |
| 25B. Primary Seal Type *(check one)*: ☐ Metallic (mechanical) shoe seal ☐ Liquid mounted resilient seal ☐ Vapor mounted resilient seal ☐ Other (describe): | | |
| 25C. Is the Floating Roof equipped with a secondary seal? ☐ Yes ☐No | | |

| | | | |
|---|---|---|---|
| 25D. If yes, how is the secondary seal mounted? *(check one)* ☐ Shoe ☐ Rim ☐ Other (describe): | | | |
| 25E. Is the floating roof equipped with a weather shield? ☐ Yes ☐ No | | | |
| 25F. Describe deck fittings: | | | |
| 26. Complete the following section for **Internal Floating Roof Tanks** ☒ Does not apply | | | |
| 26A. Deck Type: ☐ Bolted ☐ Welded | | 26B. For bolted decks, provide deck construction: | |
| 26C. Deck seam. Continuous sheet construction: ☐ 5 ft. wide ☐ 6 ft. wide ☐ 7 ft. wide ☐ 5 x 7.5 ft. wide ☐ 5 x 12 ft. wide ☐ other (describe) | | | |
| 26D. Deck seam length (ft.): | 26E. Area of deck ($ft^2$): | 26F. For column supported tanks, # of columns: | 26G. For column supported tanks, diameter of column: |
| **SITE INFORMATION:** | | | |
| 27. Provide the city and state on which the data in this section are based: | | | |
| 28. Daily Avg. Ambient Temperature (°F): | | 29. Annual Avg. Maximum Temperature (°F): | |
| 30. Annual Avg. Minimum Temperature (°F): | | 31. Avg. Wind Speed (mph): | |
| 32. Annual Avg. Solar Insulation Factor (BTU/$ft^2$-day): | | 33. Atmospheric Pressure (psia): | |
| **LIQUID INFORMATION:** | | | |
| 34. Avg. daily temperature range of bulk liquid (°F): **75** | 34A. Minimum (°F): **Promax Model based on steady state** | 34B. Maximum (°F**): Promax Model based on steady state** | |
| 35. Avg. operating pressure range of tank (psig): **0-0.5 psig** | 35A. Minimum (psig): **0 psig** | 35B. Maximum (psig): **0.5 psig** | |
| 36A. Minimum liquid surface temperature (°F): | | 36B. Corresponding vapor pressure (psia): | |
| 37A. Avg. liquid surface temperature (°F): | | 37B. Corresponding vapor pressure (psia): | |
| 38A. Maximum liquid surface temperature (°F): | | 38B. Corresponding vapor pressure (psia): | |
| 39. Provide the following for each liquid or gas to be stored in the tank. Add additional pages if necessary. | | | |
| 39A. Material name and composition: | **Condensate** | | |
| 39B. CAS number: | N/A | | |
| 39C. Liquid density (lb/gal): | **5.34** | | |
| 39D. Liquid molecular weight (lb/lb-mole): | **78.57** | | |
| 39E. Vapor molecular weight (lb/lb-mole): | **55.64** | | |
| 39F. Maximum true vapor pressure (psia): | **7.705** | | |
| 39G. Maxim Reid vapor pressure (psia): | **17.808** | | |
| 39H. Months Storage per year. From: To: | **Continuous** | | |

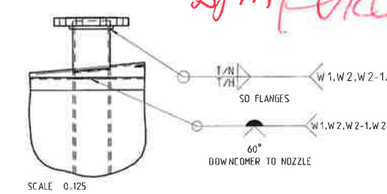


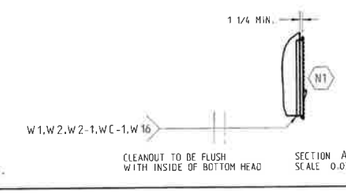




APPROVED: 5-6-16




| ITEM | QTY. | INV. MULT. | JDE # | DESCRIPTION | MAT'L |
|---|---|---|---|---|---|
| 37 | 1024 | 1024.00 | TBD | PNT. CARBOLINE CARBOTHANE 134 HG PEARL GREY | PAINT |
| 36 | 832 | 832.00 | TBD | PNT. CARBOLINE CARBOGUARD 635 | PAINT |
| 35 | 1536 | 1536.00 | 351419 | CARBOLINE PHENOLINE 350 PT B | LINING |
| 34 | 1536 | 1536.00 | 351418 | CARBOLINE PHENOLINE 350 PT A | LINING |
| 33 | 4 | 4.00 | 351489 | ANCHOR BOLT BRACKET (DWG.#SA0922) | A-36 |
| 32 | 1 | 1.00 | 350835 | 1-PC VITON MICHIGAN CLEANOUT GASKET 28" X 40" | VITON |
| 31 | 80 | 80.00 | 351867 | HEX NUT, 1/2-13 NC HVY HEX NUT A-153 HOT DIPPED GALVANIZED | SAE J429 |
| 30 | 80 | 80.00 | 351864 | HEX BOLT, 1/2-13 X 1-1/2 LG. GR 5 HOT DIPPED GALVANIZED | GR 5 |
| 29 | 16 | 16.00 | 342263 | 7/8"-9 X 4-1/2"STUD W/NUTS | SA-193-B7/SA-194-2H |
| 28 | 8 | 8.00 | 341450 | 5/8 X 3-1/2 STUD W/NUTS | SA-193-B7/SA-194-2H |
| 27 | 2 | 2.00 | 351156 | 2-899-MLL PHOENIX LIFTING LUG | A-181 |
| 26 | 2 | 2.00 | 359191 | LUG. 3/8" GROUND (DWG. SA0947) | A-36 |
| 25 | 1 | 1.00 | 351282 | NAME, API 12F COMPLETE DWG# (SA0646) | S.S. |
| 24 | 2 | 0.04 | 338409 | GSKT. 2" 150# RF | NEOPRENE |
| 23 | 1 | 0.125 | 338409 | GSKT. 12" 150# RF | NEOPRENE |
| 22 | 1 | 1.00 | 351467 | ADAPTER PLT. 13" OD X 8-1/2" ID (DWG SA0932) | C.S. |
| 21 | 9 | 9.00 | 350777 | NOZL. 4" CL150# RFSO W/ 4" NOZZLE | C.S. |
| 20 | 1 | 1.00 | 363484 | ENAROO FLAME ARRESTOR 70802/0-AAF | C.S. |
| 19 | 1 | 1.00 | 350786 | NOZL. 12"CL 150#RFSO W/ NOZZLE (SEE DWG. SA0931) | C.S. |
| 18 | 1 | 1.00 | 363485 | ENAROO MODEL MODEL 950-2-111-28.0/20.5 | ALUMINUM |
| 17 | 1 | 1.00 | 363483 | ENAROO THIEF HATCH MODEL 660/1202. W/ GASKET | ALUMINUM |
| 16 | 1 | 1.00 | 363343 | ENAROO MODEL 2008 PRV 2012-21N-1-212.0 | ALUMINUM |
| 15 | 1 | 8.00 | 350901 | PIPE, 8" SCH 40 X 8 | A-106-B |
| 14 | 1 | 294.00 | 350886 | PIPE, 4" SCH40 X 293 1/8" LG. SMLS | A-106-B |
| 13 | 4 | 16.00 | 350868 | PIPE, 2" SCH40 X 4" LG. SMLS | A-106-B |
| 12 | 4 | 4.00 | 338374 | FLG. 2" CL 150 RFSO | A-105 |
| 11 | 1 | 1.00 | 339169 | FLNG. 8" 150# RFSO | A-105 |
| 10 | 1 | 1.00 | 351477 | COUT. 28 X 40 210 MICH COMPLETE (DWG SC0643) | A-36 |
| 9 | 2 | 2.00 | 351855 | 5/8" D-RING LIFTING LUG (PER DWG SA0014) | A-36 |
| 8 | 4 | 4.00 | 351484 | LDR. BRKT 210 BBL 3/8" X 4" X 4" | A-36 |
| 7 | 1 | 21.00 | 362472 | PLATE, 1/2" X 12" X 12" | A-36 |
| 6 | 3 | 25.50 | 350843 | PIPE, 1-1/2" SCH 40, X 8 1/4" LG | A-36 |
| 5 | 3 | 3.00 | 359130 | REPAD, 10" X 6" SUPPORT ROLLED TO TANK DIA (SEE DWG SA1013) | A-36 |
| 4 | 1 | 1.00 | 351652 | ASME CODE TAG BRACKET (DWG.SA0001) | A-36 |
| 3 | 1 | 1.00 | 351482 | 400 BBL API HEAD SHEAR & FLG 1/4" THICK (DWG. SA0797) | A-36 |
| 2 | 1 | 1.00 | 351483 | 400/300 BBL HD SHEAR/FLG 3/16" THICK (DWG. SA0798) | A-36 |
| 1 | 5 | 5.00 | 350357 | PLATE, 3/16" X 60" X 452" | A-36 |

| MARK | QTY. | SIZE | SERIES | FLANGE | NECK | HATCH | BOLTS | NUTS | GASKET | MANWAY | THIEF HATCH |
|---|---|---|---|---|---|---|---|---|---|---|---|
| N6 | 1 | 12" | 12" FFSO CL.150# | 19 | | | 29 | 23 | | | 16 |
| N5 | 1 | 8" | 8" FFSO CL.150# | 11 | 15 | | | | | | |
| N4 | 1 | 8" | 8" SCH 40 W/ ADAPTER PLATE | 22 | | | 30 | 31 | 17 | | 17 |
| N3 | 4 | 2" | 2" FFSO CL.150# | 12 | 13 | | 28 | | 24 | | |
| N2 | 9 | 4" | 4" RFSO CL.150# | 21 | | | | | | | |
| N1 | 1 | | 24" X 36" CLEANOUT | | | | 30 | 31 | 32 | 10 | |

MATERIAL LIST NO.

MANUFACTURED IN ACCORDANCE WITH API SPECIFICATION 12F
12F-0048

| | |
|---|---|
| MANUFACTURER | WESTERMAN INC. |
| SERIAL NUMBER | XXXXXX |
| YEAR BUILT | XX/20XX |
| NOMINAL DIAMETER | 12' |
| NOMINAL HEIGHT | 25' |
| NOMINAL CAPACITY | 500 BBL. |
| BOTTOM THICKNESS | TYPE F |
| SHELL THICKNESS | 3/16" |
| DECK THICKNESS | 1/4" |
| DESIGN PRESSURE | 16 oz/in² |

PROCUREMENT AND FABRICATION CANNOT BEGIN WITHOUT RETURN OF SIGNED APPROVED DRAWING

## DESIGN CONDITIONS

PAINT SPEC.

EXTERIOR:
1. PREP EXTERIOR SURFACE. SSPC-SP6 COMMERCIAL BLAST.
2. PRIMED W/ ONE COAT CARBOLINE CARBOGUARD 635 & FINISHED W/ ONE COAT CARBOLINE CARBOTHANE 134 HG WHITE

INTERIOR:
1. PREP INTERIOR FOR LINING. SSPS-SP10 NEAR WHITE METAL BLAST 3-4 MILS.
2. ONE COAT CARBOLINE PHENOLINE PARTS A & B (20-60 MILS).

MISC. NOTES: EST. WEIGHT 11,000 LBS

1. ALL WELDS TO BE WATER TIGHT.
2. WELD SEAMS & FITTINGS INSIDE AND OUT.
3. ALL WELDS 1/4 FILLET UNLESS OTHER SPECIFIED.
4. 1/4" MIN. INT. PROJ. FOR ALL NOZZLES

DESIGN NOTES:
M.A.W.P.-----16 OZ. /in² VACCUM-----1/2 OZ. /in²
AIR TEST-------1-1/2 lb/in² CORR ALLOW.------NONE
DESIGN-----API 12F

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**WORTHINGTON INDUSTRIES** BREMEN, OHIO

| SCALE 1/16"=1" | MK | DESCRIPTION | BY | CK | AP | DATE |
|---|---|---|---|---|---|---|
| DATE 4/25/16 | 1 | REVISED PER CUSTOMER REDLINE | CRR | --- | --- | 5/3/16 |
| DSN. CRR DWN. --- | 2 | REVISED PER CUSTOMER REDLINE | CRR | | | 5/5/16 |
| APV'D. | | | | | | |

TITLE: 500 BBL API 12F TANK PER EUREKA SPECS W/ DOWNCOMER JDE:XXXX

NO. 3D2165 REVISION 2 DRAWN IN PROG.

# ATTACHMENT M

# Air Pollution Control Device Sheets

# Attachment M
# Air Pollution Control Device Sheet
(FLARE SYSTEM)

Control Device ID No. : **VCU-1**

**Equipment Information**

| | |
|---|---|
| 1. Manufacturer: **Hy-Bon**<br>Model No. **CH 10.0** | 2. Method: ☐ Elevated flare<br>☒ Ground flare<br>☐ Other<br>Describe |
| 3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency. | |
| 4. Method of system used:<br>☐ Steam-assisted ☐ Air-assisted ☐ Pressure-assisted ☒ Non-assisted | |
| 5. Maximum capacity of flare:<br>**10.0 MMBTU/Hr**<br>**2790 scf/hr at 4 Oz/in2** | 6. Dimensions of stack:<br>Diameter **4.5** ft.<br>Height **20** ft. |
| 7. Estimated combustion efficiency:<br>(Waste gas destruction efficiency)<br>Estimated: **99.5 %**<br>Minimum guaranteed: **99 %** | 8. Fuel used in burners:<br>☒ Natural Gas<br>☐ Fuel Oil, Number<br>☐ Other, Specify: |
| 9. Number of burners: 1<br>Rating: **10.0 MMBTU/Hr**<br>10. Will preheat be used? ☐ Yes ☒ No | 11. Describe method of controlling flame:<br>**Electronic Burner Control System that reports to manned location.** |
| 12. Flare height: **20** ft<br>13. Flare tip inside diameter: **N/A** ft | 14. Natural gas flow rate to flare pilot flame per pilot light: **N/A** scf/min<br>scf/hr |
| 15. Number of pilot lights:<br>Total 1 8000 BTU/hr | 16. Will automatic re-ignition be used?<br>☐ Yes ☒ No |
| **17. If automatic re-ignition will be used, describe the method:**<br>There is continuous pilot light. If the pilot is out, a signal is sent to a manned location altering of the pilot outage. Tuck loading cannot proceed until the pilot is lit. | |
| 18. Is pilot flame equipped with a monitor? ☒ Yes ☐ No<br>If yes, what type? ☒ Thermocouple ☐ Infra-Red<br>☐ Ultra Violet ☐ Camera with monitoring control room<br>☐ Other, Describe: | |
| 19. Hours of unit operation per year: **4380 Maximum** | |

## Steam Injection

| | |
|---|---|
| 20. Will steam injection be used? ☐ Yes ☒ No | 21. Steam pressure PSIG<br>Minimum Expected: **N/A**<br>Design Maximum: |
| 22. Total Steam flow rate: **N/A** LB/hr | 23. Temperature: **N/A** °F |
| 24. Velocity **N/A** ft/sec | 25. Number of jet streams **N/A** |
| 26. Diameter of steam jets: **N/A** in | 27. Design basis for steam injected:<br>**N/A** LB steam/LB hydrocarbon |
| 28. How will steam flow be controlled if steam injection is used?<br>**N/A** | |

## Characteristics of the Waste Gas Stream to be Burned

29.

| Name | Quantity<br>Grains of $H_2S$/100 $ft^3$ | Quantity<br>(LB/hr, $ft^3$/hr, etc) | Source of Material |
|---|---|---|---|
| **Truck Loading Tank Vapors** | **<0.1** | **150.0 Lb/Hr** | **Condensate Truck Loading** |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

30. Estimate total combustible to flare: **150.0 LB/hr**
(Maximum mass flow rate of waste gas)

31. Estimated total flow rate to flare including materials to be burned, carrier gases, auxiliary fuel, etc.:
**Variable. Max of 841 cf/Hr (833 scf/hr waste gas and 8 scf/hr pilot gas)**

32. Give composition of carrier gases:
**No Carrier Gases**

| | |
|---|---|
| 33. Temperature of emission stream:<br>**1400** °F<br>Heating value of emission stream:<br>**Variable** BTU/$ft^3$<br>Mean molecular weight of emission stream:<br>MW = **variable** lb/lb-mole | 34. Identify and describe all auxiliary fuels to be burned.<br>BTU/scf<br>**Station Fuel/Gas for Pilot** **1000 BTU/scf**<br>BTU/scf<br>BTU/scf<br>BTU/scf |
| 35. Temperature of flare gas: **ambient** °F | 36. Flare gas flow rate: |
| 37. Flare gas heat content: **3660** BTU/$ft^3$ | 38. Flare gas exit velocity: **30 scf/min (est.)** |

39. Maximum rate during emergency for one major piece of equipment or process unit: **N/A** scf/min

40. Maximum rate during emergency for one major piece of equipment or process unit: **N/A** BTU/min

41. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):
**NONE**

42. Describe the collection material disposal system:
**N/A**

43. Have you included ***Flare Control Device*** in the Emissions Points Data Summary Sheet? **YES**

44. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

| MONITORING: | RECORDKEEPING: |
|---|---|
| • **Visible Emissions (smoke)**<br>• **Monthly amounts of material flared** | • **Visual Inspections for opacity**<br>• **Amounts combusted per month** |
| REPORTING:<br>• **Opacity readings**<br>• **Amount combusted per month** | TESTING:<br>**None** |

| | |
|---|---|
| MONITORING: | Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device. |
| RECORDKEEPING: | Please describe the proposed recordkeeping that will accompany the monitoring. |
| REPORTING: | Please describe any proposed emissions testing for this process equipment on air pollution control device. |
| TESTING: | Please describe any proposed emissions testing for this process equipment on air pollution control device. |

45. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.
**N/A**

46. Manufacturer's Guaranteed Control Efficiency for each air pollutant.
**99% combustion of material sent to combustor**

47. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
**Operation to be within manufacturer specifications**

# Attachment M
# Air Pollution Control Device Sheet
(FLARE SYSTEM)

Control Device ID No. : **VCU-2**

**Equipment Information**

| | |
|---|---|
| 1. Manufacturer: **Hy-Bon**<br>Model No. **CH 10.0** | 2. Method: ☐ Elevated flare<br>☒ Ground flare<br>☐ Other<br>Describe |
| 3. Provide diagram(s) of unit describing capture system with duct arrangement and size of duct, air volume, capacity, horsepower of movers. If applicable, state hood face velocity and hood collection efficiency. | |
| 4. Method of system used:<br>☐ Steam-assisted ☐ Air-assisted ☐ Pressure-assisted ☒ Non-assisted | |
| 5. Maximum capacity of flare:<br>**Four at 10.0 MMBTU/Hr Each** | 6. Dimensions of stack:<br>Diameter **4.5** ft.<br>Height **20** ft. |
| 7. Estimated combustion efficiency:<br>(Waste gas destruction efficiency)<br>Estimated: **99.9** %<br>Minimum guaranteed: **99.9** % | 8. Fuel used in burners:<br>☒ Natural Gas<br>☐ Fuel Oil, Number<br>☐ Other, Specify: |
| 9. Number of burners: 1(each)<br>Rating: **10.0 MMBTU/Hr** | 11. Describe method of controlling flame:<br>**Electronic Burner Control System that reports to manned location.** |
| 10. Will preheat be used? ☐ Yes ☒ No | |
| 12. Flare height: **20** ft | 14. Natural gas flow rate to flare pilot flame per pilot light: **8** scf/hr |
| 13. Flare tip inside diameter: **N/A** ft | |
| 15. Number of pilot lights:<br>**1 at 8000 BTU/hr per combustor** | 16. Will automatic re-ignition be used?<br>☐ Yes ☒ No |

**17. If automatic re-ignition will be used, describe the method:**
There is a continuous pilot light. There is a thermocouple that will continuously monitor the pilot (temp). This will send a signal to a manned location altering of the pilot outage. There is no auto ignition

18. Is pilot flame equipped with a monitor? ☒ Yes ☐ No
If yes, what type? ☒ Thermocouple ☐ Infra-Red
☐ Ultra Violet ☐ Camera with monitoring control room
☐ Other, Describe:

19. Hours of unit operation per year: **500 Hr Maximum**

## Steam Injection

| | |
|---|---|
| 20. Will steam injection be used? ☐ Yes ☒ No | 21. Steam pressure PSIG<br>Minimum Expected: **N/A**<br>Design Maximum: |
| 22. Total Steam flow rate: **N/A** LB/hr | 23. Temperature: **N/A** °F |
| 24. Velocity **N/A** ft/sec | 25. Number of jet streams **N/A** |
| 26. Diameter of steam jets: **N/A** in | 27. Design basis for steam injected:<br>**N/A** |
| 28. How will steam flow be controlled if steam injection is used?<br>**N/A** | |

## Characteristics of the Waste Gas Stream to be Burned

29.

| Name | Quantity<br>Grains of $H_2S$/100 $ft^3$ | Quantity<br>(LB/hr, $ft^3$/hr, etc) | Source of Material |
|---|---|---|---|
| **Tank Vapors** | **<0.1** | **3010 scf/Hr** | **Condensate Tanks** |
| | | **(annual average)** | |
| | | | |
| | | | |
| | | | |
| | | | |

| | |
|---|---|
| 30. Estimate total combustible to flare:<br>(Maximum mass flow rate of waste gas) | **Peak Flow of 9030 scf/Hr** |
| 31. Estimated total flow rate to flare including materials to be burned, carrier gases, auxiliary fuel, etc.:<br>**Variable. Average of 3018 scf/Hr. Peak Flow of 9038 scf/Hr.** | |
| 32. Give composition of carrier gases:<br>**No Carrier Gases** | |
| 33. Temperature of emission stream:<br>**1400** °F<br>Heating value of emission stream:<br>**3.12** BTU/$ft^3$<br>Mean molecular weight of emission stream:<br>MW = **29.8** lb/lb-mole | 34. Identify and describe all auxiliary fuels to be burned.<br>BTU/scf<br>**Station Fuel Gas for Pilot 1,000 BTU/scf**<br>BTU/scf<br>BTU/scf |
| 35. Temperature of flare gas: **ambient** °F | 36. Flare gas flow rate: **9030 scf/Hr (max)** |
| 37. Flare gas heat content: **3096** BTU/$ft^3$ | 38. Flare gas exit velocity: **30** **scf/min (est.)** |
| 39. Maximum rate during emergency for one major piece of equipment or process unit: **N/A** scf/min | |
| 40. Maximum rate during emergency for one major piece of equipment or process unit: **N/A** BTU/min | |
| 41. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification):<br>**NONE** | |
| 42. Describe the collection material disposal system:<br>**N/A** | |
| 43. Have you included ***Flare Control Device*** in the Emissions Points Data Summary Sheet? **YES** | |

44. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

| MONITORING: | RECORDKEEPING: |
|---|---|
| • **Visible Emissions (smoke)**<br>• **Monthly amounts of material flared** | • **Visual Inspections for opacity**<br>• **Monthly amounts of material flared** |
| REPORTING:<br>• **Opacity readings**<br>• **Amount combusted per month** | TESTING:<br>**None** |

| | |
|---|---|
| MONITORING: | Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment or air control device. |
| RECORDKEEPING: | Please describe the proposed recordkeeping that will accompany the monitoring. |
| REPORTING: | Please describe any proposed emissions testing for this process equipment on air pollution control device. |
| TESTING: | Please describe any proposed emissions testing for this process equipment on air pollution control device. |

45. Manufacturer's Guaranteed Capture Efficiency for each air pollutant.
**99.9% combustion of material sent to combustor**

46. Manufacturer's Guaranteed Control Efficiency for each air pollutant.
**99.9% combustion of material sent to combustor**

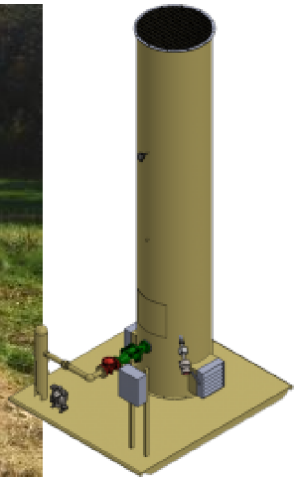
47. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.
**Operation to be within manufacturer specifications**

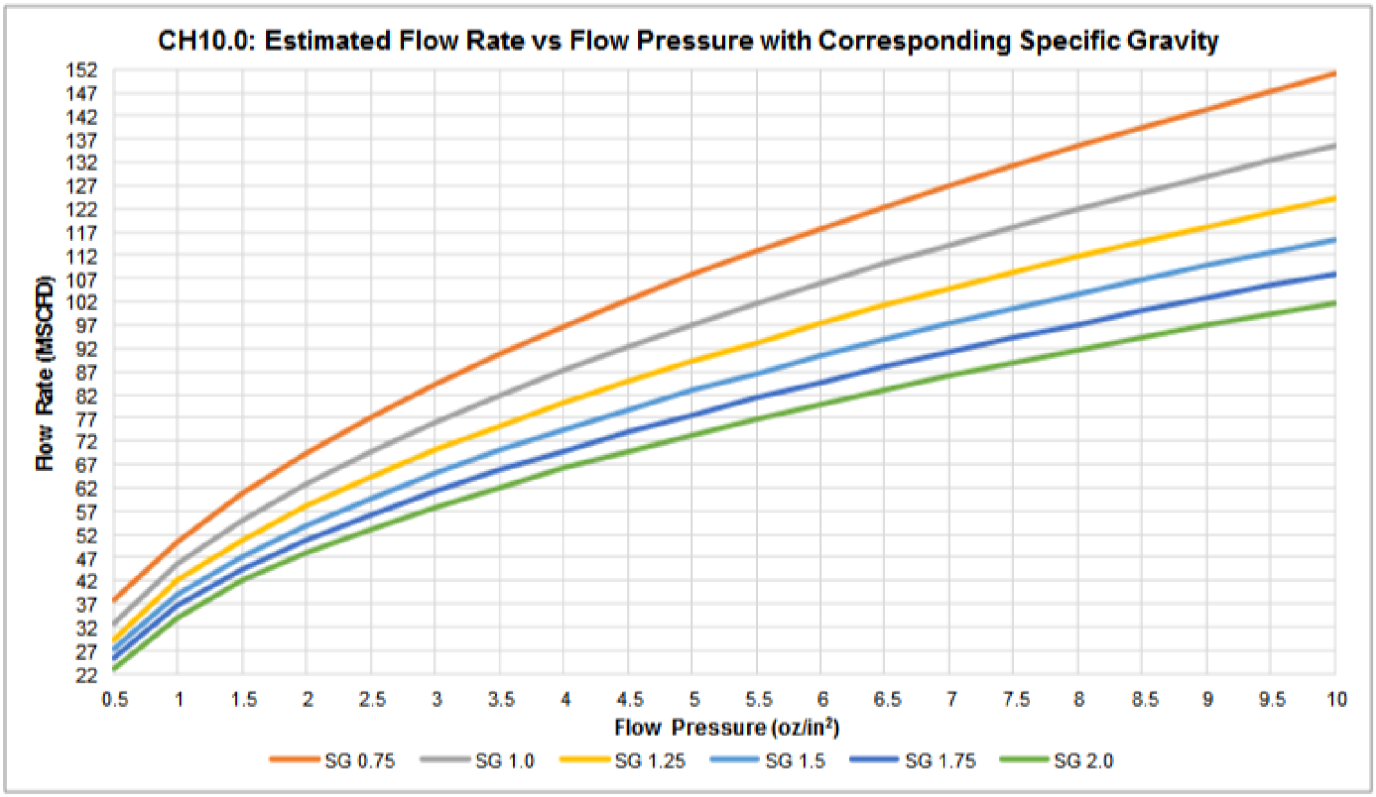
# Vapor Combustor Unit (VCU)

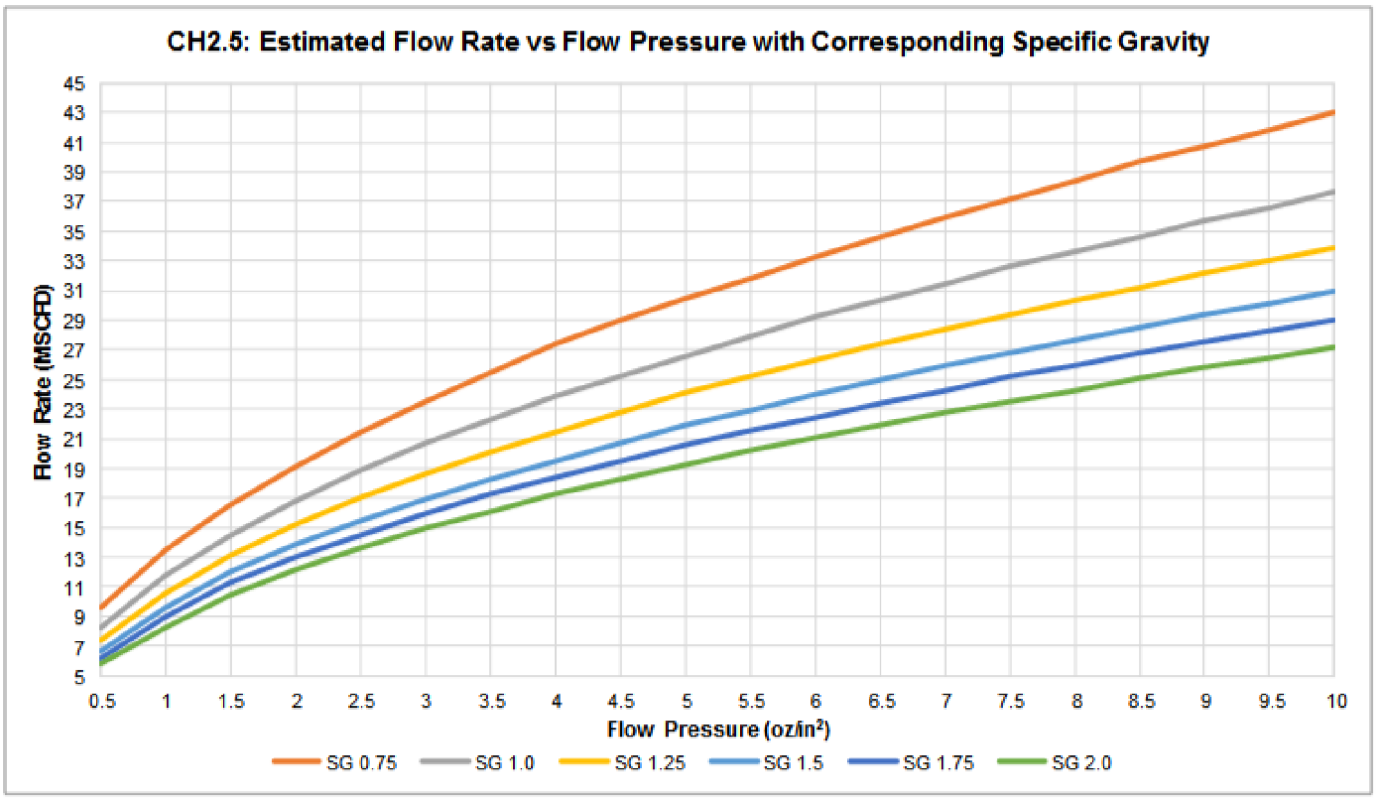
HY-BON/EDI is pleased to provide the CH2.5 and CH10.0 enclosed combustors as an effective solution for eliminating VOC emissions. HY-BON/EDI's insulated combustors are automated and have been successfully tested per EPA 40, CFR 60 guidelines – making it the perfect blend of performance and safety. The combustor comes as a complete, skid mounted package containing the liquid knock-out vessel, liquid transfer pump, flame arrestor, bird screen and burner control system. Installation is simple and field performance adjustments can be made as production changes – making it the most flexible solution in the industry.

- EPA 40 CFR 60, Quad O Compliant
  *List of EPA Approved Combustion Control Devices*
- Completely Enclosed Combustion
- 99.99% Destruction Efficiency
- User Friendly Automated System
- Operational and Quad O reporting data can be saved to a USB Key
- RS-232 or RS-485 Communication supports satellite, cellular, or radio
- Modbus Slave Protocol allows it to communicate with SCADA systems and other devices/software

| GENERAL PROPERTIES | CH2.5 | CH10.0 |
|---|---|---|
| BURNER SIZE (MMBTU/hr) | 2.5 | 10.0 |
| OUTER DIAMETER (inches) | 34 | 54 |
| HEIGHT (feet) | 16 | 20 |
| INLET PRESSURE (oz/in²) | ≥ 0.5 | |
| DESTRUCTION EFFICIENCY | ≥ 99.99% | |
| SMOKELESS CAPACITY | 100% | |
| TURN DOWN | SCALABLE | |






emissions enclosed vapor combustor epa flare OOOO Quad O regulations storage tank vapor combustor unit VCU vent gas VOC

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A Regal Brand

Performance Testing for Combustion Control Devices

Manufacturers' Performance Test[1]

NSPS OOOO and MACT HH/HHH

| Manufacturer | Model Number | Date of Performance Test Submittal | Control Device Demonstrates Performance Requirements[2] | Maximum Inlet Flow Rate[3] |
|---|---|---|---|---|
| ABUTEC | ABUTEC 20 | 02/12/2013 | Yes | 1500 scfh |
| ABUTEC | ABUTEC 100 | 02/12/2013 | Yes | 6000 scfh |
| ABUTEC | ABUTEC 200 | 10/30/2014 | Under Review | |
| | | | | |
| Big Iron Oilfield Service | BNECU PI36 | 08/08/2014 | Yes | 314 scfh |
| Big Iron Oilfield Service | BNECU PI48 | 08/08/2014 | Yes | 725 scfh |
| | | | | |
| Black Gold Rush | BGR-18 | 08/12/2014 | Yes | 319 scfh |
| Black Gold Rush | BGR-24 | 08/12/2014 | Under Review | |
| | | | | |
| Cimmaron | CEI 1-24 | 08/12/2014 | Yes | 383 scfh |
| Cimmaron | CEI 1-30 | 08/12/2014 | Yes | 625 scfh |
| Cimmaron | CEI 1-48 | 08/12/2014 | Yes | 1250 scfh |
| Cimmaron | CEI 1-60 | 08/12/2014 | Yes | 2400 scfh |
| Cimmaron | 48" HV ECD | 08/12/2014 | Yes | 4553 scfh |
| | | | | |
| COMM Engineering | COMM OOOO Combustor 200 | 03/06/2013 | Yes | 3300 scfh |
| | | | | |
| Edge Manufacturing | Edge XXV | 10/14/2014 | Under Review | |
| Edge Manufacturing | Edge CXV | 10/14/2014 | Under Review | |
| | | | | |
| Hy-Bon/EDI | CH2.5 | 09/16/2015 | Yes | 1500 SCFH |
| Hy-Bon/EDI | CH10.0 | 06/16/2015 | Yes | 4170 SCFH |
| | | | | |
| JLCC Combustion | FC 20 | 09/09/2014 | Yes | 1090 scfh |
| | | | | |
| John Zink | ZTOF025X15PF | 06/26/2014 | Under Review | |
| John Zink | ZTOF040X30PF | 06/26/2014 | Yes | 4120 scfh |
| | | | | |
| Kimark | KSF 1-48 | 12/18/2013 | Yes | 1250 scfh |
| | | | | |
| Leed Fabrication | 24" Combustor | 07/22/2013 | Under Review | |

| Manufacturer | Model Number | Date of Performance Test Submittal | Control Device Demonstrates Performance Requirements[2] | Maximum Inlet Flow Rate[3] |
|---|---|---|---|---|
| Leed Fabrication | 36" Combustor | 11/18/2015 | Under Review | |
| Leed Fabrication | 48" Combustor | 11/18/2015 | Under Review | |
| Leed Fabrication | 24" Combustor | 01/20/2016 | Under Review | |
| | | | | |
| | | | | |
| MESSCO | Vocinerator 30" | 07/30/2014 | Under Review | |
| MESSCO | Vocinerator 36" | 05/29/2014 | Under Review | |
| | | | | |
| NOV | MEVC 20 | 02/12/2013 | Yes | 1500 scfh |
| NOV | MEVC 100 | 02/12/2013 | Yes | 6000 scfh |
| | | | | |
| OVO, LLC | PHX-36 | 09/15/2015 | Under Review | |
| | | | | |
| Questor Technology | Q100 | 04/24/2015 | Yes | 875 scfh |
| Questor Technology | Q250 | 03/20/2015 | Yes | 2292 scfh |
| | | | | |
| REM Technology (Spartan Controls) | SlipStream GTS-12 | 02/16/2015 | Yes | 164 scfh |
| | | | | |
| Superior Fabrication Inc | SCD-36 | 09/19/2014 | Under Review | |
| Superior Fabrication, Inc | SCD-48 | 09/19/2014 | Under Review | |
| Superior Fabrication, Inc | SCD-60 | 09/19/2014 | Under Review | |
| | | | | |

[1] The purpose of the table is to inform owners or operators the combustion control devices that have been manufacturer tested and for which the test results have been submitted to EPA for review. Inclusion on this list is for informational purposes only. EPA does not endorse any of these manufacturers or their products.

[2] "Yes" means that the manufacturer has demonstrated that the specific model of control device listed achieves the combustion control device performance requirements in NSPS subpart OOOO and NESHAP subparts HH and HHH through performance testing conducted as specified in these subparts. An owner or operator who uses a device listed above as "YES" is exempt from conducting performance tests under 40 CFR §60.5413(a)(7), §63.772(e) and/or §63.1282(d), and from submitting test results under §60.5413(e)(6), §63.775(d)(1)(ii) and/or §63.1285(d)(1)(ii), as applicable. "Yes" does not constitute an endorsement by EPA. Operation

of such a device does not relieve the owner or operator of an affected facility from other compliance obligations under the rule.

[3]This column provides the maximum inlet flow rate determined by the manufacturer for the specified model, as required under§60.5413(d)(11)(ii), §63.772(h)(7)(ii), §63.1282(g)(7)(ii), as applicable.

[Updated 03/15/2016]

# ATTACHMENT N

# Supporting Calculations

**Eureka Midstream, LLC**
EMISSIONS SUMMARY

## Carbide Station
## Wetzel County

| Source | Description | NOx lb/hr | CO lb/hr | $CO_{2e}$ lb/hr | VOC lb/hr | SO2 lb/hr | H2S lb/hr | PM lb/hr | Acrolein lb/hr | Acetaldehyde tpy | Benzene lb/hr | n-Hexane lb/Hr | Methanol lb/hr | Toluene lb/Hr | Xylenes lb/hr | formaldehyde lb/hr | Total HAPs lb/hr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S1 | Compressor Engine #1 | 1.52 | 0.61 | 1519.34 | 1.00 | 0.006 | 0.00 | 0.103 | | 0.0519 | 0.0027 | 0.0069 | | 0.0025 | 0.0011 | 0.1825 | 0.2968 |
| S2 | Compressor Engine #2 | 1.52 | 0.61 | 1519.34 | 1.00 | 0.006 | 0.00 | 0.103 | | 0.0519 | 0.0027 | 0.0069 | | 0.0025 | 0.0011 | 0.1825 | 0.2968 |
| S3 | Compressor Engine #3 | 1.52 | 0.61 | 1519.34 | 1.00 | 0.006 | 0.00 | 0.103 | | 0.0519 | 0.0027 | 0.0069 | | 0.0025 | 0.0011 | 0.1825 | 0.2968 |
| S4 | Compressor Engine #4 | 1.52 | 0.61 | 1519.57 | 1.00 | 0.006 | 0.00 | 0.103 | | 0.0519 | 0.0027 | 0.0069 | | 0.0025 | 0.0011 | 0.1825 | 0.2968 |
| S5A | Rep. Flash Gas Compressor | 0.46 | 0.46 | 280.82 | 0.06 | 0.005 | 0.00 | 0.037 | | 0.0053 | 0.0030 | --- | | 0.0011 | 0.0004 | 0.0664 | 0.0867 |
| S6A | Replacement VRU Compressor **(REM)** | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.00 | 0.000 | 0 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| S7 | Dehy Reboiler Vent | 0.15 | 0.13 | 183.53 | 0.23 | 0.001 | 0.00 | 0.012 | | --- | 0.0052 | | | 0.0000 | | | 0.0321 |
| S8 | Compressor Engine #5 | 1.52 | 0.61 | 1519.34 | 1.00 | 0.006 | 0.00 | 0.103 | | 0.0519 | 0.0027 | 0.0069 | | 0.0025 | 0.0011 | 0.1825 | 0.2968 |
| S9 | Compressor Engine #6 | 1.52 | 0.61 | 1519.34 | 1.00 | 0.006 | 0.00 | 0.103 | | 0.0519 | 0.0027 | 0.0069 | | 0.0025 | 0.0011 | 0.1825 | 0.2968 |
| S10 | Compressor Engine #7 | 1.52 | 0.61 | 1519.34 | 1.00 | 0.006 | 0.00 | 0.103 | | 0.0519 | 0.0027 | 0.0069 | | 0.0025 | 0.0011 | 0.1825 | 0.2968 |
| S11 | Compressor Engine #8 | 1.52 | 0.61 | 1519.34 | 1.00 | 0.006 | 0.00 | 0.103 | | 0.0519 | 0.0027 | 0.0069 | | 0.0025 | 0.0011 | 0.1825 | 0.2968 |
| S12 | Compressor Engine #9 **(Previously REM)** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| S13 | Compressor Engine #10 **(Previously REM)** | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.00 | 0.000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| S14 | Truck Loading (Un-Captured) | | | | 0.49 | | | | | | | | | | | | |
| S15 | Truck Loading VCU | 0.21 | 1.13 | 356.30 | 1.50 | | | 0.001 | | | | | | | | | |
| S15-A | VCU Pilot | 0.00 | 0.00 | 0.48 | 0.00 | | | 0.000 | | | | | | | | | |
| | Condensate Tanks Uncaptured/Controlled[1] **(NEW)** | | | | 13.77 | | | | | | | 2.07 | | | | | 2.07 |
| | Tank Vapor Combustors **(NEW)** | 1.96 | 10.66 | 3371.67 | | | | 0.001 | | | | | | | | | |
| S17 | Line Heater | 0.08 | 0.06 | 90.57 | 0.00 | 0.000 | 0.00 | 0.006 | | --- | 0.0000 | 0.0014 | | 0.0000 | --- | 0.0001 | |
| S17-A | Line Heater | 0.40 | 0.34 | 483.11 | 0.02 | 0.002 | 0.00 | 0.030 | | --- | 0.0000 | 0.0072 | | 0.0000 | --- | 0.0003 | 0.0075 |
| S17-B | Line Heater | 0.20 | 0.17 | 241.56 | 0.01 | 0.001 | 0.00 | 0.015 | | --- | 0.0000 | 0.0036 | | 0.0000 | --- | 0.0002 | 0.0038 |
| S18 | Pigging and Blowdowns | | | | N/A | | | | | | | | | | | | |
| S19 | Fugitive | | | | 0.54 | | | | | | | | | | | | |
| S20 | Compressor #11 | 2.61 | 1.04 | 2306.07 | 1.72 | 0.010 | 0.00 | 0.161 | | 0.0813 | 0.0043 | 0.0108 | | 0.0040 | 0.0018 | 0.3135 | 0.4920 |
| **Total** | | 18.24 | 18.86 | 19,469 | 24.67 | 0.07 | 0.00 | 1.08 | | 0.50 | 0.03 | 2.15 | | 0.03 | 0.01 | 1.84 | 5.07 |
| | **Existing Permit** | 16.11 | 7.45 | 15,612 | 9.81 | 0.07 | 0.00 | 1.08 | | 0.51 | 0.04 | 0.06 | | 0.03 | 0.01 | 1.91 | 3.06 |
| | **Change** | 2.13 | 11.41 | 3856.72 | 14.85 | 0.00 | 0.00 | 0.00 | | -0.01 | -0.01 | 2.09 | | 0.00 | 0.00 | -0.07 | 2.01 |

| Source | | NOx tpy | CO tpy | $CO_{2e}$ tpy | VOC tpy | SO2 tpy | H2S tpy | PM tpy | Acrolein tpy | Acetaldehyde tpy | Benzene tpy | n-Hexane tpy | Methanol tpy | Toluene tpy | Xylenes tpy | formaldehyde tpy | Total HAPs tpy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S1 | Compressor Engine #1 | 6.66 | 2.67 | 6654.70 | 4.40 | 0.027 | 0.00 | 0.45 | 0.140 | 0.227 | 0.012 | 0.030 | 0.068 | 0.011 | 0.005 | 0.800 | 1.30 |
| S2 | Compressor Engine #2 | 6.66 | 2.67 | 6654.70 | 4.40 | 0.027 | 0.00 | 0.45 | 0.140 | 0.227 | 0.012 | 0.030 | 0.068 | 0.011 | 0.005 | 0.800 | 1.30 |
| S3 | Compressor Engine #3 | 6.66 | 2.67 | 6654.70 | 4.40 | 0.027 | 0.00 | 0.45 | 0.140 | 0.227 | 0.012 | 0.030 | 0.068 | 0.011 | 0.005 | 0.800 | 1.30 |
| S4 | Compressor Engine #4 | 6.66 | 2.67 | 6654.70 | 4.40 | 0.027 | 0.00 | 0.45 | 0.140 | 0.227 | 0.012 | 0.030 | 0.068 | 0.011 | 0.005 | 0.800 | 1.30 |
| S5A | Rep. Flash Gas Compressor | 2.02 | 2.02 | 1229.98 | 0.28 | 0.005 | 0.00 | 0.16 | 0.022 | 0.023 | 0.013 | --- | 0.025 | 0.005 | 0.002 | 0.291 | 0.38 |
| S6A | Replacement VRU Compressor **(REM)** | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | | 0.000 | 0.000 | --- | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| S7 | Dehy Reboiler Vent | 0.67 | 0.56 | 803.88 | 1.01 | 0.001 | 0.00 | 0.00 | | --- | 0.023 | 0.057 | --- | 0.021 | 0.022 | 0.000 | 0.14 |
| S8 | Compressor Engine #5 | 6.66 | 2.67 | 6654.70 | 4.40 | 0.027 | 0.00 | 0.45 | 0.140 | 0.227 | 0.012 | 0.030 | 0.068 | 0.011 | 0.005 | 0.800 | 1.30 |
| S9 | Compressor Engine #6 | 6.66 | 2.67 | 6654.70 | 4.40 | 0.027 | 0.00 | 0.45 | 0.140 | 0.227 | 0.012 | 0.030 | 0.068 | 0.011 | 0.005 | 0.800 | 1.30 |
| S10 | Compressor Engine #7 | 6.66 | 2.67 | 6654.70 | 4.40 | 0.027 | 0.00 | 0.45 | 0.140 | 0.227 | 0.012 | 0.030 | 0.068 | 0.011 | 0.011 | 0.800 | 1.30 |
| S11 | Compressor Engine #8 | 6.66 | 2.67 | 6654.70 | 4.40 | 0.027 | 0.00 | 0.45 | 0.140 | 0.227 | 0.012 | 0.030 | 0.068 | 0.011 | 0.005 | 0.800 | 1.30 |
| S12 | Compressor Engine #9 **(Previously REM)** | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| S13 | Compressor Engine #10 **(Previously REM)** | 0.00 | 0.00 | 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| S14 | Truck Loading (Un-captured) | | | | 0.54 | | | | | | | | | | | | |
| S15 | Truck Loading VCU | 0.06 | 0.31 | 97.62 | 0.41 | | | 0.00 | | | | | | | | | |
| S15-A | VCU Pilot | 0.00 | 0.00 | 2.09 | 0.00 | | | 0.00 | | | | | | | | | |
| | Condensate Tanks Uncaptured/Controlled[1] **(NEW)** | | | | 20.12 | | | | | | | 3.04 | | | | | 3.04 |
| | Tank Vapor Combustors | 2.87 | 15.57 | 4944.94 | | | | 0.10 | | | | | | | | | |
| S17 | Line Heater | 0.33 | 0.28 | 2.09 | 0.02 | 0.002 | 0.00 | 0.02 | | --- | 0.000 | 0.006 | | 0.000 | --- | 0.000 | 0.01 |
| S17-A | Line Heater | 1.75 | 1.47 | 2116.04 | 0.10 | 0.011 | 0.00 | 0.13 | | --- | 0.000 | 0.032 | | 0.000 | --- | 0.001 | 0.03 |
| S17-B | Line Heater | 0.88 | 0.74 | 1058.02 | 0.05 | 0.005 | 0.00 | 0.07 | | --- | 0.000 | 0.016 | | 0.000 | --- | 0.001 | 0.02 |
| S18 | Pigging and Blowdowns | | | | 1.70 | | | | | | | | | | | | |
| S19 | Fugitive | | | | 2.37 | | | | | | | | | | | | |
| S20 | Compressor Engine #11 | 11.44 | 4.58 | 10100.58 | 7.55 | 0.043 | 0.00 | 0.71 | 0.219 | 0.356 | 0.019 | 0.047 | 0.107 | 0.017 | 0.008 | 1.373 | 2.16 |
| **Total** | | 73.31 | 46.84 | 73592.82 | 69.33 | 0.28 | 0.00 | 4.82 | 1.36 | 2.20 | 0.15 | 3.44 | 0.68 | 0.13 | 0.08 | 8.06 | 16.17 |
| | **Existing Permit** | 72.73 | 33.55 | 70,613 | 49.51 | 0.29 | 0.00 | 4.90 | 1.36 | 2.22 | 0.16 | 0.40 | 0.70 | 0.14 | 0.08 | 8.35 | 13.51 |
| | **Change** | 0.58 | 13.29 | 2979.71 | 19.83 | 0.00 | 0.00 | -0.08 | | -0.02 | -0.01 | 3.04 | -0.03 | 0.00 | 0.00 | -0.29 | 2.66 |

# Eureka Midsteam, LLC
**ENGINE EMISSIONS**

**Carbide Station**
**Wetzel County**

**Existing Source S1**

**Engine Data:**

| | | |
|---|---|---|
| Engine Manufacturer | CAT | |
| Engine Model | 3516B | |
| Type (Rich-burn or Low Emission) | Low Emissions | |
| Aspiration (Natural or Turbocharged) | Natural | |
| Turbocharge Cooler Temperature | 130 | deg. F |
| Manufacturer Rating | 1,380 | hp |
| Speed at Above Rating | 1,400 | rpm |
| Configeration ( In-line or Vee) | V-16 | |
| Number of Cylinders | 16 | |
| Engine Bore | 6.700 | inches |
| Engine Stroke | 7.500 | inches |
| Fuel Heat Content (LHV) | 1,007 | BTU/scf |
| Engine Displacement | 4,231 | cu. in. |
| Fuel Consumption | 7,500 | Btu/bhp-hr |

| **Emission Rates:** | g/bhp-hr | lb/hr | tons/year | g/hr | lb/day | AP-42 4strokelean lb/mmbtu | |
|---|---|---|---|---|---|---|---|
| Oxides of Nitrogen, NOx | 0.50 | 1.52 | 6.66 | 690 | 36.51 | | Comment |
| Carbon Monoxide CO | 0.20 | 0.61 | 2.67 | 276 | 14.60 | | 453.59 grams = 1 pound |
| VOC (NMNEHC) | 0.33 | 1.00 | 4.40 | 455 | 24.10 | | 2,000 pounds = 1 ton |
| $CO_2$ | 499 | 1518 | 6,649 | 688,620 | 36435.56 | | |
| **Total Annual Hours of Operation** | **8,760** | | | | | | |
| SO2 | | 0.0062 | 0.0272 | | | 0.0006 | |
| PM2.5 | | 0.0008 | 0.0035 | | | 7.71E-05 | |
| PM (Condensable) | | 0.1026 | 0.4493 | | | 0.00991 | |
| $CH_{4\ CO2e}$ | | 0.4793 | 2.0991 | | | 0.002205 | Factor From 40 CFR 98, Table C-2 |
| $N_2O\ CO_{2e}$ | | 0.7091 | 3.1058 | | | 0.000221 | Factor From 40 CFR 98, Table C-2 |
| acrolein | | 0.0319 | 0.1398 | | | 0.00514 | |
| acetaldehyde | | 0.0519 | 0.2274 | | | 0.00836 | |
| formaldehyde | 0.0600 | 0.1825 | 0.7995 | | | 0.0528 | **Mfg. Spec Used** |
| biphenyl | | 0.0013 | 0.0058 | | | 0.000212 | |
| benzene | | 0.0027 | 0.0120 | | | 0.00044 | |
| toluene | | 0.0025 | 0.0111 | | | 0.000408 | |
| ethylbenzene | | 0.0002 | 0.0011 | | | 3.97E-05 | |
| xylene | | 0.0011 | 0.0050 | | | 0.000184 | |
| methanol | | 0.0155 | 0.0680 | | | 0.0025 | |
| n-hexane | | 0.0069 | 0.0302 | | | 0.00111 | |
| total HAPs | | 0.2968 | 1.2998 | | | 0.071194 | |

**Exhaust Parameters:**

| | | |
|---|---|---|
| Exhaust Gas Temperature | 1,005 | deg. F |
| Exhaust Gas Flow Rate | 9216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 9,216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 153.6 | acf per sec |
| Exhaust Stack Height | 260 | inches |
| | 21.67 | feet |
| Exhaust Stack Inside Diameter | 20 | inches |
| | 1.667 | feet |

# Eureka Midstream ,LLC
**ENGINE EMISSIONS**

**Carbide Station**
**Wetzel County**

**Existing Source S2**

**Engine Data:**

| | | |
|---|---|---|
| Engine Manufacturer | CAT | |
| Engine Model | 3516B | |
| Type (Rich-burn or Low Emission) | Low Emissions | |
| Aspiration (Natural or Turbocharged) | Natural | |
| Turbocharge Cooler Temperature | 130 | deg. F |
| Manufacturer Rating | 1,380 | hp |
| Speed at Above Rating | 1,400 | rpm |
| Configeration ( In-line or Vee) | V-16 | |
| Number of Cylinders | 16 | |
| Engine Bore | 6.700 | inches |
| Engine Stroke | 7.500 | inches |
| Fuel Heat Content (LHV) | 1,007 | BTU/scf |
| Engine Displacement | 4,231 | cu. in. |
| Fuel Consumption | 7,500 | Btu/bhp-hr |

| **Emission Rates:** | g/bhp-hr | lb/hr | tons/year | g/hr | lb/day | AP-42 4strokelean lb/mmbtu | |
|---|---|---|---|---|---|---|---|
| Oxides of Nitrogen, NOx | 0.50 | 1.52 | 6.66 | 690 | 36.51 | | Comment |
| Carbon Monoxide CO | 0.20 | 0.61 | 2.67 | 276 | 14.60 | | 453.59 grams = 1 pound |
| VOC (NMNEHC) | 0.33 | 1.00 | 4.40 | 455 | 24.10 | | 2,000 pounds = 1 ton |
| $CO_2$ | 499 | 1518 | 6,649 | 688,620 | 36435.56 | | |
| **Total Annual Hours of Operation** | **8,760** | | | | | | |
| SO2 | | 0.0062 | 0.0272 | | | 0.0006 | |
| PM2.5 | | 0.0008 | 0.0035 | | | 7.71E-05 | |
| PM (Condensable) | | 0.1026 | 0.4493 | | | 0.00991 | |
| $CH_{4\ CO2e}$ | | 0.4793 | 2.0991 | | | 0.002205 | Factor From 40 CFR 98, Table C-2 |
| $N_2O\ CO_{2e}$ | | 0.7091 | 3.1058 | | | 0.000221 | Factor From 40 CFR 98, Table C-2 |
| acrolein | | 0.0319 | 0.1398 | | | 0.00514 | |
| acetaldehyde | | 0.0519 | 0.2274 | | | 0.00836 | |
| formaldehyde | 0.0600 | 0.1825 | 0.7995 | | | 0.0528 | **Mfg. Spec Used** |
| biphenyl | | 0.0013 | 0.0058 | | | 0.000212 | |
| benzene | | 0.0027 | 0.0120 | | | 0.00044 | |
| toluene | | 0.0025 | 0.0111 | | | 0.000408 | |
| ethylbenzene | | 0.0002 | 0.0011 | | | 3.97E-05 | |
| xylene | | 0.0011 | 0.0050 | | | 0.000184 | |
| methanol | | 0.0155 | 0.0680 | | | 0.0025 | |
| n-hexane | | 0.0069 | 0.0302 | | | 0.00111 | |
| total HAPs | | 0.2968 | 1.2998 | | | 0.071194 | |

**Exhaust Parameters:**

| | | |
|---|---|---|
| Exhaust Gas Temperature | 1,005 | deg. F |
| Exhaust Gas Flow Rate | 9216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 9,216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 153.6 | acf per sec |
| Exhaust Stack Height | 260 | inches |
| | 21.67 | feet |
| Exhaust Stack Inside Diameter | 20 | inches |
| | 1.667 | feet |

# Eureka Midstream,LLC
**ENGINE EMISSIONS**

**Carbide Station**
**Wetzel County**

**Existing Source S3**

**Engine Data:**

| | | |
|---|---|---|
| Engine Manufacturer | CAT | |
| Engine Model | 3516B | |
| Type (Rich-burn or Low Emission) | Low Emissions | |
| Aspiration (Natural or Turbocharged) | Natural | |
| Turbocharge Cooler Temperature | 130 | deg. F |
| Manufacturer Rating | 1,380 | hp |
| Speed at Above Rating | 1,400 | rpm |
| Configeration ( In-line or Vee) | V-16 | |
| Number of Cylinders | 16 | |
| Engine Bore | 6.700 | inches |
| Engine Stroke | 7.500 | inches |
| Fuel Heat Content (LHV) | 1,007 | BTU/scf |
| Engine Displacement | 4,231 | cu. in. |
| Fuel Consumption | 7,500 | Btu/bhp-hr |

| **Emission Rates:** | g/bhp-hr | lb/hr | tons/year | g/hr | lb/day | AP-42 4strokelean lb/mmbtu | |
|---|---|---|---|---|---|---|---|
| Oxides of Nitrogen, NOx | 0.50 | 1.52 | 6.66 | 690 | 36.51 | | Comment |
| Carbon Monoxide CO | 0.20 | 0.61 | 2.67 | 276 | 14.60 | | 453.59 grams = 1 pound |
| VOC (NMNEHC) | 0.33 | 1.00 | 4.40 | 455 | 24.10 | | 2,000 pounds = 1 ton |
| $CO_2$ | 499 | 1518 | 6,649 | 688,620 | 36435.56 | | |
| **Total Annual Hours of Operation** | **8,760** | | | | | | |
| SO2 | | 0.0062 | 0.0272 | | | 0.0006 | |
| PM2.5 | | 0.0008 | 0.0035 | | | 7.71E-05 | |
| PM (Condensable) | | 0.1026 | 0.4493 | | | 0.00991 | |
| $CH_{4\ CO2e}$ | | 0.4793 | 2.0991 | | | 0.002205 | Factor From 40 CFR 98, Table C-2 |
| $N_2O\ CO_{2e}$ | | 0.7091 | 3.1058 | | | 0.000221 | Factor From 40 CFR 98, Table C-2 |
| acrolein | | 0.0319 | 0.1398 | | | 0.00514 | |
| acetaldehyde | | 0.0519 | 0.2274 | | | 0.00836 | |
| formaldehyde | 0.0600 | 0.1825 | 0.7995 | | | 0.0528 | **Mfg. Spec Used** |
| biphenyl | | 0.0013 | 0.0058 | | | 0.000212 | |
| benzene | | 0.0027 | 0.0120 | | | 0.00044 | |
| toluene | | 0.0025 | 0.0111 | | | 0.000408 | |
| ethylbenzene | | 0.0002 | 0.0011 | | | 3.97E-05 | |
| xylene | | 0.0011 | 0.0050 | | | 0.000184 | |
| methanol | | 0.0155 | 0.0680 | | | 0.0025 | |
| n-hexane | | 0.0069 | 0.0302 | | | 0.00111 | |
| total HAPs | | 0.2968 | 1.2998 | | | 0.071194 | |

**Exhaust Parameters:**

| | | |
|---|---|---|
| Exhaust Gas Temperature | 1,005 | deg. F |
| Exhaust Gas Flow Rate | 9216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 9,216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 153.6 | acf per sec |
| Exhaust Stack Height | 260 | inches |
| | 21.67 | feet |
| Exhaust Stack Inside Diameter | 20 | inches |
| | 1.667 | feet |

# Eureka Midstream,LLC
**ENGINE EMISSIONS**

**Carbide Station**
**Wetzel County**

**Existing Source S4**

**Engine Data:**

| | | |
|---|---|---|
| Engine Manufacturer | CAT | |
| Engine Model | 3516B | |
| Type (Rich-burn or Low Emission) | Low Emissions | |
| Aspiration (Natural or Turbocharged) | Natural | |
| Turbocharge Cooler Temperature | 130 | deg. F |
| Manufacturer Rating | 1,380 | hp |
| Speed at Above Rating | 1,400 | rpm |
| Configeration ( In-line or Vee) | V-16 | |
| Number of Cylinders | 16 | |
| Engine Bore | 6.700 | inches |
| Engine Stroke | 7.500 | inches |
| Fuel Heat Content (LHV) | 1,007 | BTU/scf |
| Engine Displacement | 4,231 | cu. in. |
| Fuel Consumption | 7,500 | Btu/bhp-hr |

| **Emission Rates:** | g/bhp-hr | lb/hr | tons/year | g/hr | lb/day | AP-42 4strokelean lb/mmbtu | Comment |
|---|---|---|---|---|---|---|---|
| Oxides of Nitrogen, NOx | 0.50 | 1.52 | 6.66 | 690 | 36.51 | | |
| Carbon Monoxide CO | 0.20 | 0.61 | 2.67 | 276 | 14.60 | | 453.59 grams = 1 pound |
| VOC (NMNEHC) | 0.33 | 1.00 | 4.40 | 455 | 24.10 | | 2,000 pounds = 1 ton |
| $CO_2$ | 499 | 1518 | 6,649 | 688,620 | 36435.56 | | |
| **Total Annual Hours of Operation** | **8,760** | | | | | | |
| SO2 | | 0.0062 | 0.0272 | | | 0.0006 | |
| PM2.5 | | 0.0008 | 0.0035 | | | 7.71E-05 | |
| PM (Condensable) | | 0.1026 | 0.4493 | | | 0.00991 | |
| $CH_{4\ CO2e}$ | | 0.4793 | 2.0991 | | | 0.002205 | Factor From 40 CFR 98, Table C-2 |
| $N_2O\ CO_{2e}$ | | 0.7091 | 3.1058 | | | 0.000221 | Factor From 40 CFR 98, Table C-2 |
| acrolein | | 0.0319 | 0.1398 | | | 0.00514 | |
| acetaldehyde | | 0.0519 | 0.2274 | | | 0.00836 | |
| formaldehyde | 0.0600 | 0.1825 | 0.7995 | | | 0.0528 | **Mfg. Spec Used** |
| biphenyl | | 0.0013 | 0.0058 | | | 0.000212 | |
| benzene | | 0.0027 | 0.0120 | | | 0.00044 | |
| toluene | | 0.0025 | 0.0111 | | | 0.000408 | |
| ethylbenzene | | 0.0002 | 0.0011 | | | 3.97E-05 | |
| xylene | | 0.0011 | 0.0050 | | | 0.000184 | |
| methanol | | 0.0155 | 0.0680 | | | 0.0025 | |
| n-hexane | | 0.0069 | 0.0302 | | | 0.00111 | |
| total HAPs | | 0.2968 | 1.2998 | | | 0.071194 | |

**Exhaust Parameters:**

| | | |
|---|---|---|
| Exhaust Gas Temperature | 1,005 | deg. F |
| Exhaust Gas Flow Rate | 9216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 9,216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 153.6 | acf per sec |
| Exhaust Stack Height | 260 | inches |
| | 21.67 | feet |
| Exhaust Stack Inside Diameter | 20 | inches |
| | 1.667 | feet |

# Eureka Midstream,LLC
**ENGINE EMISSIONS**

**Carbide Station**
**Wetzel County**

**Existing Source S8**

**Engine Data:**

| | | |
|---|---|---|
| Engine Manufacturer | CAT | |
| Engine Model | 3516B | |
| Type (Rich-burn or Low Emission) | Low Emissions | |
| Aspiration (Natural or Turbocharged) | Natural | |
| Turbocharge Cooler Temperature | 130 | deg. F |
| Manufacturer Rating | 1,380 | hp |
| Speed at Above Rating | 1,400 | rpm |
| Configeration ( In-line or Vee) | V-16 | |
| Number of Cylinders | 16 | |
| Engine Bore | 6.700 | inches |
| Engine Stroke | 7.500 | inches |
| Fuel Heat Content (LHV) | 1,007 | BTU/scf |
| Engine Displacement | 4,231 | cu. in. |
| Fuel Consumption | 7,500 | Btu/bhp-hr |

| **Emission Rates:** | g/bhp-hr | lb/hr | tons/year | g/hr | lb/day | AP-42 4strokelean lb/mmbtu | Comment |
|---|---|---|---|---|---|---|---|
| Oxides of Nitrogen, NOx | 0.50 | 1.52 | 6.66 | 690 | 36.51 | | |
| Carbon Monoxide CO | 0.20 | 0.61 | 2.67 | 276 | 14.60 | | 453.59 grams = 1 pound |
| VOC (NMNEHC) | 0.33 | 1.00 | 4.40 | 455 | 24.10 | | 2,000 pounds = 1 ton |
| $CO_2$ | 499 | 1518 | 6,649 | 688,620 | 36435.56 | | |
| **Total Annual Hours of Operation** | **8,760** | | | | | | |
| SO2 | | 0.0062 | 0.0272 | | | 0.0006 | |
| PM2.5 | | 0.0008 | 0.0035 | | | 7.71E-05 | |
| PM (Condensable) | | 0.1026 | 0.4493 | | | 0.00991 | |
| $CH_{4\ CO2e}$ | | 0.4793 | 2.0991 | | | 0.002205 | Factor From 40 CFR 98, Table C-2 |
| $N_2O\ CO_{2e}$ | | 0.7091 | 3.1058 | | | 0.000221 | Factor From 40 CFR 98, Table C-2 |
| acrolein | | 0.0319 | 0.1398 | | | 0.00514 | |
| acetaldehyde | | 0.0519 | 0.2274 | | | 0.00836 | |
| formaldehyde | 0.0600 | 0.1825 | 0.7995 | | | 0.0528 | **Mfg. Spec Used** |
| biphenyl | | 0.0013 | 0.0058 | | | 0.000212 | |
| benzene | | 0.0027 | 0.0120 | | | 0.00044 | |
| toluene | | 0.0025 | 0.0111 | | | 0.000408 | |
| ethylbenzene | | 0.0002 | 0.0011 | | | 3.97E-05 | |
| xylene | | 0.0011 | 0.0050 | | | 0.000184 | |
| methanol | | 0.0155 | 0.0680 | | | 0.0025 | |
| n-hexane | | 0.0069 | 0.0302 | | | 0.00111 | |
| total HAPs | | 0.2968 | 1.2998 | | | 0.071194 | |

**Exhaust Parameters:**

| | | |
|---|---|---|
| Exhaust Gas Temperature | 1,005 | deg. F |
| Exhaust Gas Flow Rate | 9216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 9,216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 153.6 | acf per sec |
| Exhaust Stack Height | 260 | inches |
| | 21.67 | feet |
| Exhaust Stack Inside Diameter | 20 | inches |
| | 1.667 | feet |

# Eureka Midstream,LLC
**ENGINE EMISSIONS**

**Carbide Station**
**Wetzel County**

**New Source S9**

**Engine Data:**

| | | |
|---|---|---|
| Engine Manufacturer | CAT | |
| Engine Model | 3516B | |
| Type (Rich-burn or Low Emission) | Low Emissions | |
| Aspiration (Natural or Turbocharged) | Natural | |
| Turbocharge Cooler Temperature | 130 | deg. F |
| Manufacturer Rating | 1,380 | hp |
| Speed at Above Rating | 1,400 | rpm |
| Configeration ( In-line or Vee) | V-16 | |
| Number of Cylinders | 16 | |
| Engine Bore | 6.700 | inches |
| Engine Stroke | 7.500 | inches |
| Fuel Heat Content (LHV) | 1,007 | BTU/scf |
| Engine Displacement | 4,231 | cu. in. |
| Fuel Consumption | 7,500 | Btu/bhp-hr |

| **Emission Rates:** | g/bhp-hr | lb/hr | tons/year | g/hr | lb/day | AP-42 4strokelean lb/mmbtu | Comment |
|---|---|---|---|---|---|---|---|
| Oxides of Nitrogen, NOx | 0.50 | 1.52 | 6.66 | 690 | 36.51 | | |
| Carbon Monoxide CO | 0.20 | 0.61 | 2.67 | 276 | 14.60 | | 453.59 grams = 1 pound |
| VOC (NMNEHC) | 0.33 | 1.00 | 4.40 | 455 | 24.10 | | 2,000 pounds = 1 ton |
| $CO_2$ | 499 | 1518 | 6,649 | 688,620 | 36435.56 | | |
| **Total Annual Hours of Operation** | **8,760** | | | | | | |
| SO2 | | 0.0062 | 0.0272 | | | 0.0006 | |
| PM2.5 | | 0.0008 | 0.0035 | | | 7.71E-05 | |
| PM (Condensable) | | 0.1026 | 0.4493 | | | 0.00991 | |
| $CH_{4\ CO2e}$ | | 0.4793 | 2.0991 | | | 0.002205 | Factor From 40 CFR 98, Table C-2 |
| $N_2O\ CO_{2e}$ | | 0.7091 | 3.1058 | | | 0.000221 | Factor From 40 CFR 98, Table C-2 |
| acrolein | | 0.0319 | 0.1398 | | | 0.00514 | |
| acetaldehyde | | 0.0519 | 0.2274 | | | 0.00836 | |
| formaldehyde | 0.0600 | 0.1825 | 0.7995 | | | 0.0528 | **Mfg. Spec Used** |
| biphenyl | | 0.0013 | 0.0058 | | | 0.000212 | |
| benzene | | 0.0027 | 0.0120 | | | 0.00044 | |
| toluene | | 0.0025 | 0.0111 | | | 0.000408 | |
| ethylbenzene | | 0.0002 | 0.0011 | | | 3.97E-05 | |
| xylene | | 0.0011 | 0.0050 | | | 0.000184 | |
| methanol | | 0.0155 | 0.0680 | | | 0.0025 | |
| n-hexane | | 0.0069 | 0.0302 | | | 0.00111 | |
| total HAPs | | 0.2968 | 1.2998 | | | 0.071194 | |

**Exhaust Parameters:**

| | | |
|---|---|---|
| Exhaust Gas Temperature | 1,005 | deg. F |
| Exhaust Gas Flow Rate | 9216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 9,216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 153.6 | acf per sec |
| Exhaust Stack Height | 260 | inches |
| | 21.67 | feet |
| Exhaust Stack Inside Diameter | 20 | inches |
| | 1.667 | feet |

# Eureka Midstream,LLC
**ENGINE EMISSIONS**

**Carbide Station**
**Wetzel County**

**Existing Source S10**

**Engine Data:**

| | | |
|---|---|---|
| Engine Manufacturer | CAT | |
| Engine Model | 3516B | |
| Type (Rich-burn or Low Emission) | Low Emissions | |
| Aspiration (Natural or Turbocharged) | Natural | |
| Turbocharge Cooler Temperature | 130 | deg. F |
| Manufacturer Rating | 1,380 | hp |
| Speed at Above Rating | 1,400 | rpm |
| Configeration ( In-line or Vee) | V-16 | |
| Number of Cylinders | 16 | |
| Engine Bore | 6.700 | inches |
| Engine Stroke | 7.500 | inches |
| Fuel Heat Content (LHV) | 1,007 | BTU/scf |
| Engine Displacement | 4,231 | cu. in. |
| Fuel Consumption | 7,500 | Btu/bhp-hr |

| **Emission Rates:** | g/bhp-hr | lb/hr | tons/year | g/hr | lb/day | AP-42 4strokelean lb/mmbtu | Comment |
|---|---|---|---|---|---|---|---|
| Oxides of Nitrogen, NOx | 0.50 | 1.52 | 6.66 | 690 | 36.51 | | |
| Carbon Monoxide CO | 0.20 | 0.61 | 2.67 | 276 | 14.60 | | 453.59 grams = 1 pound |
| VOC (NMNEHC) | 0.33 | 1.00 | 4.40 | 455 | 24.10 | | 2,000 pounds = 1 ton |
| $CO_2$ | 499 | 1518 | 6,649 | 688,620 | 36435.56 | | |
| **Total Annual Hours of Operation** | **8,760** | | | | | | |
| SO2 | | 0.0062 | 0.0272 | | | 0.0006 | |
| PM2.5 | | 0.0008 | 0.0035 | | | 7.71E-05 | |
| PM (Condensable) | | 0.1026 | 0.4493 | | | 0.00991 | |
| $CH_{4\ CO2e}$ | | 0.4793 | 2.0991 | | | 0.002205 | Factor From 40 CFR 98, Table C-2 |
| $N_2O\ CO_{2e}$ | | 0.7091 | 3.1058 | | | 0.000221 | Factor From 40 CFR 98, Table C-2 |
| acrolein | | 0.0319 | 0.1398 | | | 0.00514 | |
| acetaldehyde | | 0.0519 | 0.2274 | | | 0.00836 | |
| formaldehyde | 0.0600 | 0.1825 | 0.7995 | | | 0.0528 | **Mfg. Spec Used** |
| biphenyl | | 0.0013 | 0.0058 | | | 0.000212 | |
| benzene | | 0.0027 | 0.0120 | | | 0.00044 | |
| toluene | | 0.0025 | 0.0111 | | | 0.000408 | |
| ethylbenzene | | 0.0002 | 0.0011 | | | 3.97E-05 | |
| xylene | | 0.0011 | 0.0050 | | | 0.000184 | |
| methanol | | 0.0155 | 0.0680 | | | 0.0025 | |
| n-hexane | | 0.0069 | 0.0302 | | | 0.00111 | |
| total HAPs | | 0.2968 | 1.2998 | | | 0.071194 | |

**Exhaust Parameters:**

| | | |
|---|---|---|
| Exhaust Gas Temperature | 1,005 | deg. F |
| Exhaust Gas Flow Rate | 9216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 9,216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 153.6 | acf per sec |
| Exhaust Stack Height | 260 | inches |
| | 21.67 | feet |
| Exhaust Stack Inside Diameter | 20 | inches |
| | 1.667 | feet |

# Eureka Midstream,LLC
**ENGINE EMISSIONS**

**Carbide Station**
**Wetzel County**

**Existing Source S11**

**Engine Data:**

| | | |
|---|---|---|
| Engine Manufacturer | CAT | |
| Engine Model | 3516B | |
| Type (Rich-burn or Low Emission) | Low Emissions | |
| Aspiration (Natural or Turbocharged) | Natural | |
| Turbocharge Cooler Temperature | 130 | deg. F |
| Manufacturer Rating | 1,380 | hp |
| Speed at Above Rating | 1,400 | rpm |
| Configeration ( In-line or Vee) | V-16 | |
| Number of Cylinders | 16 | |
| Engine Bore | 6.700 | inches |
| Engine Stroke | 7.500 | inches |
| Fuel Heat Content (LHV) | 1,007 | BTU/scf |
| Engine Displacement | 4,231 | cu. in. |
| Fuel Consumption | 7,500 | Btu/bhp-hr |

| **Emission Rates:** | g/bhp-hr | lb/hr | tons/year | g/hr | lb/day | AP-42 4strokelean lb/mmbtu | |
|---|---|---|---|---|---|---|---|
| Oxides of Nitrogen, NOx | 0.50 | 1.52 | 6.66 | 690 | 36.51 | | Comment |
| Carbon Monoxide CO | 0.20 | 0.61 | 2.67 | 276 | 14.60 | | 453.59 grams = 1 pound |
| VOC (NMNEHC) | 0.33 | 1.00 | 4.40 | 455 | 24.10 | | 2,000 pounds = 1 ton |
| $CO_2$ | 499 | 1518 | 6,649 | 688,620 | 36435.56 | | |
| **Total Annual Hours of Operation** | **8,760** | | | | | | |
| SO2 | | 0.0062 | 0.0272 | | | 0.0006 | |
| PM2.5 | | 0.0008 | 0.0035 | | | 7.71E-05 | |
| PM | | 0.1026 | 0.4493 | | | 0.00991 | |
| $CH_4$ $_{CO2e}$ | | 0.4793 | 2.0991 | | | 0.002205 | Factor From 40 CFR 98, Table C-2 |
| $N_2O$ $CO_{2e}$ | | 0.7091 | 3.1058 | | | 0.000221 | Factor From 40 CFR 98, Table C-2 |
| acrolein | | 0.0319 | 0.1398 | | | 0.00514 | |
| acetaldehyde | | 0.0519 | 0.2274 | | | 0.00836 | |
| formaldehyde | 0.0600 | 0.1825 | 0.7995 | | | 0.0528 | **Mfg. Spec Used** |
| biphenyl | | 0.0013 | 0.0058 | | | 0.000212 | |
| benzene | | 0.0027 | 0.0120 | | | 0.00044 | |
| toluene | | 0.0025 | 0.0111 | | | 0.000408 | |
| ethylbenzene | | 0.0002 | 0.0011 | | | 3.97E-05 | |
| xylene | | 0.0011 | 0.0050 | | | 0.000184 | |
| methanol | | 0.0155 | 0.0680 | | | 0.0025 | |
| n-hexane | | 0.0069 | 0.0302 | | | 0.00111 | |
| total HAPs | | 0.2968 | 1.2998 | | | 0.071194 | |

**Exhaust Parameters:**

| | | |
|---|---|---|
| Exhaust Gas Temperature | 1,005 | deg. F |
| Exhaust Gas Flow Rate | 9216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 9,216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 153.6 | acf per sec |
| Exhaust Stack Height | 260 | inches |
| | 21.67 | feet |
| Exhaust Stack Inside Diameter | 20 | inches |
| | 1.667 | feet |

# Eureka Midsteam,LLC
**ENGINE EMISSIONS**

**Carbide Station**
**Wetzel County**

**Source S12 (REMOVED)**

**Engine Data:**

| | | |
|---|---|---|
| Engine Manufacturer | CAT | |
| Engine Model | 3516B | |
| Type (Rich-burn or Low Emission) | Low Emissions | |
| Aspiration (Natural or Turbocharged) | Natural | |
| Turbocharge Cooler Temperature | 130 | deg. F |
| Manufacturer Rating | 1,380 | hp |
| Speed at Above Rating | 1,400 | rpm |
| Configeration ( In-line or Vee) | V-16 | |
| Number of Cylinders | 16 | |
| Engine Bore | 6.700 | inches |
| Engine Stroke | 7.500 | inches |
| Fuel Heat Content (LHV) | 1,007 | BTU/scf |
| Engine Displacement | 4,231 | cu. in. |
| Fuel Consumption | 7,500 | Btu/bhp-hr |

| **Emission Rates:** | g/bhp-hr | lb/hr | tons/year | g/hr | lb/day | AP-42 4strokelean lb/mmbtu | |
|---|---|---|---|---|---|---|---|
| Oxides of Nitrogen, NOx | 0.50 | 1.52 | 6.66 | 690 | 36.51 | | Comment |
| Carbon Monoxide CO | 0.20 | 0.61 | 2.67 | 276 | 14.60 | | 453.59 grams = 1 pound |
| VOC (NMNEHC) | 0.33 | 1.00 | 4.40 | 455 | 24.10 | | 2,000 pounds = 1 ton |
| $CO_2$ | 499 | 1518 | 6,649 | 688,620 | 36435.56 | | |
| **Total Annual Hours of Operation** | **8,760** | | | | | | |
| SO2 | | 0.0062 | 0.0272 | | | 0.0006 | |
| PM2.5 | | 0.0008 | 0.0035 | | | 7.71E-05 | |
| PM (Condensable) | | 0.1026 | 0.4493 | | | 0.00991 | |
| $CH_{4\ CO2e}$ | | 0.4793 | 2.0991 | | | 0.002205 | Factor From 40 CFR 98, Table C-2 |
| $N_2O\ CO_{2e}$ | | 0.7091 | 3.1058 | | | 0.000221 | Factor From 40 CFR 98, Table C-2 |
| acrolein | | 0.0319 | 0.1398 | | | 0.00514 | |
| acetaldehyde | | 0.0519 | 0.2274 | | | 0.00836 | |
| formaldehyde | 0.0600 | 0.1825 | 0.7995 | | | 0.0528 | **Mfg. Spec Used** |
| biphenyl | | 0.0013 | 0.0058 | | | 0.000212 | |
| benzene | | 0.0027 | 0.0120 | | | 0.00044 | |
| toluene | | 0.0025 | 0.0111 | | | 0.000408 | |
| ethylbenzene | | 0.0002 | 0.0011 | | | 3.97E-05 | |
| xylene | | 0.0011 | 0.0050 | | | 0.000184 | |
| methanol | | 0.0155 | 0.0680 | | | 0.0025 | |
| n-hexane | | 0.0069 | 0.0302 | | | 0.00111 | |
| total HAPs | | 0.2968 | 1.2998 | | | 0.071194 | |

**Exhaust Parameters:**

| | | |
|---|---|---|
| Exhaust Gas Temperature | 1,005 | deg. F |
| Exhaust Gas Flow Rate | 9216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 9,216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 153.6 | acf per sec |
| Exhaust Stack Height | 260 | inches |
| | 21.67 | feet |
| Exhaust Stack Inside Diameter | 20 | inches |
| | 1.667 | feet |

# Eureka Midstream,LLC
**ENGINE EMISSIONS**

**Carbide Station**
**Wetzel County**

**Source S20**

**Engine Data:**

| | | |
|---|---|---|
| Engine Manufacturer | CAT | |
| Engine Model | 3608B | |
| Type (Rich-burn or Low Emission) | Low Emissions | |
| Aspiration (Natural or Turbocharged) | Natural | |
| Turbocharge Cooler Temperature | 130 | deg. F |
| Manufacturer Rating | 2,370 | hp |
| Speed at Above Rating | 1,000 | rpm |
| Configeration ( In-line or Vee) | In Line | |
| Number of Cylinders | 8 | |
| Engine Bore | 11.810 | inches |
| Engine Stroke | 11.810 | inches |
| Fuel Heat Content (LHV) | 1,007 | BTU/scf |
| Engine Displacement | 10,350 | cu. in. |
| Fuel Consumption (LHV) | 6,840 | Btu/bhp-hr |

CO 93% Control
VOC 50% Control

| **Emission Rates:** | g/bhp-hr | lb/hr | tons/year | g/hr | lb/day | AP-42 4strokelean lb/mmbtu | Comment |
|---|---|---|---|---|---|---|---|
| Oxides of Nitrogen, NOx | 0.50 | 2.61 | 11.44 | 1,185 | 62.70 | | |
| Carbon Monoxide CO | 0.20 | 1.04 | 4.58 | 474 | 25.08 | | 453.59 grams = 1 pound |
| VOC (NMNEHC) | 0.33 | 1.72 | 7.55 | 782 | 41.38 | | 2,000 pounds = 1 ton |
| $CO_2$ | 441 | 2304 | 10,092 | 1,045,170 | 55300.98 | | |
| **Total Annual Hours of Operation** | **8,760** | | | | | | |
| SO2 | | 0.0097 | 0.0426 | | | 0.0006 | |
| PM2.5 | | 0.0012 | 0.0055 | | | 7.71E-05 | |
| PM (Condensable) | | 0.1606 | 0.7036 | | | 0.00991 | |
| $CH_{4\ CO2e}$ | | 0.7506 | 3.2878 | | | 0.002205 | Factor From 40 CFR 98, Table C-2 |
| $N_2O\ CO_{2e}$ | | 1.1106 | 4.8644 | | | 0.000221 | Factor From 40 CFR 98, Table C-2 |
| acrolein | | 0.05 | 0.2190 | | | 0.00514 | |
| acetaldehyde | | 0.0813 | 0.3562 | | | 0.00836 | |
| formaldehyde | 0.0600 | 0.3135 | 1.3731 | | | 0.0528 | **Mfg. Spec Used** |
| biphenyl | | 0.0021 | 0.0090 | | | 0.000212 | |
| benzene | | 0.0043 | 0.0187 | | | 0.00044 | |
| toluene | | 0.004 | 0.0174 | | | 0.000408 | |
| ethylbenzene | | 2E-05 | 0.0001 | | | 3.97E-05 | |
| xylene | | 0.0018 | 0.0078 | | | 0.000184 | |
| methanol | | 0.0243 | 0.1065 | | | 0.0025 | |
| n-hexane | | 0.0108 | 0.0473 | | | 0.00111 | |
| total HAPs | | 0.492 | 2.1551 | | | 0.071194 | |

**Exhaust Parameters:**

| | | |
|---|---|---|
| Exhaust Gas Temperature | 857 | deg. F |
| Exhaust Gas Flow Rate | 16187 | acfm |
| Total Exhaust Gas Volume Flow, wet | 16,187 | acfm |
| Total Exhaust Gas Volume Flow, wet | 269.8 | acf per sec |
| Exhaust Stack Height | 260 | inches |
| | 21.67 | feet |
| Exhaust Stack Inside Diameter | 24 | inches |
| | 2.000 | feet |

# Eureka Midstream,LLC
**ENGINE EMISSIONS**

**Carbide Station**
**Wetzel County**

**Source S13 (REMOVED)**

**Engine Data:**

| | | |
|---|---|---|
| Engine Manufacturer | CAT | |
| Engine Model | 3516B | |
| Type (Rich-burn or Low Emission) | Low Emissions | |
| Aspiration (Natural or Turbocharged) | Natural | |
| Turbocharge Cooler Temperature | 130 | deg. F |
| Manufacturer Rating | 1,380 | hp |
| Speed at Above Rating | 1,400 | rpm |
| Configeration ( In-line or Vee) | V-16 | |
| Number of Cylinders | 16 | |
| Engine Bore | 6.700 | inches |
| Engine Stroke | 7.500 | inches |
| Fuel Heat Content (LHV) | 1,007 | BTU/scf |
| Engine Displacement | 4,231 | cu. in. |
| Fuel Consumption | 7,500 | Btu/bhp-hr |

| **Emission Rates:** | g/bhp-hr | lb/hr | tons/year | g/hr | lb/day | AP-42 4strokelean lb/mmbtu | Comment |
|---|---|---|---|---|---|---|---|
| Oxides of Nitrogen, NOx | 0.50 | 1.52 | 6.66 | 690 | 36.51 | | |
| Carbon Monoxide CO | 0.20 | 0.61 | 2.67 | 276 | 14.60 | | 453.59 grams = 1 pound |
| VOC (NMNEHC) | 0.33 | 1.00 | 4.40 | 455 | 24.10 | | 2,000 pounds = 1 ton |
| $CO_2$ | 499 | 1518 | 6,649 | 688,620 | 36435.56 | | |
| **Total Annual Hours of Operation** | **8,760** | | | | | | |
| SO2 | | 0.0062 | 0.0272 | | | 0.0006 | |
| PM2.5 | | 0.0008 | 0.0035 | | | 7.71E-05 | |
| PM (Condensable) | | 0.1026 | 0.4493 | | | 0.00991 | |
| $CH_{4\ CO2e}$ | | 0.4793 | 2.0991 | | | 0.002205 | Factor From 40 CFR 98, Table C-2 |
| $N_2O\ CO_{2e}$ | | 0.7091 | 3.1058 | | | 0.000221 | Factor From 40 CFR 98, Table C-2 |
| acrolein | | 0.0319 | 0.1398 | | | 0.00514 | |
| acetaldehyde | | 0.0519 | 0.2274 | | | 0.00836 | |
| formaldehyde | 0.0600 | 0.1825 | 0.7995 | | | 0.0528 | **Mfg. Spec Used** |
| biphenyl | | 0.0013 | 0.0058 | | | 0.000212 | |
| benzene | | 0.0027 | 0.0120 | | | 0.00044 | |
| toluene | | 0.0025 | 0.0111 | | | 0.000408 | |
| ethylbenzene | | 0.0002 | 0.0011 | | | 3.97E-05 | |
| xylene | | 0.0011 | 0.0050 | | | 0.000184 | |
| methanol | | 0.0155 | 0.0680 | | | 0.0025 | |
| n-hexane | | 0.0069 | 0.0302 | | | 0.00111 | |
| total HAPs | | 0.2968 | 1.2998 | | | 0.071194 | |

**Exhaust Parameters:**

| | | |
|---|---|---|
| Exhaust Gas Temperature | 1,005 | deg. F |
| Exhaust Gas Flow Rate | 9216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 9,216 | acfm |
| Total Exhaust Gas Volume Flow, wet | 153.6 | acf per sec |
| Exhaust Stack Height | 260 | inches |
| | 21.67 | feet |
| Exhaust Stack Inside Diameter | 20 | inches |
| | 1.667 | feet |

**DEHYDRATOR EMISSIONS**

**Carbide Station**
**Wetzel County**

## Burner/Still Vent Emissions
## Existing Source S7

### Reboiler Burner

| | | | | |
|---|---|---|---|---|
| Burner Duty Rating | 1500.0 | Mbtu/hr | | |
| Burner Efficiency | 98.0 | % | | |
| Gas Heat Content (LHV) | 1006.9 | Btu/scf | | |
| Total Gas Consumption | 36484.7 | scfd | 13.32 | MMscf/yr |
| H2S Concentration | 0.000 | Mole % | | |

| | | | | |
|---|---|---|---|---|
| NOx | 0.1520 | lbs/hr | 0.666 | TPY |
| CO | 0.1277 | lbs/hr | 0.559 | TPY |
| CO2e | 183.5 | lbs/hr | 803.9 | TPY |
| VOC | 0.0084 | lbs/hr | 0.037 | TPY |
| SO2 | 0.0009 | lbs/hr | 0.004 | TPY |
| PM | 0.0116 | lbs/hr | 0.051 | TPY |
| H2S | 0.000251 | lbs/hr | 0.001 | TPY |
| Benzene | 0.0000 | lbs/hr | 0.000 | TPY |
| n-Hexane | 0.0027 | lbs/hr | 0.012 | TPY |
| Toluene | 0.0000 | lbs/hr | 0.000 | TPY |
| CHOH | 0.0001 | lb/hr | 0.000 | TPY |

### Still Vent Emissions

From Gri GlyCalc 4.0

| | | |
|---|---|---|
| Dry Gas Rate | 80,000 | MCFD |
| Glycol Circulation Rate | 2.5 | Gal/min |
| Treating Temperature | 90 | Deg F |
| Treating Pressure | 900 | psi |

| | | | | |
|---|---|---|---|---|
| Total HC | 0.5189 | lbs/hr | 2.273 | TPY |
| Total VOC | 0.2230 | lbs/hr | 0.977 | TPY |
| Total HAP | 0.0321 | lbs/hr | 0.141 | TPY |
| benzene | 0.0052 | lbs/hr | 0.023 | TPY |
| toluene | 0.0049 | lbs/hr | 0.021 | TPY |
| ethyl benzene | 0.0042 | lbs/hr | 0.018 | TPY |
| xylene | 0.0050 | lbs/hr | 0.022 | TPY |
| n-hexane | 0.129 | lbs/hr | 0.565 | TPY |

### Total Dehy Emissions

| | | | | |
|---|---|---|---|---|
| NOx | 0.1520 | lbs/hr | 0.666 | TPY |
| CO | 0.1277 | lbs/hr | 0.559 | TPY |
| VOC | 0.2314 | lbs/hr | 1.013 | TPY |
| SO2 | 0.0009 | lbs/hr | 0.001 | TPY |
| PM | 0.0116 | lbs/hr | 0.000 | TPY |

# Eureka Midstream,LLC
**ENGINE EMISSIONS**

**Carbide Station**
**Wetzel County**

**Source S5A**

**Engine Data:**

| | | |
|---|---|---|
| Engine Manufacturer | CAT | |
| Engine Model | 3406 NA | |
| Type (Rich-burn or Low Emission) | Rich Burn | |
| Aspiration (Natural or Turbocharged) | natural | |
| Turbocharge Cooler Temperature | N/A | deg. F |
| Manufacturer Rating | 215 | hp |
| Speed at Above Rating | 1,800 | rpm |
| Configeration ( In-line or Vee) | In Line | |
| Number of Cylinders | 6 | |
| Engine Bore | 4.790 | inches |
| Engine Stroke | 6.000 | inches |
| Fuel Heat Content (LHV) | 1,114 | BTU/scf |
| Engine Displacement | 649 | cu. in. |
| Fuel Consumption (HHV) | 8,754 | Btu/bhp-hr |

| **Emission Rates:** | g/bhp-hr | lb/hr | tons/year | g/hr | lb/day | AP-42 4strokerich lb/mmbtu | |
|---|---|---|---|---|---|---|---|
| Oxides of Nitrogen, NOx | 0.97 | 0.46 | 2.02 | 209 | 11.06 | | Comment |
| Carbon Monoxide CO | 0.97 | 0.46 | 2.02 | 209 | 11.06 | | 453.59 grams = 1 pound |
| VOC (NMNEHC) | 0.14 | 0.06 | 0.28 | 29 | 1.54 | | 2,000 pounds = 1 ton |
| $CO_2$ | 573 | 272 | 1,190 | 123,195 | 6518.37 | | |
| **Total Annual Hours of Operation** | **8,760** | | | | | | |
| SO2 | | 0.0011 | 0.0049 | | | 0.0006 | |
| PM2.5 | | 0.0179 | 0.0783 | | | 0.0095 | |
| PM (Condensable) | | 0.0187 | 0.0817 | | | 0.00991 | |
| $CH_4$ $CO2e$ | | 9.0906 | 39.8168 | | | 0.23 | **Mfg. Spec Used** |
| $N_2O$ $CO_{2e}$ | | 0.1289 | 0.5648 | | | 0.000221 | Factor From 40 CFR 98, Table C-2 |
| acrolein | | 0.0049 | 0.0217 | | | 0.00263 | |
| acetaldehyde | | 0.0053 | 0.0230 | | | 0.00279 | |
| formaldehyde mfr control rate | 0.1400 | 0.0664 | 0.2906 | | | 0.0205 | **Mfg. Spec Used** |
| benzene | | 0.003 | 0.0130 | | | 0.00158 | |
| toluene | | 0.0011 | 0.0046 | | | 0.00056 | |
| methanol | | 0.0058 | 0.0252 | | | 0.00306 | |
| xylene | | 0.0004 | 0.0016 | | | 0.00019 | |
| total HAPs | | 0.0867 | 0.3798 | | | 0.03131 | |

**Exhaust Parameters:**

| | | |
|---|---|---|
| Exhaust Gas Temperature | 1,155 | deg. F |
| Exhaust Gas Flow Rate | 1032 | acfm |
| Total Exhaust Gas Volume Flow, wet | 1,032 | acfm |
| Total Exhaust Gas Volume Flow, wet | 17.2 | acf per sec |
| Exhaust Stack Height | 84 | inches |
| | 7.00 | feet |
| Exhaust Stack Inside Diameter | 6 | inches |
| | 0.500 | feet |
| Exhaust Stack Velocity | 87.6 | ft/sec |
| | 5,255.9 | ft/min |

$$\frac{4 \times acfm}{3.1416 \times (\text{stack diameter})^2}$$

# Eureka Midstream,LLC
**ENGINE EMISSIONS**

**Carbide Station**
**Wetzel County**

**Source S6A**

**Engine Data:**

| | | |
|---|---|---|
| Engine Manufacturer | CAT | |
| Engine Model | 3406 NA | |
| Type (Rich-burn or Low Emission) | Rich Burn | |
| Aspiration (Natural or Turbocharged) | natural | |
| Turbocharge Cooler Temperature | N/A | deg. F |
| Manufacturer Rating | 215 | hp |
| Speed at Above Rating | 1,800 | rpm |
| Configeration ( In-line or Vee) | In Line | |
| Number of Cylinders | 6 | |
| Engine Bore | 4.790 | inches |
| Engine Stroke | 6.000 | inches |
| Fuel Heat Content (HHV) | 1,114 | BTU/scf |
| Engine Displacement | 649 | cu. in. |
| Fuel Consumption (HHV) | 8,754 | Btu/bhp-hr |

| **Emission Rates:** | g/bhp-hr | lb/hr | tons/year | g/hr | lb/day | AP-42 4strokerich lb/mmbtu | |
|---|---|---|---|---|---|---|---|
| Oxides of Nitrogen, NOx | 0.97 | 0.46 | 0.00 | 209 | 11.06 | | Comment |
| Carbon Monoxide CO | 0.97 | 0.46 | 0.00 | 209 | 11.06 | | 453.59 grams = 1 pound |
| VOC (NMNEHC) | 0.14 | 0.06 | 0.00 | 29 | 1.54 | | 2,000 pounds = 1 ton |
| $CO_2$ | 573 | 272 | 0 | 123,195 | 6518.37 | | |
| **Total Annual Hours of Operation** | **0** | | | | | | |
| SO2 | | 0.0011 | 0.0000 | | | 0.0006 | |
| PM2.5 | | 0.0179 | 0.0000 | | | 0.0095 | |
| PM (Condensable) | | 0.0187 | 0.0000 | | | 0.00991 | |
| $CH_{4\ CO2e}$ | | 9.0906 | 0.0000 | | | 0.23 | **Mfg. Spec Used** |
| $N_2O\ CO_{2e}$ | | 0.1289 | 0.0000 | | | 0.000221 | Factor From 40 CFR 98, Table C-2 |
| acrolein | | 0.0049 | 0.0000 | | | 0.00263 | |
| acetaldehyde | | 0.0053 | 0.0000 | | | 0.00279 | |
| formaldehyde mfr control rate | 0.1400 | 0.0664 | 0.0000 | | | 0.0205 | **Mfg. Spec Used** |
| benzene | | 0.003 | 0.0000 | | | 0.00158 | |
| toluene | | 0.0011 | 0.0000 | | | 0.00056 | |
| methanol | | 0.0058 | 0.0000 | | | 0.00306 | |
| xylene | | 0.0004 | 0.0000 | | | 0.00019 | |
| total HAPs | | 0.0867 | 0.0000 | | | 0.03131 | |

**Exhaust Parameters:**

| | | |
|---|---|---|
| Exhaust Gas Temperature | 1,155 | deg. F |
| Exhaust Gas Flow Rate | 1032 | acfm |
| Total Exhaust Gas Volume Flow, wet | 1,032 | acfm |
| Total Exhaust Gas Volume Flow, wet | 17.2 | acf per sec |
| Exhaust Stack Height | 84 | inches |
| | 7.00 | feet |
| Exhaust Stack Inside Diameter | 6 | inches |
| | 0.500 | feet |
| Exhaust Stack Velocity | 87.6 | ft/sec |
| | 5,255.9 | ft/min |

$$\frac{4 \times acfm}{3.1416 \times (\text{stack diameter})^2}$$

# Eureka Midstream, LLC

**Carbide Station**
**Wetzel County**

**Potential Emission Rates**

## Source VCU-1

## Enclosed Vapor Combustor
## (Truck Loading)

| | | | | |
|---|---|---|---|---|
| Destruction Efficiency | 99.0 | % | | |
| Gas Heat Content (HHV) | 3657.0 | Btu/scf | | |
| Max Flow to T-E | 0.00250 | MMSCFD | 0.4563 | MMCF/Yr |
| Max BTUs to Flare | 3.0 | MMBTU/Hr | 1,669 | MMBTU/Yr |

| | | | | |
|---|---|---|---|---|
| NOx | 0.21 | lbs/hr | 0.06 | tpy |
| CO | 1.13 | lbs/hr | 0.31 | tpy |
| CO2 | 355.94 | lbs/hr | 97.52 | tpy |
| CO2e | 356.30 | lb/hr | 97.62 | tpy |
| VOC | 1.50 | lb/hr | 0.41 | tpy |
| CH4 | 0.01 | lbs/hr | 0.0018 | tpy |
| N2O | 0.0007 | lbs/hr | 0.0002 | tpy |
| PM | 0.0008 | lb/hr | 0.0017 | tpy |

Notes: Truck loading vapor to VCU is assumed to be 100% VOC.
Truck max Loading Emission are 2498 scfd (excluding displaced air)
Thus, max to flare is 0.0025 MMSCFD
Annual truck loading to flares is 0.4563 MMSCF/Yr.

**Factors Used**

| | | | |
|---|---|---|---|
| **AP-42 Table 13.5-1** | **NOx** | **0.068** | **Lbs/MMBTU** |
| **AP-42 Table 13.5-1** | **CO** | **0.37** | **Lbs/MMBTU** |
| **40 CFR 98 Table C-1** | **CO2** | **116.89** | **Lbs/MMBTU** |
| **40 CFR 98 Table C-2** | **CH4** | **0.0022** | **Lbs/MMBTU** |
| **40 CFR 98 Table C-2** | **N2O** | **0.00022** | **Lbs/MMBTU** |
| **AP-42 Table 1.4-2** | **PM** | **7.6** | **lb/MMSCF** |

# Eureka Midstream, LLC

**Carbide Station**
**Wetzel County**

**Potential Emission Rates**

## Source S15-A

## Combustor Pilot

| | | | |
|---|---|---|---|
| Burner Duty Rating | 8.00 | Mbtu/hr | |
| Burner Efficiency | 99.0 | % | |
| Gas Heat Content (HHV) | 1000.0 | Btu/scf | (Fuel Gas) |
| Total Gas Consumption | 97.0 | scfd | |
| H2S Concentration | 0.000 | Mole % | |
| **Hours of Operation** | **8760** | | |

| | | | | |
|---|---|---|---|---|
| NOx | 0.0004 | lbs/hr | 0.002 | TPY |
| CO | 0.0003 | lbs/hr | 0.001 | TPY |
| CO2e | 0.4782 | lbs/hr | 2.094 | TPY |
| CO2 | 0.4753 | lbs/hr | 2.082 | TPY |
| CH4 | 0.0000 | lbs/hr | 0.000 | TPY |
| N2O | 0.0000 | lbs/hr | 0.000 | TPY |
| VOC | 0.0000 | lbs/hr | 0.000 | TPY |
| SO2 | 0.0000 | lbs/hr | 0.000 | TPY |
| PM10 | 0.0000 | lbs/hr | 0.000 | TPY |

Note: Only operates during truck loading. As truck loading is limited to 12 hrs per day. Auxilary Fuel usage will be a max of 4380 hours per year.

**AP-42 Factors Used**

| | | | |
|---|---|---|---|
| **NOx** | **100** | **Lbs/MMCF** | |
| **CO** | **84** | **Lbs/MMCF** | |
| **$CO_2$** | **120,000** | **Lbs/MMCF** | **Global Warming Potential = 1** |
| **VOC** | **5.5** | **Lbs/MMCF** | |
| **PM** | **7.6** | **Lbs/MMCF** | |
| **$SO_2$** | **0.6** | **Lbs/MMCF** | |
| **$CH_4$** | **2.3** | **Lbs/MMCF** | **Global Warming Potential = 21** |
| **$N_2O$** | **2.2** | **Lbs/MMCF** | **Global Warming Potential =310** |

**Note: EPA Emission factors are based on gas at 1020 BTU/CF. Thus, emission factors must be corrected for higher BTU gas.**

# Eureka Midstream, LLC

**Carbide Station**
**Wetzel County**

**Potential Emission Rates**

## Source VCU-2

## Enclosed Vapor Combustors
## (Condensate Tanks)

| | | | | |
|---|---|---|---|---|
| Destruction Efficiency | 99.0 | % | | |
| Gas Heat Content (HHV) | 3097.0 | Btu/scf | | |
| Max Flow to T-E | 0.07443 | MMSCFD | 27.1700 | MMCF/Yr |
| Max BTUs to Flare | 28.8 | MMBTU/Hr | 84,145 | MMBTU/Yr |

| | | | | |
|---|---|---|---|---|
| NOx | 1.96 | lbs/hr | 2.86 | tpy |
| CO | 10.66 | lbs/hr | 15.57 | tpy |
| CO2 | 3,368.04 | lbs/hr | 4,917.88 | tpy |
| CO2e | 3,371.67 | lb/hr | 4,938.66 | tpy |
| VOC | 13.77 | lb/hr | 20.12 | tpy |
| n-Hexane | 2.07 | lb/hr | 3.04 | |
| CH4 | 0.07 | lbs/hr | 0.1100 | tpy |
| N2O | 0.0063 | lbs/hr | 0.0093 | tpy |
| PM | 0.0236 | lb/hr | 0.1032 | tpy |

Notes: Daily Max is 0.07443 MMSCFD from Promax (average flow) x 3 for Max hourly flow
Annual combustion by-products (NOx, PM, CO2 and CO) is the average from ProMax (3101scf/hr) continuously for a year.
VOC and n-Hexane Emissions included in Condensate Uncaptured/Uncontrolled in Summary Sheet

**Factors Used**

| | | | |
|---|---|---|---|
| **AP-42 Table 13.5-1** | **NOx** | **0.068** | **Lbs/MMBTU** |
| **AP-42 Table 13.5-1** | **CO** | **0.37** | **Lbs/MMBTU** |
| **40 CFR 98 Table C-1** | **CO2** | **116.89** | **Lbs/MMBTU** |
| **40 CFR 98 Table C-2** | **N2O** | **0.00022** | **Lbs/MMBTU** |
| **AP-42 Table 1.4-2** | **PM** | **7.6** | **lb/MMSCF** |

# Eureka Midstream, LLC

**Carbide Station**
**Wetzel County**

**Potential Emission Rates**

## Source 17

## Line Heater HTR-1 (Existing)

| | | |
|---|---|---|
| Burner Duty Rating | 750.0 | Mbtu/hr |
| Burner Efficiency | 98.0 | % |
| Gas Heat Content (HHV) | 1114.2 | Btu/scf |
| Total Gas Consumption | 16484.5 | scfd |
| H2S Concentration | 0.000 | Mole % |
| **Hours of Operation** | **8760** | |

| | | | | |
|---|---|---|---|---|
| NOx | 0.0750 | lbs/hr | 0.329 | TPY |
| CO | 0.0630 | lbs/hr | 0.276 | TPY |
| CO2e | 91 | lbs/hr | 397 | TPY |
| CO2 | 90 | lbs/hr | 394 | TPY |
| CH4 | 0.0017 | lbs/hr | 0.008 | TPY |
| N2O | 0.0017 | lbs/hr | 0.007 | TPY |
| VOC | 0.0041 | lbs/hr | 0.018 | TPY |
| SO2 | 0.0005 | lbs/hr | 0.002 | TPY |
| H2S | 0.0000 | lbs/hr | 0.000 | TPY |
| PM10 | 0.0057 | lbs/hr | 0.025 | TPY |
| CHOH | 0.0001 | lbs/hr | 0.000 | TPY |
| Benzene | 0.0000 | lbs/hr | 0.000 | TPY |
| N-Hexane | 0.0014 | lbs/hr | 0.006 | TPY |
| Toluene | 0.0000 | lbs/hr | 0.000 | TPY |
| Total HAPs | 0.0014 | lbs/hr | 0.006 | TPY |

**AP-42 Factors Used**

| | | | |
|---|---|---|---|
| **NOx** | **100** | **Lbs/MMCF** | |
| **CO** | **84** | **Lbs/MMCF** | |
| **$CO_2$** | **120,000** | **Lbs/MMCF** | **Global Warming Potential = 1** |
| **VOC** | **5.5** | **Lbs/MMCF** | |
| **PM** | **7.6** | **Lbs/MMCF** | |
| **$SO_2$** | **0.6** | **Lbs/MMCF** | |
| **$CH_4$** | **2.3** | **Lbs/MMCF** | **Global Warming Potential = 25** |
| **$N_2O$** | **2.2** | **Lbs/MMCF** | **Global Warming Potential =298** |
| **HCOH** | **0.075** | **Lbs/MMCF** | |
| **Benzene** | **0.0021** | **Lbs/MMCF** | |
| **n-Hexane** | **1.8** | **Lbs/MMCF** | |
| **Toluene** | **0.0034** | **Lbs/MMCF** | |

**Note: EPA Emission factors are based on gas at 1020 BTU/CF. Thus, emission factors must be corrected for higher BTU gas.**

# Eureka Midstream, LLC

**Carbide Station**
**Wetzel County**

**Potential Emission Rates**

## Source 17-A

## Line Heater HTR-2 (NEW)

| | | |
|---|---|---|
| Burner Duty Rating | 4000.0 | Mbtu/hr |
| Burner Efficiency | 98.0 | % |
| Gas Heat Content (HHV) | 1114.2 | Btu/scf |
| Total Gas Consumption | 87917.1 | scfd |
| H2S Concentration | 0.000 | Mole % |
| **Hours of Operation** | **8760** | |

| | | | | |
|---|---|---|---|---|
| NOx | 0.4002 | lbs/hr | 1.753 | TPY |
| CO | 0.3361 | lbs/hr | 1.472 | TPY |
| CO2e | 483 | lbs/hr | 2116 | TPY |
| CO2 | 480 | lbs/hr | 2103 | TPY |
| CH4 | 0.0092 | lbs/hr | 0.040 | TPY |
| N2O | 0.0088 | lbs/hr | 0.039 | TPY |
| VOC | 0.0220 | lbs/hr | 0.096 | TPY |
| SO2 | 0.0024 | lbs/hr | 0.011 | TPY |
| H2S | 0.0000 | lbs/hr | 0.000 | TPY |
| PM10 | 0.0304 | lbs/hr | 0.133 | TPY |
| CHOH | 0.0003 | lbs/hr | 0.001 | TPY |
| Benzene | 0.0000 | lbs/hr | 0.000 | TPY |
| N-Hexane | 0.0072 | lbs/hr | 0.032 | TPY |
| Toluene | 0.0000 | lbs/hr | 0.000 | TPY |
| Total HAPs | 0.0075 | lbs/hr | 0.033 | TPY |

**AP-42 Factors Used**

| | | | |
|---|---|---|---|
| **NOx** | **100** | **Lbs/MMCF** | |
| **CO** | **84** | **Lbs/MMCF** | |
| **$CO_2$** | **120,000** | **Lbs/MMCF** | **Global Warming Potential = 1** |
| **VOC** | **5.5** | **Lbs/MMCF** | |
| **PM** | **7.6** | **Lbs/MMCF** | |
| **$SO_2$** | **0.6** | **Lbs/MMCF** | |
| **$CH_4$** | **2.3** | **Lbs/MMCF** | **Global Warming Potential = 25** |
| **$N_2O$** | **2.2** | **Lbs/MMCF** | **Global Warming Potential =298** |
| **HCOH** | **0.075** | **Lbs/MMCF** | |
| **Benzene** | **0.0021** | **Lbs/MMCF** | |
| **n-Hexane** | **1.8** | **Lbs/MMCF** | |
| **Toluene** | **0.0034** | **Lbs/MMCF** | |

**Note: EPA Emission factors are based on gas at 1020 BTU/CF. Thus, emission factors must be corrected for higher BTU gas.**

# Eureka Midstream, LLC

**Carbide Station**
**Wetzel County**

**Potential Emission Rates**

## Source 17-B

## Line Heater HTR-3 (NEW)

| | | |
|---|---|---|
| Burner Duty Rating | 2000.0 | Mbtu/hr |
| Burner Efficiency | 98.0 | % |
| Gas Heat Content (HHV) | 1114.2 | Btu/scf |
| Total Gas Consumption | 43958.6 | scfd |
| H2S Concentration | 0.000 | Mole % |
| **Hours of Operation** | **8760** | |

| | | | | |
|---|---|---|---|---|
| NOx | 0.2001 | lbs/hr | 0.876 | TPY |
| CO | 0.1681 | lbs/hr | 0.736 | TPY |
| CO2e | 242 | lbs/hr | 1058 | TPY |
| CO2 | 240 | lbs/hr | 1052 | TPY |
| CH4 | 0.0046 | lbs/hr | 0.020 | TPY |
| N2O | 0.0044 | lbs/hr | 0.019 | TPY |
| VOC | 0.0110 | lbs/hr | 0.048 | TPY |
| SO2 | 0.0012 | lbs/hr | 0.005 | TPY |
| H2S | 0.0000 | lbs/hr | 0.000 | TPY |
| PM10 | 0.0152 | lbs/hr | 0.067 | TPY |
| CHOH | 0.0002 | lbs/hr | 0.001 | TPY |
| Benzene | 0.0000 | lbs/hr | 0.000 | TPY |
| N-Hexane | 0.0036 | lbs/hr | 0.016 | TPY |
| Toluene | 0.0000 | lbs/hr | 0.000 | TPY |
| Total HAPs | 0.0038 | lbs/hr | 0.016 | TPY |

**AP-42 Factors Used**

| | | | |
|---|---|---|---|
| **NOx** | **100** | **Lbs/MMCF** | |
| **CO** | **84** | **Lbs/MMCF** | |
| **$CO_2$** | **120,000** | **Lbs/MMCF** | **Global Warming Potential = 1** |
| **VOC** | **5.5** | **Lbs/MMCF** | |
| **PM** | **7.6** | **Lbs/MMCF** | |
| **$SO_2$** | **0.6** | **Lbs/MMCF** | |
| **$CH_4$** | **2.3** | **Lbs/MMCF** | **Global Warming Potential = 25** |
| **$N_2O$** | **2.2** | **Lbs/MMCF** | **Global Warming Potential =298** |
| **HCOH** | **0.075** | **Lbs/MMCF** | |
| **Benzene** | **0.0021** | **Lbs/MMCF** | |
| **n-Hexane** | **1.8** | **Lbs/MMCF** | |
| **Toluene** | **0.0034** | **Lbs/MMCF** | |

**Note: EPA Emission factors are based on gas at 1020 BTU/CF. Thus, emission factors must be corrected for higher BTU gas.**

## Eureka Midstream, LLC
**FUGITIVE EMISSIONS**

**Carbide Station**

**Wetzel County**

## Fugitive VOC Emissions

Volatile Organic Compounds, non-methane and non-ethane from gas analysis: 13.23 weight percent
Hydrogen Sulfide in Gas Stream 0.00 ppm by volume

| Emission Source: | Number | Oil & Gas Production* | VOC % | VOC, lb/hr | H2S, wt. % | H2S, lb/hr |
|---|---|---|---|---|---|---|
| **Valves:** | | | | | | |
| Gas/Vapor: | **40** | 0.00992 lb/hr | 13.2 | 0.053 | 0.000 | 0.0000 |
| Light Liquid: | **8** | 0.00550 lb/hr | 100.0 | 0.044 | | |
| Heavy Liquid (Oil): | **-** | 0.00002 lb/hr | 100.0 | 0.000 | | |
| **Relief Valves:** | **16** | 0.01940 lb/hr | 13.2 | 0.041 | 0.000 | 0.0000 |
| **Open-ended Lines, gas:** | | 0.00441 lb/hr | 13.2 | 0.000 | 0.000 | 0.0000 |
| **Open-ended Lines, liquid:** | **-** | 0.00031 lb/hr | 100.0 | 0.000 | | |
| **Pump Seals:** | | | | | | |
| Gas: | **-** | 0.00529 lb/hr | 100.0 | 0.000 | 0.000 | 0.0000 |
| Light Liquid: | **6** | 0.02866 lb/hr | 100.0 | 0.172 | | |
| Heavy Liquid (Oil): | **-** | 0.00133 lb/hr | 100.0 | 0.000 | | |
| **Compressor Seals, Gas:** | **74** | 0.01940 lb/hr | 13.2 | 0.190 | 0.000 | 0.0000 |
| **Connectors:** | | | | | | |
| Gas: | **160** | 0.00044 lb/hr | 13.2 | 0.009 | 0.000 | 0.0000 |
| Light Liquid: | **30** | 0.00046 lb/hr | 100.0 | 0.014 | | |
| Heavy Liquid (Oil): | **-** | 0.00002 lb/hr | 100.0 | 0.000 | | |
| **Flanges:** | | | | | | |
| Gas: | **120** | 0.00086 lb/hr | 13.2 | 0.014 | 0.000 | 0.0000 |
| Light Liquid: | **24** | 0.00024 lb/hr | 100.0 | 0.006 | | |
| Heavy Liquid: | **0** | 0.00000086 lb/hr | 100.0 | 0.000 | | |

***Fugitive Calculations:***

| | lb/hr | t/y |
|---|---|---|
| VOC | **0.542** | **2.375** |
| H2S | **0.000** | **0.000** |

Notes: * TNRCC approved numbers per their interoffice memorandum dated November 29, 1995

## Eureka Midstream, LLC
**GAS ANALYSIS INFORMATION**

**Carbide Station**
**Wetzel County**

## Fuel Gas Composition Information:

| | Fuel Gas mole % | Fuel M.W. lb/lb-mole | Fuel S.G. | Fuel Wt. % | LHV, dry Btu/scf | HHV, dry Btu/scf | AFR vol/vol | VOC NM / NE | Z Factor | GPM |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, N2 | 0.497 | 0.139 | 0.005 | 0.707 | | | - | | 0.0050 | |
| Carbon Dioxide, CO2 | 0.243 | 0.107 | 0.004 | 0.543 | | | - | | 0.0024 | |
| Hydrogen Sulfide, H2S | 0.000 | 0.000 | 0.000 | 0.000 | 0.0 | 0.0 | 0.000 | | 0.0000 | |
| Helium, He | - | - | - | - | | | - | | - | |
| Oxygen, O2 | 0.001 | 0.000 | 0.000 | 0.002 | | | - | | 0.0000 | |
| Methane, CH4 | 81.714 | 13.109 | 0.453 | 66.550 | 743.1 | 825.3 | 7.787 | | 0.8155 | |
| Ethane, C2H6 | 12.425 | 3.736 | 0.129 | 18.967 | 201.1 | 219.9 | 2.072 | | 0.1232 | 3.305 |
| Propane | 3.412 | 1.505 | 0.052 | 7.638 | 79.0 | 85.8 | 0.813 | 7.638 | 0.0335 | 0.935 |
| Iso-Butane | 0.446 | 0.259 | 0.009 | 1.316 | 13.4 | 14.5 | 0.138 | 1.316 | 0.0043 | 0.145 |
| Normal Butane | 0.731 | 0.425 | 0.015 | 2.157 | 22.0 | 23.8 | 0.226 | 2.157 | 0.0071 | 0.229 |
| Iso Pentane | 0.196 | 0.141 | 0.005 | 0.718 | 7.3 | 7.8 | 0.075 | 0.718 | 0.0020 | 0.071 |
| Normal Pentane | 0.152 | 0.110 | 0.004 | 0.557 | 5.6 | 6.1 | 0.058 | 0.557 | 0.0015 | 0.055 |
| Hexane | 0.120 | 0.103 | 0.004 | 0.525 | 5.3 | 5.7 | 0.054 | 0.525 | 0.0012 | 0.049 |
| Heptane | 0.063 | 0.063 | 0.002 | 0.320 | 3.2 | 3.5 | 0.033 | 0.320 | 0.0006 | 0.029 |
| | 100.000 | 19.698 | 0.680 | | 1,080.0 | 1,192.5 | 11.257 | 13.231 | 0.9964 | 4.819 |

| | |
|---|---|
| Ideal Gross (HHV) | 1,192.5 |
| Ideal Gross (sat'd) | 1,172.5 |
| GPM | - |
| Real Gross (HHV) | 1,196.8 |
| Real Net (LHV) | 1,083.9 |

**Eureka Midstream, LLC**

**Carbide Station**
**Wetzel County**

## Fuel Gas Composition Information:

| | Fuel Gas mole % | Fuel M.W. lb/lb-mole | Fuel S.G. | Fuel Wt. % | LHV, dry Btu/scf | HHV, dry Btu/scf | AFR vol/vol | VOC NM / NE | Z Factor | GPM |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, N2 | 0.504 | 0.141 | 0.005 | 0.776 | | | - | | 0.0050 | |
| Carbon Dioxide, CO2 | 0.250 | 0.110 | 0.004 | 0.605 | | | - | | 0.0025 | |
| Hydrogen Sulfide, H2S | 0.000 | 0.000 | 0.000 | 0.000 | 0.0 | 0.0 | 0.000 | | 0.0000 | |
| Helium, He | - | - | - | - | | | - | | - | |
| Oxygen, O2 | 0.001 | 0.000 | 0.000 | 0.002 | | | - | | 0.0000 | |
| Methane, CH4 | 87.600 | 14.054 | 0.485 | 77.279 | 796.6 | 884.8 | 8.348 | | 0.8742 | |
| Ethane, C2H6 | 9.925 | 2.984 | 0.103 | 16.411 | 160.7 | 175.6 | 1.655 | | 0.0984 | 2.640 |
| Propane | 1.000 | 0.441 | 0.015 | 2.425 | 23.1 | 25.2 | 0.238 | 2.425 | 0.0098 | 0.274 |
| Iso-Butane | 0.150 | 0.087 | 0.003 | 0.479 | 4.5 | 4.9 | 0.046 | 0.479 | 0.0015 | 0.049 |
| Normal Butane | 0.400 | 0.232 | 0.008 | 1.278 | 12.0 | 13.0 | 0.124 | 1.278 | 0.0039 | 0.125 |
| Iso Pentane | 0.060 | 0.043 | 0.001 | 0.238 | 2.2 | 2.4 | 0.023 | 0.238 | 0.0006 | 0.022 |
| Normal Pentane | 0.040 | 0.029 | 0.001 | 0.159 | 1.5 | 1.6 | 0.015 | 0.159 | 0.0004 | 0.014 |
| Hexane | 0.050 | 0.043 | 0.001 | 0.237 | 2.2 | 2.4 | 0.023 | 0.237 | 0.0005 | 0.020 |
| Heptane | 0.020 | 0.020 | 0.001 | 0.110 | 1.0 | 1.1 | 0.010 | 0.110 | 0.0002 | 0.009 |
| | 100.000 | 18.186 | 0.628 | | 1,003.9 | 1,111.0 | 10.484 | 4.927 | 0.9971 | 3.154 |

**Gas Density (STP) = 0.051**

| | |
|---|---|
| Ideal Gross (HHV) | 1,111.0 |
| Ideal Gross (sat'd) | 1,092.4 |
| GPM | - |
| Real Gross (HHV) | 1,114.2 |
| Real Net (LHV) | 1,006.9 |

**Eureka Midstream, LLC**

**Carbide Station**
**Wetzel County**

## Condensate Flash Composition Information:

| | Fuel Gas mole % | Fuel M.W. lb/lb-mole | Fuel S.G. | Fuel Wt. % | LHV, dry Btu/scf | HHV, dry Btu/scf | AFR vol/vol | VOC NM / NE | Z Factor | GPM |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, N2 | 0.036 | 0.010 | 0.000 | 0.026 | | | - | | 0.0004 | |
| Carbon Dioxide, CO2 | 0.141 | 0.062 | 0.002 | 0.157 | | | - | | 0.0014 | |
| Hydrogen Sulfide, H2S | 0.000 | 0.000 | 0.000 | 0.000 | 0.0 | 0.0 | 0.000 | | 0.0000 | |
| Helium, He | - | - | - | - | | | - | | - | |
| Oxygen, O2 | - | - | - | - | | | - | | - | |
| Methane, CH4 | 24.485 | 3.928 | 0.136 | 9.968 | 222.7 | 247.3 | 2.333 | | 0.2444 | |
| Ethane, C2H6 | 25.943 | 7.801 | 0.269 | 19.796 | 419.9 | 459.1 | 4.327 | | 0.2573 | 6.901 |
| Propane | 23.253 | 10.254 | 0.354 | 26.021 | 538.3 | 585.1 | 5.539 | 26.021 | 0.2285 | 6.373 |
| Iso-Butane | 4.773 | 2.774 | 0.096 | 7.040 | 143.2 | 155.2 | 1.478 | 7.040 | 0.0464 | 1.553 |
| Normal Butane | 10.980 | 6.382 | 0.220 | 16.195 | 330.6 | 358.2 | 3.401 | 16.195 | 0.1061 | 3.443 |
| Iso Pentane | 3.135 | 2.262 | 0.078 | 5.740 | 116.0 | 125.4 | 1.195 | 5.740 | 0.0314 | 1.141 |
| Normal Pentane | 3.175 | 2.291 | 0.079 | 5.813 | 117.7 | 127.3 | 1.210 | 5.813 | 0.0318 | 1.144 |
| Hexane | 3.171 | 2.733 | 0.094 | 6.935 | 139.6 | 150.8 | 1.435 | 6.935 | 0.0313 | 1.297 |
| Heptane+ | 0.908 | 0.910 | 0.031 | 2.309 | 46.3 | 50.0 | 0.476 | 2.309 | 0.0090 | 0.417 |
| | 100.000 | 39.407 | 1.361 | | 2,074.3 | 2,258.4 | 21.394 | 70.052 | 0.9879 | 22.269 |

**Gas Density (STP) = 0.110**

| | |
|---|---|
| Ideal Gross (HHV) | 2,258.4 |
| Ideal Gross (sat'd) | 2,219.7 |
| GPM | - |
| Real Gross (HHV) | 2,286.1 |
| Real Net (LHV) | 2,099.8 |

**Eureka Midstream, LLC**

**Carbide Station**
**Wetzel County**

## Truck Loading Vapor (Tank Breathing Vapor) Composition Infor

| | Fuel Gas mole % | Fuel M.W. lb/lb-mole | Fuel S.G. | Fuel Wt. % | LHV, dry Btu/scf | HHV, dry Btu/scf | AFR vol/vol | VOC NM / NE | Z Factor | GPM |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, N2 | - | - | - | - | | | - | | - | |
| Carbon Dioxide, CO2 | 0.032 | 0.014 | 0.000 | 0.022 | | | - | | 0.0003 | |
| Hydrogen Sulfide, H2S | 0.000 | 0.000 | 0.000 | 0.000 | 0.0 | 0.0 | 0.000 | | 0.0000 | |
| Helium, He | - | - | - | - | | | - | | - | |
| Oxygen, O2 | - | - | - | - | | | - | | - | |
| Methane, CH4 | 0.023 | 0.004 | 0.000 | 0.006 | 0.2 | 0.2 | 0.002 | | 0.0002 | |
| Ethane, C2H6 | 0.533 | 0.160 | 0.006 | 0.249 | 8.6 | 9.4 | 0.089 | | 0.0053 | 0.142 |
| Propane | 13.569 | 5.984 | 0.207 | 9.288 | 314.1 | 341.4 | 3.232 | 9.288 | 0.1333 | 3.719 |
| Iso-Butane | 9.746 | 5.665 | 0.196 | 8.794 | 292.4 | 316.9 | 3.018 | 8.794 | 0.0946 | 3.171 |
| Normal Butane | 31.720 | 18.437 | 0.637 | 28.620 | 955.0 | 1,034.8 | 9.824 | 28.620 | 0.3066 | 9.947 |
| Iso Pentane | 15.490 | 11.176 | 0.386 | 17.349 | 573.0 | 619.7 | 5.903 | 17.349 | 0.1549 | 5.640 |
| Normal Pentane | 16.449 | 11.868 | 0.410 | 18.423 | 609.7 | 659.4 | 6.269 | 18.423 | 0.1645 | 5.926 |
| Hexane | 9.639 | 8.307 | 0.287 | 12.895 | 424.5 | 458.4 | 4.363 | 12.895 | 0.0952 | 3.942 |
| Heptane+ | 2.799 | 2.805 | 0.097 | 4.354 | 142.7 | 154.0 | 1.467 | 4.354 | 0.0278 | 1.284 |
| | 100.000 | 64.419 | 2.224 | | 3,320.3 | 3,594.4 | 34.167 | 99.724 | 0.9829 | 33.770 |

**Gas Density (STP) = 0.179**

| | |
|---|---|
| Ideal Gross (HHV) | 3,594.4 |
| Ideal Gross (sat'd) | 3,532.4 |
| GPM | - |
| Real Gross (HHV) | 3,657.0 |
| Real Net (LHV) | 3,378.2 |

**GAS DATA INFORMATION**

Specific Graivity of Air, @ 29.92 in. Hg and 60 -F, 28.9625
One mole of gas occupies, @ 14.696 psia & 32 -F 359.2 cu ft. per lb-mole
One mole of gas occupies, @ 14.696 psia & 60 -F 379.64 cu ft. per lb-mole

Hydrogen Sulfide (H2S) conversion chart:

| | | | |
|---|---|---|---|
| 0 grains H2S/100 scf | = | 0.00000 | mole % H2S |
| | | 0.0 | ppmv H2S |
| 0 mole % H2S | = | 0 | grains H2S/100 scf |
| | | 0.0 | ppmv H2S |
| 0 ppmv H2S | = | 0.000 | grains H2S/100 scf |
| | | 0.00000 | mole % H2S |

Ideal Gas at 14.696 psia and 60°F

| | | MW lb/mol | Specific Gravity | Lb per Cu Ft | Cu Ft per Lb | LHV, dry Btu/scf | HHV, dry Btu/scf | LHV Btu/lb | HHV Btu/lb | cu ft of air / 1 cu ft of gas | Z factor |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen | N2 | 28.013 | 0.9672 | 0.0738 | 13.552 | 0 | 0 | 0 | 0 | 0 | 0.9997 |
| Carbon Dioxide | CO2 | 44.010 | 1.5196 | 0.1159 | 8.626 | 0 | 0 | 0 | 0 | 0 | 0.9964 |
| Hydrogen Sulfide | H2S | 34.076 | 1.1766 | 0.0898 | 11.141 | 587 | 637 | 6,545 | 7,100 | 7.15 | 0.9846 |
| Helium | He | 4.003 | 0.1382 | 0.0105 | 94.848 | | | | | | 1.0006 |
| Oxygen | O2 | 31.999 | 1.1048 | 0.0843 | 11.864 | 0 | 0 | 0 | 0 | 0 | 0.9992 |
| Methane | CH4 | 16.043 | 0.5539 | 0.0423 | 23.664 | 909.4 | 1,010.0 | 21,520 | 23,879 | 9.53 | 0.9980 |
| Ethane | C2H6 | 30.070 | 1.0382 | 0.0792 | 12.625 | 1,618.7 | 1,769.6 | 20,432 | 22,320 | 16.68 | 0.9919 |
| Propane | C3H8 | 44.097 | 1.5226 | 0.1162 | 8.609 | 2,314.9 | 2,516.1 | 19,944 | 21,661 | 23.82 | 0.9825 |
| Iso-Butane | C4H10 | 58.124 | 2.0069 | 0.1531 | 6.532 | 3,000.4 | 3,251.9 | 19,629 | 21,257 | 30.97 | 0.9711 |
| Normal Butane | C4H10 | 58.124 | 2.0069 | 0.1531 | 6.532 | 3,010.8 | 3,262.3 | 19,680 | 21,308 | 30.97 | 0.9667 |
| Iso Pentane | C5H12 | 72.151 | 2.4912 | 0.1901 | 5.262 | 3,699.0 | 4,000.9 | 19,478 | 21,052 | 38.11 | 1.0000 |
| Normal Pentane | C5H12 | 72.151 | 2.4912 | 0.1901 | 5.262 | 3,706.9 | 4,008.9 | 19,517 | 21,091 | 38.11 | 1.0000 |
| Hexane | C6H14 | 86.178 | 2.9755 | 0.2270 | 4.405 | 4,403.8 | 4,755.9 | 19,403 | 20,940 | 45.26 | 0.9879 |
| Heptane | C7H16 | 100.205 | 3.4598 | 0.2639 | 3.789 | 5,100.0 | 5,502.5 | 22,000 | 23,000 | 52.41 | 0.9947 |

Real Gas at 14.696 psia and 60°F

| | | MW lb/mol | Specific Gravity | Lb per Cu Ft | Cu Ft per Lb | LHV, dry Btu/scf | HHV, dry Btu/scf | LHV Btu/lb | HHV Btu/lb | cu ft of air / 1 cu ft of gas | Gal/Mole | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen | N2 | 28.013 | 0.9672 | 0.0738 | 13.552 | 0 | 0 | 0 | 0 | 0 | 4.1513 | |
| Carbon Dioxide | CO2 | 44.010 | 1.5196 | 0.1159 | 8.626 | 0 | 0 | 0 | 0 | 0 | 6.4532 | |
| Hydrogen Sulfide | H2S | 34.076 | 1.1766 | 0.0898 | 11.141 | 621 | 672 | 6,545 | 7,100 | 7.15 | 5.1005 | |
| Helium | He | 4.003 | 0.1382 | 0.0105 | 94.848 | | | | | | 3.8376 | |
| Oxygen | O2 | 31.999 | 1.1048 | 0.0843 | 11.864 | 0 | 0 | 0 | 0 | 0 | 3.3605 | |
| Methane | CH4 | 16.043 | 0.5539 | 0.0423 | 23.664 | 911 | 1,012 | 21,520 | 23,879 | 9.53 | 6.4172 | |
| Ethane | C2H6 | 30.070 | 1.0382 | 0.0792 | 12.625 | 1,631 | 1,783 | 20,432 | 22,320 | 16.68 | 10.126 | |
| Propane | C3H8 | 44.097 | 1.5226 | 0.1162 | 8.609 | 2,353 | 3,354 | 19,944 | 21,661 | 23.82 | 10.433 | |
| Iso-Butane | C4H10 | 58.124 | 2.0069 | 0.1531 | 6.532 | 3,101 | 3,369 | 19,629 | 21,257 | 30.97 | 12.386 | |
| Normal Butane | C4H10 | 58.124 | 2.0069 | 0.1531 | 6.532 | 3,094 | 3,370 | 19,680 | 21,308 | 30.97 | 11.937 | |
| Iso Pentane | C5H12 | 72.151 | 2.4912 | 0.1901 | 5.262 | 3,709 | 4,001 | 19,478 | 21,052 | 38.11 | 13.86 | |
| Normal Pentane | C5H12 | 72.151 | 2.4912 | 0.1901 | 5.262 | 3,698 | 4,009 | 19,517 | 21,091 | 38.11 | 13.713 | |
| Hexane | C6H14 | 86.178 | 2.9755 | 0.2270 | 4.405 | 4,404 | 4,756 | 19,403 | 20,940 | 45.26 | 15.566 | 16.3227 |
| Heptane | C7H16 | 100.205 | 3.4598 | 0.2639 | 3.789 | 5,101 | 5,503 | 22,000 | 23,000 | 52.41 | 17.468 | 17.468 |

| Process Streams | | Cond To Trucks | Tank Vap To Comb | Tank Vapor Emissions | ToTrucks |
|---|---|---|---|---|---|
| **Composition** | Status: | Solved | Solved | Solved | Solved |
| Phase: **Total** | From Block: | Cond 6 | MIX-116 | Tank Vap Comb | Water Tank |
| | To Block: | -- | MIX-115 | -- | -- |
| **Mole Fraction** | | % | % | % | % |
| Nitrogen | | 1.10898E-07 | 0.000112266 | 1.11602E-05 | 1.06698E-10 |
| CO2 | | 6.50150E-05 | 0.00826591 | 41.3181 | 3.77183E-07 |
| Methane | | 0.00151152 | 0.477864 | 0.000475035 | 0.000811038 |
| Ethane | | 0.117132 | 6.10801 | 0.00607186 | 0.00158042 |
| Propane | | 1.33538 | 18.6825 | 0.0185719 | 0.000429063 |
| i-Butane | | 1.76260 | 8.43705 | 0.00838710 | 3.28839E-05 |
| n-Butane | | 7.91370 | 23.6648 | 0.0235247 | 9.26303E-05 |
| i-Pentane | | 10.4769 | 13.3002 | 0.0132215 | 1.32490E-05 |
| n-Pentane | | 11.7223 | 10.9742 | 0.0109093 | 1.73491E-06 |
| Neohexane | | 3.92167 | 2.09661 | 0.00208420 | 4.26012E-07 |
| Isohexane | | 0.778295 | 0.276033 | 0.000274399 | 4.76643E-09 |
| 3-Methylpentane | | 0.442213 | 0.140617 | 0.000139785 | 1.21486E-08 |
| n-Hexane | | 56.0773 | 13.8825 | 0.0138003 | 1.18355E-06 |
| n-Heptane | | 5.43908 | 0.419479 | 0.000416996 | 4.40406E-08 |
| Water | | 0.0118444 | 1.53170 | 51.1594 | 99.9970 |
| Oxygen | | 5.80708E-10 | 3.05260E-07 | 7.42454 | 5.78603E-13 |
| Triethylene Glycol | | 1.04850E-05 | 2.37635E-08 | 2.36228E-11 | 5.89948E-05 |
| **Mass Fraction** | | % | % | % | % |
| Nitrogen | | 3.86045E-08 | 5.14282E-05 | 1.04782E-05 | 1.65909E-10 |
| CO2 | | 3.55557E-05 | 0.00594871 | 60.9448 | 9.21399E-07 |
| Methane | | 0.000301323 | 0.125361 | 0.000255415 | 0.000722206 |
| Ethane | | 0.0437666 | 3.00334 | 0.00611914 | 0.00263779 |
| Propane | | 0.731728 | 13.4715 | 0.0274474 | 0.00105018 |
| i-Butane | | 1.27305 | 8.01896 | 0.0163382 | 0.000106090 |
| n-Butane | | 5.71571 | 22.4921 | 0.0458264 | 0.000298843 |
| i-Pentane | | 9.39313 | 15.6918 | 0.0319712 | 5.30591E-05 |
| n-Pentane | | 10.5097 | 12.9476 | 0.0263799 | 6.94791E-06 |
| Neohexane | | 4.19955 | 2.95452 | 0.00601967 | 2.03776E-06 |
| Isohexane | | 0.833443 | 0.388983 | 0.000792530 | 2.27995E-08 |
| 3-Methylpentane | | 0.473547 | 0.198156 | 0.000403731 | 5.81111E-08 |
| n-Hexane | | 60.0508 | 19.5631 | 0.0398586 | 5.66135E-06 |
| n-Heptane | | 6.77252 | 0.687341 | 0.00140042 | 2.44950E-07 |
| Water | | 0.00265158 | 0.451234 | 30.8898 | 99.9946 |
| Oxygen | | 2.30909E-10 | 1.59731E-07 | 7.96256 | 1.02769E-12 |
| Triethylene Glycol | | 1.95664E-05 | 5.83562E-08 | 1.18897E-10 | 0.000491761 |
| **Mass Flow** | | lb/h | lb/h | lb/h | lb/h |
| Nitrogen | | 2.23698E-06 | 0.000257017 | 0.000257017 | 1.35971E-08 |
| CO2 | | 0.00206031 | 0.0297292 | 1494.90 | 7.55136E-05 |
| Methane | | 0.0174605 | 0.626499 | 0.00626499 | 0.0591887 |
| Ethane | | 2.53610 | 15.0095 | 0.150095 | 0.216181 |
| Propane | | 42.4007 | 67.3249 | 0.673249 | 0.0860683 |
| i-Butane | | 73.7681 | 40.0754 | 0.400754 | 0.00869464 |
| n-Butane | | 331.203 | 112.406 | 1.12406 | 0.0244918 |
| i-Pentane | | 544.294 | 78.4212 | 0.784212 | 0.00434848 |
| n-Pentane | | 608.997 | 64.7065 | 0.647065 | 0.000569418 |
| Neohexane | | 243.347 | 14.7655 | 0.147655 | 0.000167006 |
| Isohexane | | 48.2947 | 1.94397 | 0.0194397 | 1.86854E-06 |
| 3-Methylpentane | | 27.4402 | 0.990301 | 0.00990301 | 4.76252E-06 |
| n-Hexane | | 3479.71 | 97.7679 | 0.977679 | 0.000463978 |
| n-Heptane | | 392.441 | 3.43504 | 0.0343504 | 2.00750E-05 |
| Water | | 0.153648 | 2.25508 | 757.689 | 8195.10 |
| Oxygen | | 1.33802E-08 | 7.98268E-07 | 195.311 | 8.42250E-11 |
| Triethylene Glycol | | 0.00113379 | 2.91640E-07 | 2.91640E-09 | 0.0403025 |

| Process Streams | | Cond To Trucks | Tank Vap To Comb | Tank Vapor Emissions | ToTrucks |
|---|---|---|---|---|---|
| **Properties** | Status: | Solved | Solved | Solved | Solved |
| Phase: Total | From Block: | Cond 6 | MIX-116 | Tank Vap Comb | Water Tank |
| | To Block: | -- | MIX-115 | -- | -- |
| **Property** | **Units** | | | | |
| Temperature | °F | 99.0274 | 86.2429 | 8992.44 | 71.4597 |
| Pressure | psig | 0.5 | -0.442449 | 0.25 | 0 |
| Mole Fraction Vapor | % | 0 | 100 | 100 | 0 |
| Mole Fraction Light Liquid | % | 100 | 0 | 0 | 100 |
| Mole Fraction Heavy Liquid | % | 0 | 0 | 0 | 0 |
| Molecular Weight | lb/lbmol | 80.4732 | 61.1525 | 29.8367 | 18.0157 |
| Mass Density | lb/ft^3 | 39.3934 | 0.153079 | 0.00439604 | 62.2659 |
| Molar Flow | lbmol/h | 72.0066 | 8.17232 | 82.2099 | 454.911 |
| Mass Flow | lb/h | 5794.60 | 499.758 | 2452.87 | 8195.54 |
| Vapor Volumetric Flow | ft^3/h | 147.096 | 3264.71 | 557973 | 131.622 |
| Liquid Volumetric Flow | gpm | 18.3392 | 407.029 | 69565.4 | 16.4100 |
| Std Vapor Volumetric Flow | MMSCFD | 0.655808 | 0.0744304 | 0.748736 | 4.14315 |
| Std Liquid Volumetric Flow | sgpm | 17.8358 | 1.69949 | 5.53045 | 16.3847 |
| Compressibility | | 0.00517744 | 0.971927 | 1.00005 | 0.000745993 |
| Specific Gravity | | 0.631619 | 2.11143 | 1.03018 | 0.998346 |
| API Gravity | | 85.2754 | | | 10.0035 |
| Enthalpy | Btu/h | -5.80937E+06 | -473291 | -476554 | -5.59460E+07 |
| Mass Enthalpy | Btu/lb | -1002.55 | -947.041 | -194.284 | -6826.40 |
| Mass Cp | Btu/(lb*°F) | 0.560325 | 0.408313 | 0.498396? | 0.982078 |
| Ideal Gas CpCv Ratio | | 1.06427 | 1.08729 | 1.15413 | 1.32576 |
| Dynamic Viscosity | cP | 0.237379 | 0.00762176 | 0.132260 | 0.977438 |
| Kinematic Viscosity | cSt | 0.376181 | 3.10827 | 1878.22 | 0.979982 |
| Thermal Conductivity | Btu/(h*ft*°F) | 0.0645008 | 0.00939831 | 0.178332? | 0.347715 |
| Surface Tension | lbf/ft | 0.00104870? | | | 0.00502105? |
| Net Ideal Gas Heating Value | Btu/ft^3 | 4118.68 | 3143.19 | 3.12459 | 0.0495239 |
| Net Liquid Heating Value | Btu/lb | 19263.5 | 19342.9 | -333.527 | -1058.67 |
| Gross Ideal Gas Heating Value | Btu/ft^3 | 4450.22 | 3404.60 | 29.1220 | 50.3627 |
| Gross Liquid Heating Value | Btu/lb | 20826.9 | 20965.0 | -2.87363 | 1.13311 |

3101 scfh

# Condensate Tank Emissions
# Tanks T33-T40 Combined

**From ProMax:**

- Mass Flow to VRU or Combustor = 499.76 lb/Hr
- VOCs = 91.9%
- n-Hexane = 13.9%
- CH4 = 0.48%

The ProMax is steady state at design capacity. Actual peak flow of condensate to the tanks and associated vapor emissions could reach 3x this. Thus, at 99% Capture and Control efficiency:

VOC s

499.76 lb/hr x 0.919 x 0.01 = 4.59 lb/Hr (steady state) or 20.12.46 tpy. Peak hourly rate is 13.77 lb/hr.

n-Hexane

499.76 lb/hr x 0.139 x 0.01 = 0.69 lb/hr (steady state) or 3.04 tpy. Peak hourly rate is 2.07 lb/hr.

CH4

499.76 lb/hr x 0.0048 x 0.01 = 0.02 lb/hr (steady state) or 0.11 tpy. Peak hourly rate is 0.07 lb/hr.

# Loading Lost Emission Factor Per AP-42

Per AP-42, Chapter 5.2.2.1.1, the uncontrolled loading loss emission factor $L_L$ can be estimated as follows:

$$L_L = 12.46[SPM/T]$$

Where:

$L_L$ = uncontrolled loading loss in pounds per 1000 gallons of liquid loaded
S= saturation factor (0.6)
P=true vapor pressure of liquid loaded (32.7 psia or 18 psig for the condensate)
M= Molecular weight of vapor in lb/lb-mole (estimated at 40, slightly more than propane)
T= temperature of bulk liquid loaded in deg R or 460+deg F (80 Deg F used)

Thus, $L_L$= 12.46[0.6 x 32.7 x 40]/[460+80]
$L_L$= 18.09 lb/1000 gallons loaded

It is assumed that all of these emissions are considered VOCs.

Given a maximum loading of 25,200 gallons a day, uncontrolled emissions are estimated at 455.9 lb of VOC per day. The overall control system is estimated to reduce these emissions greater than 99%. This will be accomplished through a combination of a vapor control system and use of tanker trucks that are tested annually. Tanker trucks certified as meeting the NSPS annual test have a capture efficiency of 98.7% per AP-42, Chapter 5.2.2.1.1. Thus, uncaptured emissions are estimated at 5.93 lb/day (455.9 x 1.3%). With all daily loading taking place within 3 hours, the uncaptured hourly emission rate is conservatively estimated at 1.97 lb/hr (5.93/3).

Maximum annual throughput is 4,600,000 gallons (29,200 BBL) per year. Thus, un-captured emissions are conservatively estimated at 1062 pounds per year (4,600 x 18.09 x 1.3%/2000) or 0.54 tons per year.

The captured emissions are routed to the vapor combustion unit are estimated at 455.9 lb/day x 98.7% = 449.97 lb/day or 149.99 lb/hr. Annually, captured emissions are estimated at 4,600 x 18.09 x 99.7% or 82,132 pounds per year or 41.1 tons per year. With a minimum combustion efficiency of 99%, hourly and annual VOC emissions from the vapor combustor unit are 1.50 lb/hr and 0.41 tpy, respectively

Combining the un-captured emissions and the un-burned portion of the captured emissions, VOC emissions from truck loading are estimated at 3.47 lb/hr (1.97 + 1.50) and 0.95 tpy (0.54 + 0.41).

# Truck Loading Emissions to VCU

Given: Estimated Vapor Heat Content: 3660 btu/scf (HHV)
Estimated Vapor Density: 0.18 lb/scf
Max to Flare: 112.5 lb/hr
Max to Flare (per Yr) 82,548 lb/yr

<u>Max Hourly BTUs to Flare</u>
(150.0 lb/hr)/(0.18 lb/scf) = 833.3 scf/hr
833.3scf/hr x 3660 btu/scf = 3.05 MMBTU/hr

<u>Max Annual BTUs to Flare</u>
(82,132 lb/yr) / (0.18 lb/scf) = 456,289 scf/yr
456,289 scf/yr x 3660 btu/scf = 1,670 MMBTU/yr

# ATTACHMENT O

# Monitoring, Recordkeeping, Reporting and Testing Plan

# ATTACHMENT O

# EUREKA MIDSTREAM, LLC

# Carbide Compressor Station

# Monitoring, Recordkeeping, Reporting and Testing Plan

## I. Monitoring

Eureka will apply the existing combustor permit monitoring conditions to the new combustors.

## II. Recordkeeping

Eureka will apply the existing combustor permit recordkeeping conditions to the new combustors. All inspections, preventive maintenance, failures, duration of failure events, replacements and/or repairs of the combustors will be recorded, signed and dated by an authorized representative.

All records will be kept either on site or at the nearest office location for a period of at least five (5) years.

## III. Testing

No testing is proposed for the planned new and replacement combustors. Testing will be performed as directed by the Department, should the Department determine such testing is warranted.

## IV. Reporting

Eureka will continue to submit certified emission statements on an annual basis in accordance with WVDEP, Division of Air Quality requirements.

# ATTACHMENT P

# Public Notice Affidavit

# AIR QUALITY PERMIT NOTICE
## Notice of Application

Notice is given that Eureka Midstream, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Modification to its air permit for the Carbide Site on County Route 20/12) in Wetzel County, West Virginia, approximately two road miles east of the community of Hastings.
(Lat. 39.53956 Long.-80.66535)

The applicant estimates the increased potential to discharge the following Regulated Air Pollutants will be:

| | |
|---|---|
| 13.29 | tons of Carbon Monoxide per year |
| 0.58 | tons of Nitrogen Oxides per year |
| 3.04 | tons of n-Hexane per year |
| 19.83 | tons of Volatile Organics per year |
| 2,979.71 | tons of Greenhouse Gases per year |

The facility is currently operational. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.

Dated this the **(Day)** day of **(Month)**, **(Year)**.

By: Mr. Chris Akers, Executive Vice President
Eureka Midstream, LLC
1111 Louisiana Street, Suite 4520
Houston, Texas 77002