global environmental solutions

CONE Midstream Partners LP

Cain Run (Laverne) Station

New Milton, West Virginia

45CSR13 Construction Permit Application

SLR Ref: 116.00894.00061

February 2017

February 3, 2017

Mr. William F. Durham
Director
WVDEP, Division of Air Quality
601 – 57th Street SE
Charleston, West Virginia 25304

Re: CONE Midstream Partners LP, 45CSR13 Construction Permit Application – Cain Run (Laverne) Station

Dear Mr. Durham,

CONE Midstream Partners LP (CONE) and SLR International Corporation (SLR) have prepared the attached 45CSR13 Construction Permit Application for the Cain Run (Laverne) Station located in Doddridge County, West Virginia. The facility will consist of a Caterpillar G3516 compressor, 20 mmscf/d TEG dehydration unit with ground flare, desiccant dehydrator vessels, a 400 bbl storage vessel, capstone microrturbine generator, and a PIG launcher.

The public notice was delivered to *The Doddridge Independent* for publication. The legal advertisement will be forwarded to your office as soon as SLR receives the original affidavit from the newspaper.

If any additional information is needed, please feel free to contact me by telephone at (304) 545-8563 or by e-mail at jhanshaw@slrconsulting.com

Sincerely,
SLR International Corporation

Jesse Hanshaw

Jesse Hanshaw, P.E.
Principal Engineer

Cain Run (Laverne) Station 45CSR13 Construction Permit Application

Prepared for:

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

This document has been prepared by SLR International Corporation. The material and data in this permit application were prepared under the supervision and direction of the undersigned.

Nate Lanham
WV Operations Manager

Jesse Hanshaw, P.E.
Principal Engineer

CONTENTS

ATTACHMENTS

Notes:
ATTACHMENT Q - No information contained within this application is claimed confidential
ATTACHMENT R - No delegation of authority
ATTACHMENT S - Not a Title V Permit Revision

APPLICATION FOR PERMIT

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/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):*
CONE Midstream Partners LP

2. Federal Employer ID No. ***(FEIN):***
47-1054194

3. Name of facility *(if different from above):*
Cain Run (Laverne) Station

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

5A. Applicant's mailing address:
1000 Consol Energy Drive
Canonsburg, PA 15317

5B. Facility's present physical address:
Access road off S. Fork of Hughes River (See Coordinates)

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:

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: CONE occupies part of the Oxford 11 well site to efficiently and cost effectively move gas from well fields (Oxford Production Field) to transmission pipelines. CONE owns and/or leases, independently operates, and controls all equipment identified in this application.

- 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 Compression and Dehydration Facility

10. North American Industry Classification System **(NAICS)** code for the facility:
486210

11A. DAQ Plant ID No. (for existing facilities only):
N/A

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
N/A

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 the intersection of WV-Hwy. 18 and Co. Rte. 25 near New Milton, WV, travel south on WV-Hwy. 18 for 3 miles. Turn right on Porto Rico Rd. for 0.7 miles, then continue straight onto Toms Fork Road for another 0.7 miles. Take slight right onto Co. Rte. 54/1 for 2.5 miles, then turns right and becomes Cain Run for 0.3 miles. Then take sharp left onto S. Fork of Hughes River for 1.0 mile. Take access road to left and to the top of the hill and stay to the left to arrive at site

12.B. New site address (if applicable):	12C. Nearest city or town: New Milton	12D. County: Doddridge
12.E. UTM Northing (KM): 4,335.746	12F. UTM Easting (KM): 520.430	12G. UTM Zone: 17

13. Briefly describe the proposed change(s) at the facility:
CONE would like to construct a compression site consisting of a Caterpillar G3516 compressor, 20 MMscf/day TEG dehydration unit with ground flare, desiccant dehydrator vessels, 400 bbl storage vessel, PIG launcher, and a capstone microturbine generator. Due to previous pipeline work the desiccant dehydrator vessels and PIG launcher were previously installed at this site, but were determined to be below permitting thresholds.

14A. Provide the date of anticipated installation or change: 4th Quarter 2017 – 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: 4th Quarter 2017

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). Installation and startup of the permitted units will follow shortly after permit issuance with the exception of the TEG Dehy, which will be dictated by utility demand.

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). $4,500

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	☐ Haul Road Emissions	☐ Quarry
☐ Chemical Processes	☐ Hot Mix Asphalt Plant	☐ Solid Materials Sizing, Handling and Storage Facilities
☐ Concrete Batch Plant	☐ Incinerator	☒ Storage Tanks
☐ Grey Iron and Steel Foundry	☐ Indirect Heat Exchanger	

☒ General Emission Unit, specify: TEG Dehydration Emission Unit Data Sheet (EUDS), RICE Engine EUDS, MicroTurbine Generator EUDS

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

☒ Other Collectors, specify : RICE Unit Catalytic Converter (Oxidation Catalyst)

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 Partnership
☐ Authority of Governmental Agency	☐ 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 _____ *(Please use blue ink)* DATE: 1-31-2017 *(Please use blue ink)*

35B. Printed name of signee: Joseph Fink		35C. Title: Chief Operating Officer
35D. E-mail: joefink@consolenergy.com	36E. Phone: 724-485-3524	36F. FAX:
36A. Printed name of contact person (if different from above): Patrick Flynn		36B. Title: Air Quality Engineer
36C. E-mail: PatrickFlynn@consolenergy.com	36D. Phone: 724-485-3156	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.

ATTACHMENT A

BUSINESS CERTIFICATE

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017

State of West Virginia

Certificate

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

CONE MIDSTREAM DEVCO III LP

Control Number: 9A6SN

has filed its application for "Certificate of Registration" in my office according to the provisions of the West Virginia Code. I hereby declare the organization to be registered as a foreign limited partnership from its effective date of August 12, 2014 until a certificate of cancellation has been filed with Secretary of State.

Therefore, I hereby issue this

CERTIFICATE OF REGISTRATION

Given under my hand and the Great Seal of the State of West Virginia on this day of August 12, 2014

Natalie E. Tennant

Secretary of State

ATTACHMENT B

MAP

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

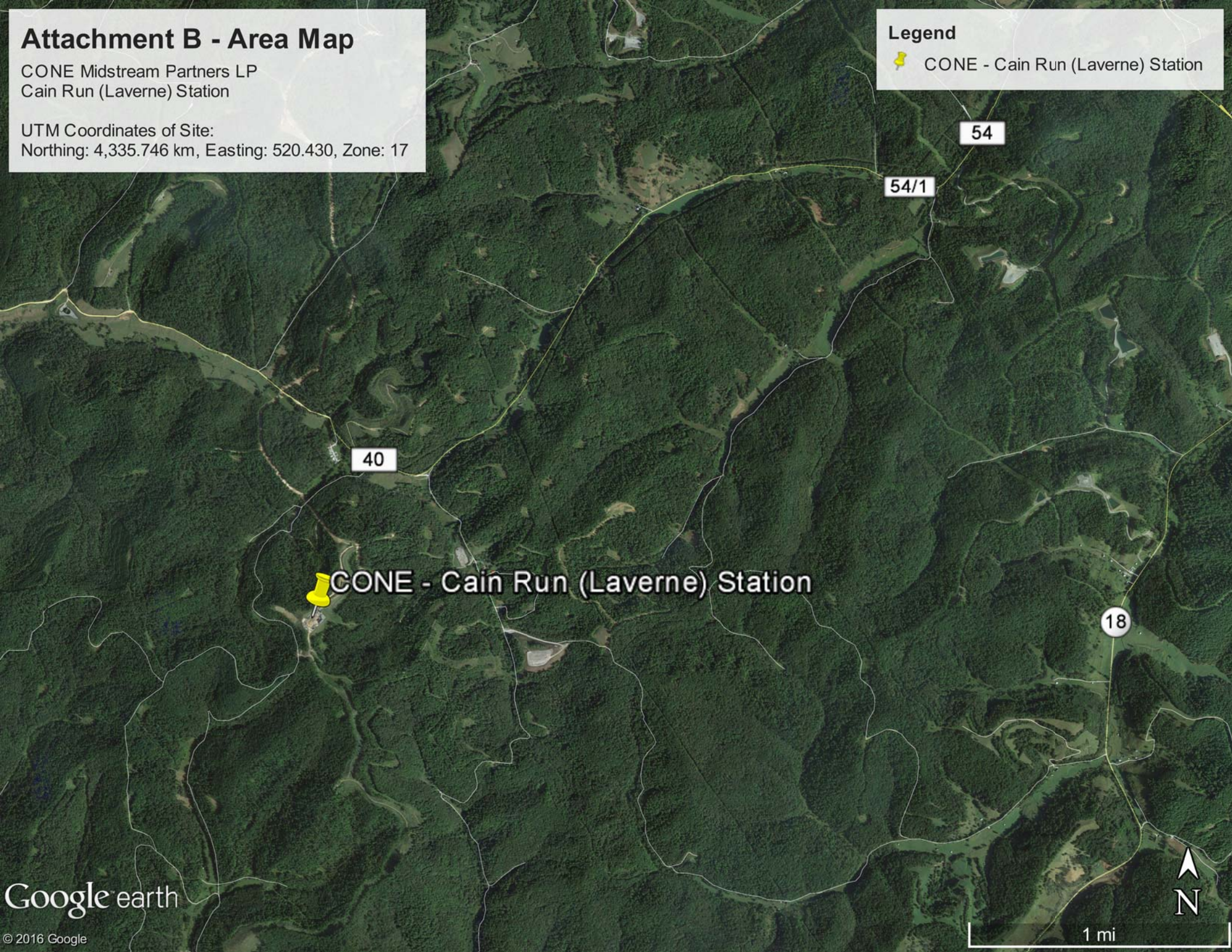
CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017

Attachment B - Area Map

CONE Midstream Partners LP
Cain Run (Laverne) Station

UTM Coordinates of Site:
Northing: 4,335.746 km, Easting: 520.430, Zone: 17



ATTACHMENT D

REGULATORY DISCUSSION

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017

REGULATORY DISCUSSION

APPLICABLE REGULATIONS

This facility is subject to the following applicable rules and regulations:

Federal and State:

45 CSR 2 – Particulate Matter Standards from Combustion of Fuel in Indirect Heat Exchangers

The indirect heat exchanger utilized as the TEG reboiler will be subject to the visible emission standard of §45-2-3 as follows:

3.1. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any fuel burning unit which is greater than ten (10) percent opacity based on a six minute block average.

However, in accordance with the exemptions defined with §45-2-11 this source has limited requirements as follows:

11.1. Any fuel burning unit(s) having a heat input under ten (10) million B.T.U.'s per hour will be exempt from sections 4, 5, 6, 8 and 9. However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

Therefore, the reboiler burner utilized on the dehydration system at this site is exempt from the weight emission standards of section 4 and the control of fugitive particulate matter standards of section 5. The additionally exempt sections of this rule, section 6, 8, and 9 pertain to registration, testing, monitoring, recordkeeping and reporting as well as startup, shutdown and malfunctions.

45 CSR 6 - Open Burning Prohibited

This state rule is geared towards reducing particulate matter emissions from the combustion of refuse and is specific to burning solid waste, but also includes combustion of waste gas in flares. The rule sets PM limits and establishes a 20% visible emission limit, both of which shouldn't be any problem for the natural gas fired ground flare to meet.

The weight rate of waste gas going to the ground flare is estimated based on manufacturers design rates to be 96.55 lb/hr or 0.048 tph. Therefore, the corresponding Rule 6 PM limit would be 0.262 lb/hr. [E(lb/hr) = 5.43 * 0.048]

When using emission factors for flare combustion presented in AP-42 Chapter 13 EPA's guidance specifies that combustion sources using natural gas should not have PM emissions and therefore no PM/soot factor is given.

45 CSR 10 - Emission of Sulfur Oxides

The compressor facility evaluated within this application utilizes a fuel burning unit for the TEG dehy reboiler less than the exemption threshold of 10 MMBtu/hr as stated in 45CSR§10-10.1:

Any fuel burning units having a design heat input under ten (10) million BTU's per hour will be exempt from section 3 and sections 6 through 8. However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

40 CFR 60 Subpart OOOOa – Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015

Fugitive Components at Compressor Stations and Reciprocating Compressor Packing
Since the compressor at this station will commence construction after September 18, 2015, the fugitive components will become subject to the equipment leak standards of §60.5397a. As a result, the source will be required to develop and implement a fugitive monitoring plan and conduct quarterly OGI surveys. The initial survey will be required within 60 days of startup or by June 3, 2017, whichever is later in accordance with §60.5397a(f)(2).

The reciprocating compressor itself will also be subject to the rod packing standards of §60.5385a that require them to be replaced/rebuilt every 26,000 hrs or 3 years. Records shall be maintained based on months or hours of operations since initial startup and each subsequent rebuild or replacement of the compressor's rod packing.

Additional potentially affected sources such as storage vessels and continuous bleed pneumatic controllers greater than 6 (scf/hr) were evaluated and found to be below the applicability thresholds for each source.

40 CFR 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

The natural gas fueled compressor engine (CE-1) is a 1380 Hp 4SLB G3516BLE Caterpillar unit and is considered a new unit as a result of it being manufactured 04-16-2012. Therefore the engine is subject to the Table 1 emission limits for SI Engines greater than 500 Hp. Since the engine's mfg. date is after 7-1-2010 the corresponding emission limits for this unit are represented as follows:

Table 1 Emission Limits – SI 4SLB > 1350 Hp installed after 7-1-2010

g/Hp hr			ppmvd at 15% O2		
NOx	CO	VOC	NOx	CO	VOC
1	2	0.7	82	270	60

40 CFR 63 Subpart HH - National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities

CONE has plans to install a 20 MMscf/d TEG Dehydration Column and Reboiler to work in a parallel configuration with the existing desiccant dehydrator vessels (gas will flow either to the TEG or the desiccant dehydration system). This TEG unit will be subject to the area source requirements of Subpart HH and shall comply by utilizing a ground flare for control to maintain actual emissions below the 1 tpy benzene exemption threshold. Additionally, this facility was evaluated and found not to be located within the geographical applicability criteria associated with the 2 mile offset from the 2000 Census Urban Areas. The closest Urban Area was identified to be around the town of Weston, which is much greater than 2 miles from the proposed site.

40 CFR 61 - This facility is subject to the asbestos inspection and notification requirements related to construction activities containing asbestos.

40 CFR 63 Subpart ZZZZ – NESHAP for Stationary Reciprocating Internal Combustion Engines

The Sales Gas Compressor Engine (CE-1) is a 4SLB 1380 Hp Cat G3516BLE unit which was manufactured on 04/16/2012; therefore, the requirements of this regulation are to comply with new SI engines standards in accordance with 40CFR60, Subpart JJJJ.

45 CSR 4 - No Objectionable Odors

45 CSR 11 - Standby Plans for Emergency Episodes.

45 CSR 13 - Permits for Construction, Modification, Relocation, and Operation of Stationary Source of Air Pollutants

The company has applied for a Rule 13 construction permit to cover the Compression and Dehydration operations planned for CONE's proposed Cain Run (Laverne) Station. In accordance with WV DAQ guidance the station included compressor blowdown and pigging emissions as process venting within their Potential to Emit (PTE).

Additionally, all other sources within ¼ mile were evaluated with respect to the proposed new facility. It is noted that CONE's planned compressor station shares a graded pad with CNX Gas Company's Oxford 11 Well Pad, however due to each source operating under different SIC codes, CONE feels strongly that they are a distinctly separate facility. CONE operates under SIC 4922 and the CNX well pad operates under SIC 1311.

In order to help alleviate any concerns related to the sites being adjacent, each site's emissions were evaluated to conservatively show the totals would remain below Title V thresholds, even if combined. As a result of the differences described above, CONE is requesting their new station be considered a unique facility.

WV Code § 22-5-4 (a) (14)

The Secretary can request any pertinent information such as annual emission inventory reporting. This station is required to submit an annual air emission inventory.

45 CSR 17 - Fugitive Particulate Emissions

No fugitive emissions shall leave the site boundaries. There should be no fugitive opacity generated at this location due to having small natural gas fired heaters.

NON-APPLICABILITY DETERMINATIONS

The following requirements have been determined "not applicable" due to the following:

Federal and State:

45 CSR 27 - To Prevent and Control the Emissions of Toxic Air Pollutants

This rule is not applicable because natural gas is included as a petroleum product and contains less than 5% benzene by weight. 45CSR § 27-2.4 exempts equipment "used in the production and distribution of petroleum products providing that such equipment does not produce or contact materials containing more than 5% benzene by weight."

45 CSR 30 – Requirements for Operating Permits – Title V of the Clean Air Act

This facility does not meet the emission threshold to trigger a 45 CSR 30 Title V Operating Permit nor is it subject to any Federal Standards that trigger the need for a Title V Permit.

40 CFR 60 Subpart OOOOa - Storage Vessel Requirements

The single storage vessel proposed at this site is planned to capture a portion of the water removed from the gas stream from the desiccant dehydrator vessels and/or the TEG dehydration unit. As a result the source's maximum potential to emit has been shown through ProMax modeling with site specific inputs that the PTE will be less than 6 tpy of VOCs. Therefore, the storage vessel at this site is not considered an affected source under this Regulation.

40 CFR 60 Subpart OOOOa – Pneumatic Control Valve Requirements

The site was evaluated and found to contain only intermittent venting pneumatic control valves, which as a result of their design are rated at less than 6 scf/hr. Therefore the

site is not proposing to install or operate any affected continuous bleed pneumatic devices defined by this NSPS.

40 CFR 63 HHH - National Emission Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities

This subpart is related to Natural Gas Transmission Facilities, which are major sources of HAPs. This Federal Regulation is not applicable since the facility is not a major source of HAPs.

40 CFR 60 Subpart KKK - Natural Gas Processing Plant NSPS

This subpart is not applicable because this station is not a processing site engaged in extracting natural gas liquids by fractionation from natural gas.

> *Natural gas processing plant (gas plant) means 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.*

40 CFR 60 Subpart K, Ka, Kb - Storage Vessel NSPS

The one produced water storage tank proposed for this site is exempt under 60.110b(d)(4) in accordance with the following: Vessels with a design capacity less than or equal to 1,589.874 m^3 (approx 420,000 gallons) used for petroleum or condensate stored, processed, or treated prior to custody transfer.

40 CFR 63 Subpart DDDDD - Boilers & Process Heaters Located at Major Sources of HAPs

This subpart is not applicable because the facility is not a major source of HAPs.

40 CFR 63 Subpart JJJJJJ - Boilers & Process Heaters Located at Area Sources of HAPs

This subpart is not applicable because the process heater at this facility utilizes natural gas fuel, which is exempt from regulation under this area source GACT standard.

40 CFR 82 Subpart F - Ozone Depleting Substances

The purpose of this subpart is to reduce emissions of class I and class II refrigerants and their substitutes. The facility does not utilize class I and class II refrigerants or their substitutes.

ATTACHMENT E

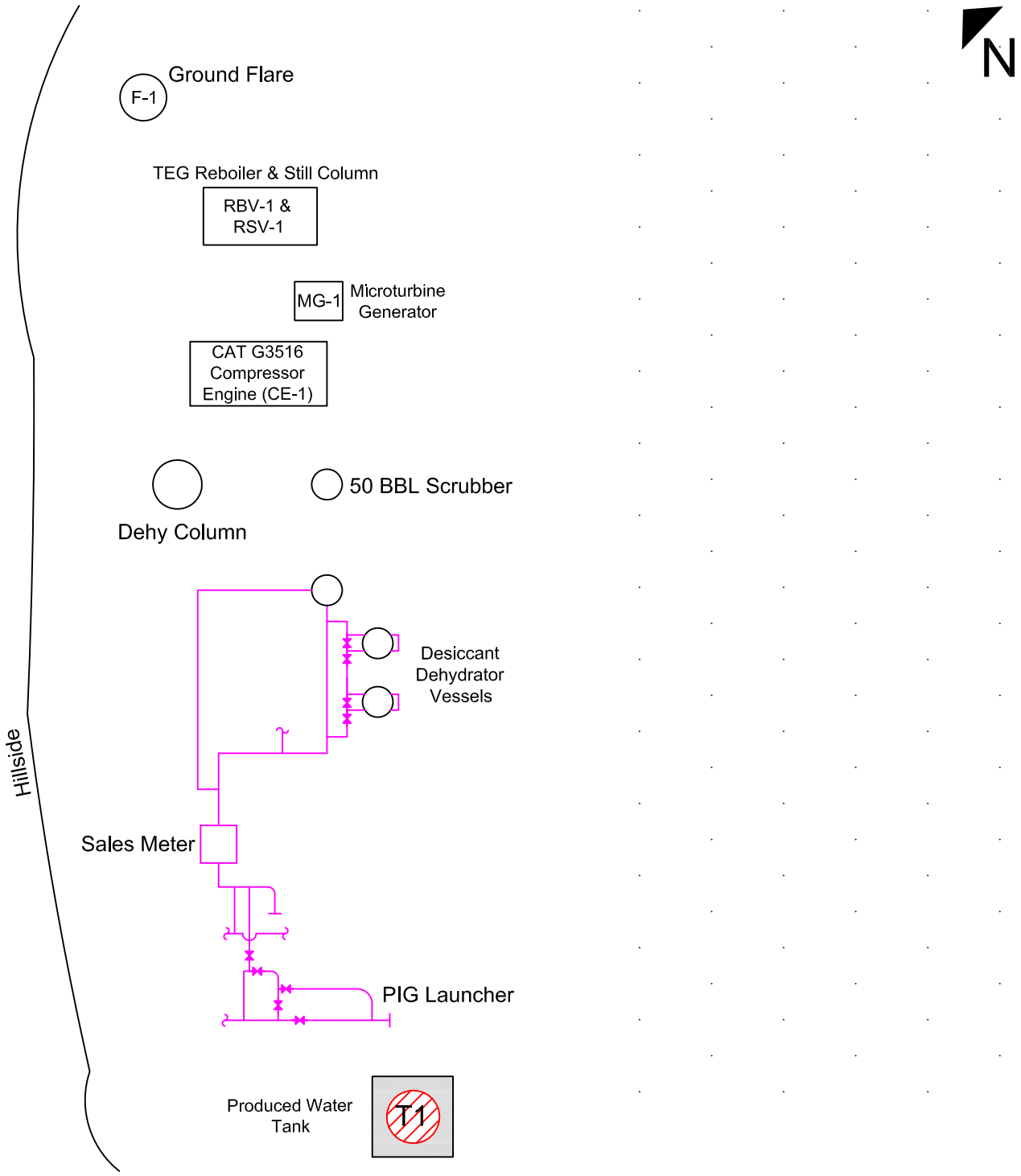
PLOT PLAN

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017



DRAWING LEGEND

- O/H Electric Line
- Utility Pole
- Piping (above ground)
- Piping (under ground)
- Valve
- Plug
- Tree/Brush line
- Crushed Stone Pad
- Storage Tank
- Secondary Containment Area
- Direction of Surface Runoff
- (W) Well Head
- (M) Meter
- (S) Separator
- (D) Drain
- (C) Compressor
- (RM) Residential Meter
- (DRIP) Drip Tank

SLR

CONE Midstream Partners LP

1000 Consol Energy Drive
Canonsburg, PA 15317

Report:
45CSR13 Construction Permit Application
Cain Run (Laverne) Station

Drawing	Drawn By:
Plot Plan	CLB

Date: December 2016	ATTACHMENT E
	Project #: 116.00894.00061

ATTACHMENT F

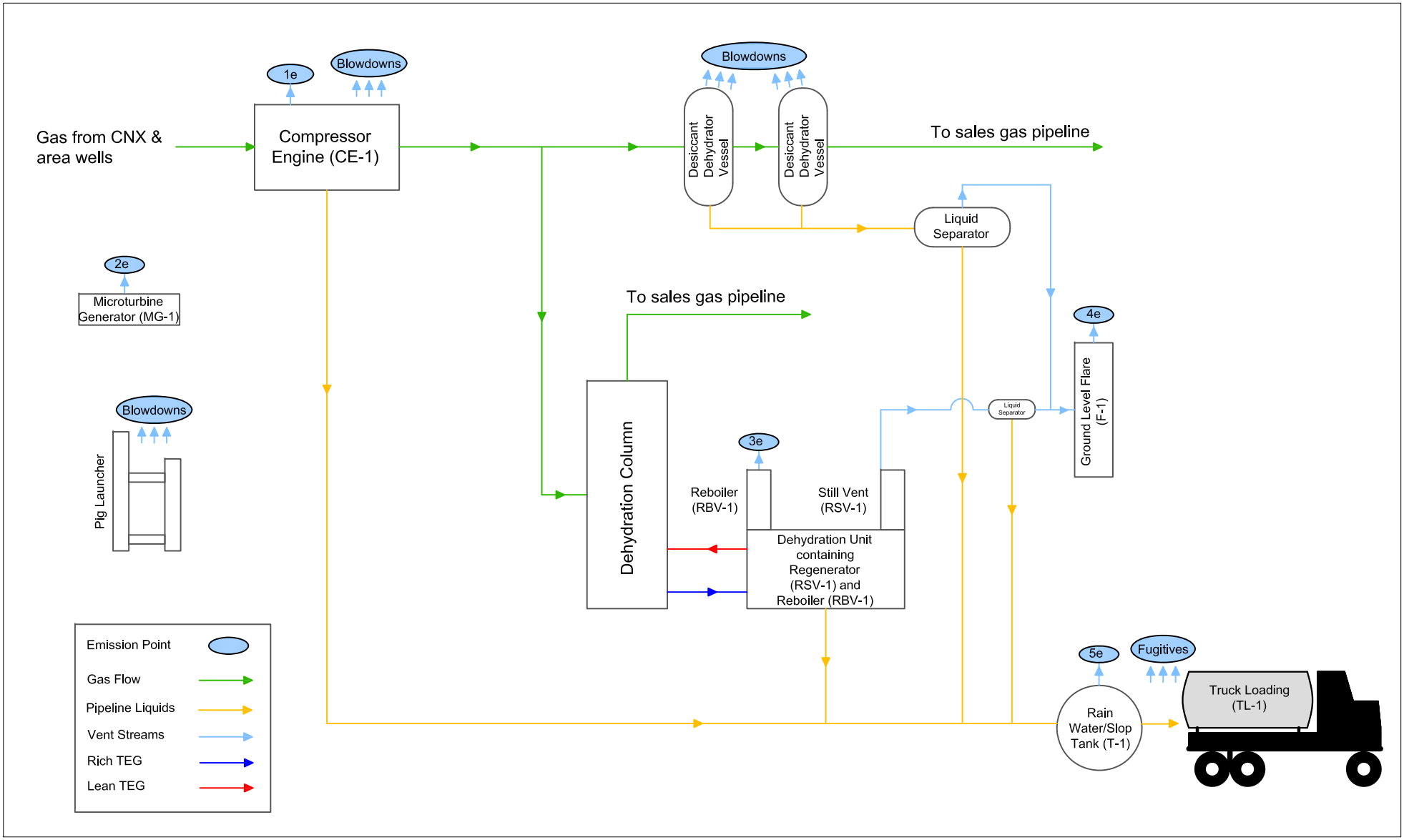
PROCESS FLOW DIAGRAM

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017



SLR

CONE Midstream Partners LP	
Attachment F - Process Flow Diagram	
Cain Run (Laverne) Station	Dec 2016

ATTACHMENT G

PROCESS DESCRIPTION

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017

PROCESS DESCRIPTION

CONE Midstream Partners LP is applying for a construction permit in accordance with 45CSR13, for the operation of the Cain Run (Laverne) compression and dehydration station. The site will consist of a single Compressor, TEG dehydration unit with ground flare, 400 bbl process water tank, desiccant dehydrator vessels, PIG launcher, and a capstone microturbine generator.

The station collects gas from unconventional wells and provides compression and dehydration services. The compressor is proposed to be driven by a Caterpillar G3516BLE 4SLB engine rated for 1380 Hp and manufactured on 4-16-2012. As a result, the unit will be controlled by an oxidation catalyst to meet NSPS requirements under subpart JJJJ. The dehydration capabilities at Cain Run will consist of two options, a desiccant dehydration system which can be operated in parallel with a TEG Dehydration Column. The dehydration units will utilize a ground flare control device to minimize emissions. The desiccant dehydrator vessels produce brine liquids but no direct emissions to the atmosphere with the exception of blowdown venting with respect to recharging the vessels with salt. This is assumed to be at a maximum 1 time per week. The liquids removed from the process by the desiccant dehydrator vessels and TEG Dehydrator will be stored in a single 400 barrel (bbl) storage vessel. The tank's resulting emissions will be uncontrolled as a result of containing mostly water.

The source's potential to emit was modeled using ProMax equation of state (EOS) software based on site specific gas sampling taken from the pipeline feeding the desiccant dehydrator vessels on 6-10-16. The desiccant dehydrator vessels and the pig launcher piping are currently installed at the site due to having emission below permitting thresholds.

In accordance with DAQ guidance emission potentials were evaluated and reported for truck loading, fugitive equipment leaks, pig launcher blowdown venting, compressor blowdowns and desiccant dehydrator blowdowns. The emission calculations summarized within this application show the facility's potential to emit to be no more than 14.17 tpy NOx, 29.75 tpy CO, and 14.88 tpy VOC, with HAP totals of Formaldehyde to be no more than 5.2 tpy from the engine and facility wide HAPs not exceeding 6.15 tpy.

ATTACHMENT H

SAFETY DATA SHEETS (SDS)

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017

CONSOL ENERGY

Safety Data Sheet (SDS)

Section 1 – Identification

1(a) Product Identifier used on Label: Condensate

1(b) Other Means of Identification: Natural Gas Condensate, Produced Hydrocarbons, Drip Gas, Natural Gasoline, Petroleum Crude Oil Condensates

1(c) Recommended Use of the Chemical and Restrictions on Use: Used as a petrochemical feedstock, home heating fuel and refinery blending.

1(d) Name, Address, and Telephone Number:

CONSOL Energy Inc.
1000 CONSOL Energy Drive
Canonsburg, PA 15317

General information: (724) 485-4000

1(e) Emergency Phone Number: Chemtrec (800) 424-9300

Section 2 – Hazard(s) Identification

2(a) Classification of the Chemical: Condensate is considered a hazardous material according to the criteria specified in REACH [REGULATION (EC) No 1907/2006] and CLP [REGULATION (EC) No 1272/2008] and OSHA 29 CFR 1910.1200 Hazard Communication Standard. The categories of Health Hazards as defined in "GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS), Third revised edition ST/SG/AC.10/30/Rev. 3" United Nations, New York and Geneva, 2009 have been evaluated. Refer to Section 3, 8 and 11 for additional information.

2(b) Signal Word, Hazard Statement(s), Symbol(s) and Precautionary Statement(s):

Hazard Symbol	Hazard Classification	Signal Word	Hazard Statement(s)
	Flammable Liquid - 2	**Danger**	Highly Flammable liquid and vapor Toxic if inhaled Causes skin irritation and serious eye irritation May cause genetic defects, cancer and damage fertility or the unborn child May cause damage to central and peripheral nervous system, lungs, liver and red blood cells Causes damage to the blood, spleen, and liver through prolonged or repeat exposures May be fatal if swallowed and enters airways
	Germ Cell Mutagenicity - 1B Carcinogenicity - 1A Toxic Reproduction - 1B Specific Target Organ Toxicity (STOT) Following Single Exposure - 2 STOT following Repeated Exposure - 1 Aspiration - 1		
	Acute Toxicity Hazard - 3		
	Skin Corrosion/Irritation - 2 Eye Damage/ Irritation - 2A		

Precautionary Statement(s)

Keep away from heat/sparks/open flames/hot surfaces. No smoking. Keep container tightly closed. Ground/Bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe dust/fume/gas/mist/ vapors/spray. If exposed, concerned or feel unwell: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.	If on skin: Wash with plenty of water If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. If swallowed: Immediately call a poison center/doctor/ Do NOT induce vomiting. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. If exposed or concerned: Call a poison center or doctor. Get medical attention if you feel unwell. Store in well-ventilated place. Keep cool. Use only outdoors or in a well-ventilated area. Store locked up. Dispose of contents in accordance with federal, state and local regulations.

Section 2 – Hazard(s) Identification (continued)

2(c) Hazards not Otherwise Classified: None Known or Found

2(d) Unknown Acute Toxicity Statement (mixture): None Known or Found

Section 3 – Composition/Information on Ingredients

3(a-c) Chemical Name, Common Name (synonyms), CAS Number and Other Identifiers, and Concentration:

Chemical Name	CAS Number	EC Number	% weight
Natural Gas Condensate	64741-47-5	265-047-3	100
Natural Gas Condensate is a petroleum substance comprised of a complex mixture of hydrocarbons. Major classes of hydrocarbons contained in the substance are listed below:			
Hydrocarbons Aromatic	Mixture	Mixture	~ 5
Hydrocarbons Naphthalenes	Mixture	Mixture	~ 8
Hydrocarbons (total Paraffin and isoparaffin)	Mixture	Mixture	~ 65
Benzene	71-43-2	200-753-7	~ 0.1

EC - European Community
CAS - Chemical Abstract Service

Section 4 – First-aid Measures

4(a) Description of Necessary Measures: If exposed, concerned or feel unwell: Get medical advice/attention.

- **Inhalation:** If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor.
- **Eye Contact:** If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
- **Skin Contact:** If on skin: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.
- **Ingestion:** If swallowed: Immediately call a poison center/doctor/ DO NOT induce vomiting.

4(b) Most Important Symptoms/Effects, Acute and Delayed (chronic):

Acute Effects:

- **Inhalation:** Aspiration hazard, May be fatal if enters airways. May cause CNS and peripheral depression and damage to liver lungs and red blood cells.
- **Eye:** Causes irritation to eyes and mucous membranes.
- **Skin:** Causes irritation to skin.
- **Ingestion:** Aspiration hazard. May be fatal if swallowed.

Delayed (chronic) Effects:

- May cause genetic defects or cancer. May damage fertility or cause damage to the unborn child. Causes damage to the hematopoietic (blood) system, spleen, and liver through prolonged or repeat exposures.

4(c) Immediate Medical Attention and Special Treatment: If exposed, concerned or feel unwell: Get medical advice/attention.

Additional Information:

Primary Entry Routes: Inhalation, Ingestion, skin and eye contact.

Target Organs: Central nervous system, blood, eyes, skin lungs, and liver. Causes damage to the hematopoietic (blood) system, spleen, and liver.

Carcinogenicity: IARC, NTP, ACGIH and OSHA list benzene as a carcinogen.

Section 5 – Fire-fighting Measures

5(a) Suitable (and unsuitable) Extinguishing Media: In case of fire: Use foam, dry powder or carbon dioxide for extinction. Do not use a solid stream of water as it may scatter and spread the fire.

5(b) Specific Hazards Arising from the Chemical: Vapors are heavier than air and may accumulate in low areas. Fire will produce irritating, corrosive and toxic gasses.

5(c) Special Protective Equipment and Precautions for Fire-Fighters: Self-contained NIOSH approved respiratory protection and full protective clothing should be worn when fumes and/or smoke from fire are present. Heat and flames cause formation of acrid smoke and fumes. Do not release runoff from fire control methods to sewers or waterways. Firefighters should wear full face-piece self-contained breathing apparatus and chemical protective clothing with thermal protection. Direct water stream will scatter and spread flames and, therefore, should not be used. Evacuate area. Remove pressurized gas cylinders from the immediate vicinity. Cool containers exposed to flames with water until well after the fire is out. Close the valve if no risk is involved. Fight fire from a protected location. Prevent buildup of vapors or gases to explosive concentrations.

Section 6 - Accidental Release Measures

6(a) Personal Precautions, Protective Equipment and Emergency Procedures: Spills of condensate will create a fire hazard and may form an explosive atmosphere. Stay up wind and away from the spill. Clean-up personnel should be protected against contact with eyes and skin. Collect material in appropriate, labeled containers for recovery or disposal in accordance with federal, state, and local regulations.

6(b) Methods and Materials for Containment and Clean Up: Collect with sand or oil absorbing materials. Collect material in appropriate, labeled containers for recovery or disposal in accordance with federal, state, and local regulations. Follow applicable OSHA regulations (29 CFR 1910.120) and all other pertinent state and federal requirements.

Section 7 - Handling and Storage

7(a) Precautions for Safe Handling: Keep away from heat/sparks/open flames/hot surfaces. No smoking. Ground/Bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Take precautionary measures against static discharge.

7(b) Conditions for Safe Storage, Including Any Incompatibilities: Store in well-ventilated place. Keep cool. Take precautions to avoid static discharges around stored condensate. Ground storage tanks and transfer piping. Use only outdoors or in a well-ventilated area. If feasible, store locked up.

Section 8 - Exposure Controls / Personal Protection

8(a) Occupational Exposure Limits (OELs): The following exposure limits are offered as reference, for an experience industrial hygienist to review.

Ingredients	OSHA PEL [1]	ACGIH TLV [2]	NIOSH REL [3]	IDLH [4]
Benzene	1.0 ppm "STEL" 5.0 ppm	0.5 ppm (1.6 mg/m^3), skin "STEL" 2.5 ppm (8 mg/m^3)	0.1 ppm (0.32 mg/m^3) "STEL" 1.0 ppm (3.2 mg/m^3)	500 ppm

1. OSHA PEL are 8-hour TWA concentrations unless otherwise noted. A Short Term Exposure Limit (STEL) is defined in the benzene standard as: The employer shall assure that no employee is exposed to an airborne concentration of benzene in excess of five (5) ppm as averaged over any 15 minute period.
2. TLVs established by the ACGIH are 8-hour TWA concentrations unless otherwise noted. ACGIH TLVs are for guideline purposes only and as such are not legal, regulatory limits for compliance purposes. A Short Term Exposure Limit (STEL) is defined as the maximum concentration to which workers can be exposed for a short period of time (15 minutes) for only four times throughout the day with at least one hour between exposures.
3. The NIOSH-REL- Compendium of Policy and Statements. NIOSH, Cincinnati, OH (1992). NIOSH is the federal agency designated to conduct research relative to occupational safety and health. As is the case with ACGIH TLVs, NIOSH RELs are for guideline purposes only and as such are not legal, regulatory limits for compliance purposes.
4. The IDLHs are used by NIOSH as part of the respirator selection criteria and were first developed in the mid 1970's by NIOSH. The Documentation for IDLHs is a compilation of the rationale and sources of information used by NIOSH during the original determination of 387 IDLHs and their subsequent review and revision in 1994.

8(b) Appropriate Engineering Controls: Local exhaust ventilation should be used to control the emission of air contaminants. General dilution ventilation may assist with the reduction of air contaminant concentrations. Emergency eye wash stations and deluge safety showers should be available in the work area.

8(c) Individual Protection Measures:

- **Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, use only a NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. Concentration in air of the various contaminants determines the extent of respiratory protection needed. Half-mask negative-pressure, air-purifying respirator equipped with organic vapor cartridge is acceptable for concentrations up to 10 times the exposure limit. Full-face negative-pressure air purifying respirator equipped with organic vapor cartridges is acceptable for concentrations up to 50 times the exposure limit. Protection by air purifying both negative-pressure and powered air respirators is limited. Use a positive-pressure-demand, full-face, supplied air respirator or self contained breathing apparatus (SCBA) for concentrations above 50 times the exposure limit. If exposure is above the IDLH (Immediately dangerous to life or health) for any of the constituents, or there is a possibility of an uncontrolled release or exposure levels are unknown, then use a positive-demand, full-face, supplied air respirator with escape bottle or SCBA.

  Warning! Air-purifying respirators both negative-pressure, and powered-air do not protect workers in oxygen-deficient atmospheres.
- **Eyes**: Employees should be required to wear chemical safety glasses to prevent eye contact. A face shield should be used when appropriate to prevent contact with splashed materials. Chemical goggles, face shields or glasses should be worn to prevent eye contact. Contact lenses should not be worn where industrial exposure to this material is likely.
- **Skin**: Persons handling this product should wear appropriate clothing to prevent skin contact. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Wear protective gloves. Chemical goggles, face shields or glasses should be worn to prevent eye contact. Contact lenses should not be worn where industrial exposure to this material is likely. Wash skin that has been exposed with soap and water.
- **Other Protective Equipment**: An eyewash fountain and deluge shower should be readily available in the work area.

Section 9 - Physical and Chemical Properties

9(a) Appearance (physical state, color, etc.): Colorless to amber liquid

9(b) Odor: gasoline - like

9(j) Upper/lower Flammability or Explosive Limits: 10% / 1%

9(k) Vapor Pressure: 200-500 mmHg@68^{o}F

Section 9 - Physical and Chemical Properties (continued)

9(c) Odor Threshold: NA

9(d) pH: NA

9(e) Melting Point/Freezing Point: NA

9(f) Initial Boiling Point and Boiling Range: 96.8 - 258 °F (36-125.6 °C)

9(g) Flash Point: <-50°F (<-45.6 °C)

9(h) Evaporation Rate: NA

9(i) Flammability (liquid): Highly Flammable

9(l) Vapor Density (Air = 1): ND

9(m) Relative Density: 6.25 lbs/gal (Bulk Density)

9(n) Solubility(ies): ND

9(o) Partition Coefficient n-octanol/water: ND

9(p) Auto-ignition Temperature: ND

9(q) Decomposition Temperature: ND

9(r) Viscosity: ND

NA - Not Applicable

ND - Not Determined for product as a whole

Section 10 - Stability and Reactivity

10(a) Reactivity: Not Determined (ND) for product as a whole.

10(b) Chemical Stability: Stable under normal storage and handling conditions.

10(c) Possibility of Hazardous Reaction: No Data Found

10(d) Conditions to Avoid: Storage with incompatible materials. Avoid heat, flame, or ignition sources.

10(e) Incompatible Materials: Strong acids and oxidizing agents.

10(f) Hazardous Decomposition Products: Can produce carbon dioxide and carbon monoxide.

Section 11 - Toxicological Information

11(a-e) Information on Toxicological Effects: The following toxicity data have been determined using the information available for its components applied to the guidance on the preparation of an SDS under the GHS requirements of OSHA and the EU CPL:

Hazard Classification	Hazard Category		Hazard Symbols	Signal Word	Hazard Statement
	EU*	OSHA			
Acute Toxicity Hazard (covers Categories 1-5)	NA**	3[a]		**Danger**	Toxic if inhaled
Skin Corrosion/Irritation (covers Categories 1A, 1B, 1C and 2)	2	2[b]		**Warning**	Causes skin irritation
Eye Damage/ Irritation (covers Categories 1, 2A and 2B)	NA**	2A[c]		**Warning**	Causes serious eye irritation
Skin/Dermal Sensitization (covers Category 1)	NA**	NA**	NA**	NA**	NA**
Germ Cell Mutagenicity (covers Categories 1A, 1B and 2)	1B	1B[d]		**Danger**	May cause genetic defects
Carcinogenicity (covers Categories 1A, 1B and 2)	1B	1A[e]		**Danger**	May cause cancer
Toxic Reproduction (covers Categories 1A, 1B and 2)	NA**	1B[f]		**Danger**	May damage fertility or the unborn child
Specific Target Organ Toxicity (STOT) Following Single Exposure (covers Categories 1-3)	NA**	2[g]		**Warning**	May cause CNS and Peripheral depression, and damage lung liver (vacuoled hepatocytes) and red blood cells
STOT following Repeated Exposure (covers Categories 1 and 2)	NA**	1[h]		**Warning**	May cause damage to the Hematopoietic system, spleen, liver through prolonged or repeat exposures
Aspiration (covers category 1)	1	1		**Danger**	May be fatal if swallowed and enters the airway

*Natural Gas Condensate has been harmonized as - Base classification: High Benzene Naphtha, flashpoint < 23°C and initial boiling point ≥ 35°C, benzene or 1,3-butadiene ≥ 0.1%, naphthalene < 25% .

** Not Applicable - Many categories have conclusive but not sufficient for classification information.

Section 11 - Toxicological Information (continued)

11(a-e) Information on toxicological effects (continued):

a. The following LC_{50} or LD_{50} has been established for **Condensate** as a mixture:

- Rat (4 hr) LC_{50} >5.2 mg/L
- Rat (4 hr) LC_{50} >5.81 mg/L
- Rat (4 hr) LC_{50} >5.2 mg/L

b. The following **Skin Corrosion/Irritation** information was found for **Condensate** as a mixture:

- Rabbit – Slightly irritating.
- Rabbit - Irritating but not corrosive.

c. The following **Eye Damage/Irritation** information was found for **Condensate** as a mixture:

- Rabbit – Slightly irritating.

d. No **Germ Cell Mutagenicity** data available for **Condensate** as a mixture. The following **Germ Cell Mutagenicity** information was found for the components:

- Benzene - Positive with activation. Positive In vitro Clastogenicity.

e. No **Carcinogenicity** data available for **Condensate** as a mixture. The following **Carcinogenicity** information was found for the components:

- Benzene - Listed as class 1 carcinogen by the NTP, IARC, EPA and ACGIH.

f. No **Reproductive Toxicity** data available for **Condensate** as a mixture. The following **Reproductive Toxicity** information was found for the components:

- Benzene - NOAEC for both adult and offspring toxicity and female fertility. 300ppm (960 mg/m^3). NOAEC for maternal toxicity and teratogenicity was 100 ppm (320 mg/m^3). The NOAEC for slight fetotoxicity was 40 ppm (128 mg/m^3).

g. No **Specific Target Organ Toxicity (STOT) following Single Exposure** data available for **Condensate** as a mixture. The following STOT following Single Exposure information was found for the components:

- Benzene - CNS and peripheral Depression, lung liver (vacuoled hepatocytes) and red blood cells may be effected.

h. No **Specific Target Organ Toxicity (STOT) following Repeated Exposure** data available for **Condensate** as a mixture. The following STOT following Repeated Exposure data is available for the components:

- Benzene - Spleen hematopoiesis, Liver, lung kidney effects are specific to male Rat. Early signs and symptoms of chronic overexposure include effects on CNS & the GI tract (headache, loss of appetite, drowsiness, nervousness, & pallor) but the major manifestation of toxicity is aplastic anemia. Bone marrow depression may occur resulting in leucopoenia, anemia, or thrombocytopenia (leukemogenic action). With continued exposure the disease states may progress to pancytopenia resulting from bone marrow aplasia. Evidence has linked benzene in the etiology of leukemia.

The above toxicity information was determined from available scientific sources to illustrate the prevailing posture of the scientific community. The scientific resources includes: The American Conference of Governmental Industrial Hygienist (ACGIH) Documentation of the Threshold Limit Values (TLVs) and Biological Exposure indices (BEIs) with Other Worldwide Occupational Exposure Values 2009, The International Agency for Research on Cancer (IARC), The National Toxicology Program (NTP) updated documentation, the World Health Organization (WHO) and other available resources, the International Uniform Chemical Information Database (IUCLID), European Union Risk Assessment Report (EU-RAR), Concise International Chemical Assessment Documents (CICAD), European Union Scientific Committee for Occupational Exposure Limits (EU-SCOEL), Agency for Toxic Substances and Disease Registry (ATSDR), Hazardous Substance Data Bank (HSDB), and International Programme on Chemical Safety (IPCS).

Section 12 - Ecological Information

12(a) Ecotoxicity (aquatic & terrestrial): No Data Found

12(b) Persistence & Degradability: Loss due to volatility. Not readily biodegradable but is inherently biodegradable by microorganisms.

12(c) Bioaccumulative Potential: No Data Found

12(d) Mobility (in soil): Will float on water and will volatilize in air.

12(e) Other adverse effects: No Data Found

Additional Information:

Hazard Category: Not Reported

Signal Word: No Signal Word

Hazard Symbol: No Symbol

Hazard Statement: No Statement

Section 13 - Disposal Considerations

Disposal: Waste code D001: Waste Flammable material with a flash point <140°F. This material and its container must be disposed of as hazardous waste. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. **European Waste Catalogue (EWC):** 05-01-99 (waste from petroleum refining).

Container Cleaning and Disposal: Containers should be completely empty prior to discarding. Dispose of contents in accordance with federal, state and local regulations. Observe safe handling precautions.

Please note this information is for Condensate in its original form. Any alterations can void this information.

Section 14 - Transportation Information

14(a-g) Transportation Information:

US DOT under 49 CFR 172.101 regulates **Condensate** as a hazardous material. All federal, state, and local laws and regulations that apply to the transport of this type of material must be adhered to.

Shipping Name: RQ, UN3295, Hydrocarbon, Liquid, N.O.S. PGIII (Benzene) **Shipping Symbols:** Flammable Liquid **Hazard Class:** 3 **UN No.:** UN3295 **Packing Group:** III **DOT/ IMO Label:** 3 **Special Provisions (172.102):** 144,B1,IB3,T4,TP1,TP29	**Packaging Authorizations** **a) Exceptions:** 150 **b) Non-Bulk:** 203 **c) Bulk:** 242	**Quantity Limitations** **a) Passenger, Aircraft, or Railcar:** 60L **b) Cargo Aircraft Only:** 220L **Vessel Stowage Requirements** **a) Vessel Stowage:** A **b) Other:** NA **DOT Reportable Quantities**: 10 lbs.

IMDG and RID classification, packaging and shipping requirements follow the US DOT Hazardous Materials Regulation.

ADR regulates **Condensate** as a hazardous material.

Shipping Name: Hydrocarbons, Liquid, N.O.S. **Classification Code:** 3 **UN No.:** 3295 **Packing Group:** III **ADR Label:** Flammable Liquid **Special Provisions:** 223 **Limited Quantities:** 5L **Excepted Quantities (EQ):** E1	**Packaging** **a) Packing Instructions:** P001, LP01 **b) Special Packing Provisions:** NA **c) Mixed Packing Provisions:** NA	**Portable Tanks & Bulk Containers** **a) Instructions:** T4 **b) Special Provisions:** TP1, TP29

IATA regulates **Condensate** as a hazardous material.

Shipping Name: Hydrocarbons, Liquid, N.O.S. **Class/Division:** 3 **Hazard Label (s):** Flammable Liquid **UN No.:** 3295 **Packing Group:** 1 **Excepted Quantities (EQ):** E3	**Passenger & Cargo Aircraft Limited Quantity (EQ)**		**Cargo Aircraft Only** **Pkg Inst:** 303 **Max Net Qty/Pkg:** 30 L	**Special Provisions:** A3 **ERG Code:** 3H
	Pkg Inst: Forbidden **Max Net Qty/Pkg:** Forbidden	**Pkg Inst:** 302 **Max Net Qty/Pkg:** 1L		

Pkg Inst – Packing Instructions Max Net Qty/Pkg – Maximum Net Quantity per Package ERG – Emergency Response Drill Code

TDG Classification: Condensate does have a TDG classification.

Section 15 - Regulatory Information

Regulatory Information: *The following listing of regulations relating to a CONSOL Energy Inc. product may not be complete and should not be solely relied upon for all regulatory compliance responsibilities.*

This product and/or its constituents are subject to the following regulations:

OSHA Regulations: Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-2, Z-3): The product, **Condensate** as a whole is not listed. However, individual components of the product are listed: Refer to Section 8, Exposure Controls and Personal Protection

EPA Regulations: Condensate is not listed as a whole. However, individual components of the product are listed:

Components	Regulations
Benzene	SARA 313, CERCLA, RCRA, SDWA, CWA, CAA

SARA Potential Hazard Categories: Immediate Acute Health Hazard, Delayed Chronic Health Hazard, Fire Hazard

Regulations Key:

CAA	Clean Air Act (42 USC Sec. 7412; 40 CFR Part 61 [As of: 8/18/06])
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act (42 USC Secs. 9601(14), 9603(a); 40 CFR Sec. 302.4, Table 302.4, Table 302.4 and App. A)
CWA	Clean Water Act (33 USC Secs. 1311; 1314(b), (c), (e), (g); 136(b), (c); 137(b), (c) [as of 8/2/06])
RCRA	Resource Conservation Recovery Act (42 USC Sec. 6921; 40 CFR Part 261 App VIII)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III Section 302 Extremely Hazardous Substances (42 USC Secs. 11023, 13106; 40 CFR Sec. 372.65) and Section 313 Toxic Chemicals (42 USC Secs. 11023, 13106; 40 CFR Sec. 372.65 [as of 6/30/05])
TSCA	Toxic Substance Control Act (15 U.S.C. s/s 2601 et seq. [1976])
SDWA	Safe Drinking Water Act (42 U.S.C. s/s 300f et seq. [1974])

Section 313 Supplier Notification: This product, **Condensate** contains the following toxic chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372:

CAS #	Chemical Name	Percent by Weight
71-43-2	Benzene	0.1

Section 15 - Regulatory Information (continued)

Regulatory Information (continued):

State Regulations: The product, **Condensate** as a whole is not listed in any state regulations. However, individual components of the product are listed in various state regulations:

Pennsylvania Right to Know: Contains regulated material in the following categories:

- Environmental Hazards: Benzene
- Special Hazardous Substance: Benzene

California Prop. 65: This product contains materials known to the State of California to cause cancer. Benzene

New Jersey: Contains regulated material in the following categories: Hazardous Substance: Benzene

Minnesota: Benzene

Massachusetts: Benzene

Other Regulations:

WHMIS Classification (Canadian): Condensate is not listed as a whole. However individual components are listed.

Ingredients	WHMIS Classification
Benzene	D-2A, D-2B, B-2

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

Section 16 - Other Information

Prepared By: CONSOL Energy Inc.

Issue Date: 8/12/2013

Additional Information:

HMIS Classification

Health Hazard	2
Fire Hazard	3
Physical Hazard	1

HEALTH = **2**, Temporary or minor injury may occur.

FIRE = **3**, Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 °F and boiling points above 100 °F, as well as liquids with flash points between 73 °F and 100 °F. (Classes IB & IC).

PHYSICAL HAZARD = **1,** Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

NFPA

HEALTH = **2**, Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

FIRE = **3,** Liquids and solids that can be ignited under almost all ambient conditions.

INSTABILITY = **1,** Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

ABBREVIATIONS/ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	**mg/m^3**	milligram per cubic meter of air
ADR	Regulations Concerning the International Carriage of Dangerous Goods by Road	**NFPA**	National Fire Protection Association
CAS	Chemical Abstracts Service	**NIOSH**	National Institute for Occupational Safety and Health
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	**NOAEC**	No Observed Adverse Effect Concentration
CFR	Code of Federal Regulations	**NTP**	National Toxicology Program
CNS	Central Nervous System	**OSHA**	Occupational Safety and Health Administration
CPL	Classification, Labeling and Packaging	**PEL**	Permissible Exposure Limit
DOT	Department of Transportation	**ppm**	parts per million
EC	European Community	**RCRA**	Resource Conservation and Recovery Act
EU	European Union	**REACH**	**R**egistration, **E**valuation, **A**uthorization and Restriction of **Ch**emical substances.
EWC	European Waste Catalogue	**RID**	Regulations Concerning the International Carriage of Dangerous Goods by Rail
GI, GIT	Gastro-Intestinal, Gastro-Intestinal Tract	**REL**	Recommended Exposure Limits
GHS	Globally Harmonized System	**SDS**	Safety Data Sheet
HMIS	Hazardous Materials Identification System	**SARA**	Superfund Amendment and Reauthorization Act
IARC	International Agency for Research on Cancer	**SCBA**	Self-contained Breathing Apparatus
IATA	International Air Transport Association	**STEL**	Short Term Exposure Limit
IDLH	Immediately Dangerous to Life or Health	**TDG**	Transport Dangerous Goods
IMDG	International Maritime Dangerous Goods	**TLV**	Threshold Limit Value
LC50	Median Lethal Concentration	**TWA**	Time-weighted Average

Section 16 - Other Information (continued)

ABBREVIATIONS/ACRONYMS (continued):

MSHA	Mine Safety and Health Administration
mg/L	milligram per liter

WHMIS	Workplace Hazardous Materials Information System

Disclaimer: This information is taken from sources or based upon data believed to be reliable. Our objective in sending this information is to help you protect the health and safety of your personnel and to comply with the OSHA Hazard Communication Standard and Title III of the Superfund Amendment and Reauthorization Act of 1986. CONSOL Energy Inc. makes no warranty as to the absolute correctness, completeness, or sufficiency of any of the foregoing, or any additional, or other measures that may be required under particular conditions. CONSOL Energy Inc. MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY IMPLIED WARRANTIES OTHERWISE ARISING FROM COURSE OF DEALING OR TRADE.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Processed Natural Gas
Product Code: None
Synonyms: Dry Gas
Generic Name: Natural Gas
Chemical Family: Paraffin hydrocarbon

Responsible Party: Unocal Corporation
Union Oil Company of California
14141 Southwest Freeway
Sugar Land, Texas
77478

For further information contact MSDS Coordinator
8am - 4pm Central Time, Mon - Fri: 281-287-5310

EMERGENCY OVERVIEW

24 Hour Emergency Telephone Numbers:

For Chemical Emergencies:
Spill, Leak, Fire or Accident
Call CHEMTREC
North America: (800)424-9300
Others: (703)527-3887(collect)

For Health Emergencies:
California Poison
Control System
(800)356-3129

Health Hazards: Use with adequate ventilation.

Physical Hazards: Flammable gas. Can cause flash fire. Gas displaces oxygen available for breathing. Keep away from heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment). Do not enter storage areas or confined space unless adequately ventilated.

< Physical Form: Gas
< Appearance: Colorless
< Odor: Odorless in the absence of H2S or mercaptans

NFPA HAZARD CLASS: Health: 1 (Slight)
Flammability: 4 (Extreme)
Reactivity: 0 (Least)

2. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS	% Weight	EXPOSURE GUIDELINE		
		Limits	Agency	Type
Methane CAS# 74-82-8	98	1000 ppm	MSHA	TWA
Carbon Dioxide CAS# 124-38-9	0-5	5000 ppm	ACGIH	TWA
		30000 ppm	ACGIH	STEL
		5000 ppm	OSHA	TWA
		5000 ppm	MSHA	TWA
		5000 ppm	Cal.OSHA	TWA
		30000 ppm	Cal.OSHA	STEL
Nitrogen CAS# 7727-37-9	0-5	1000 ppm	MSHA	TWA
Ethane CAS# 74-84-0	1	1000 ppm	MSHA	TWA

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS:

Eye: Not expected to be an eye irritant.

Skin: Skin contact is unlikely. Skin absorption is unlikely.

Inhalation (Breathing): Asphyxiant. High concentrations in confined spaces may limit oxygen available for breathing.

Ingestion (Swallowing): This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Signs and Symptoms: Light hydrocarbon gases are simple asphyxiants which, at high enough concentrations, can reduce the amount of oxygen available for breathing. Symptoms of overexposure can include shortness of breath, drowsiness, headaches, confusion,

decreased coordination, visual disturbances and vomiting, and are reversible if exposure is stopped. Continued exposure can lead to hypoxia (inadequate oxygen), cyanosis (bluish discoloration of the skin), numbness of the extremities, unconsciousness and death. High concentrations of carbon dioxide can increase heart rate and blood pressure.

Cancer: No data available.

Target Organs: No data available.

Developmental: Limited data - See Other Comments, below.

Other Comments: High concentrations may reduce the amount of oxygen available for breathing, especially in confined spaces. Hypoxia (inadequate oxygen) and respiratory acidosis (increased carbon dioxide in blood), during pregnancy may have adverse effects on the developing fetus. Exposure during pregnancy to high concentrations of carbon monoxide, which is produced during the combustion of hydrocarbon gases, can also cause harm to the developing fetus.

Pre-Existing Medical Conditions: None known.

4. FIRST AID MEASURES

Eye: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: First aid is not normally required. However, it is good practice to wash any chemical from the skin.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): This material is a gas under normal atmospheric conditions and ingestion is unlikely.

5. FIRE FIGHTING MEASURES

Flammable Properties: Flash Point: Not applicable (gas)
OSHA Flammability Class: Flammable gas
LEL / UEL: No data
Autoignition Temperature: 800-1000°F

Unusual Fire & Explosion Hazards: This material is flammable and may be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment). Vapors may travel considerable distances to a source of ignition where they can ignite, flashback, or explode. May create vapor/air explosion hazard indoors, outdoors, or in sewers. If container is not properly cooled, it can rupture in the heat of a fire. Closed containers exposed t extreme heat can rupture due to pressure buildup.

Extinguishing Media: Dry chemical or carbon dioxide is recommended. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self-contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8). Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. If this cannot be done, allow fire to burn. Move undamaged containers from immediate hazard area if it can be done with minimal risk. Stay away from ends of container. Water spray may be useful in minimizing or dispersing vapors. Cool equipment exposed to fire with water, if it can be done with minimal risk.

6. ACCIDENTAL RELEASE MEASURES

Flammable. Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof equipment is recommended. Stay upwind and away from spill/release. Notify persons down wind of spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with

minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8). Notify fire authorities and appropriate federal, state, and local agencies. Water spray may be useful in minimizing or dispersing vapors (see Section 5).

7. HANDLING AND STORAGE

Handling: The use of explosion-proof equipment is recommended and may be required (see appropriate fire codes). Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Section 2 and 8). Use good personal hygiene practice.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Post area "No Smoking or Open Flame." Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits (see Section 2), additional ventilation or exhaust systems may be required. Where explosive mixtures may be present, electrical systems safe for such locations must be used (see appropriate electrical codes).

Personal Protective Equipment (PPE):

Respiratory: Wear a positive pressure air supplied respirator in oxygen deficient environments (oxygen content <19.5%). A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Skin: Not required based on the hazards of the material. However, it is considered good practice to wear gloves when handling chemicals.

Eye/Face: While contact with this material is not expected to cause irritation, the use of approved eye protection to safeguard against potential eye contact is considered good practice.

Other Protective Equipment: A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed. Self-contained respirators should be available for non-routine and emergency situations.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm).

Flash Point: Not applicable (gas)
Flammable/Explosive Limits (%): No data
Autoignition Temperature: 800-1000°F
Appearance: Colorless
Physical State: Gas
Odor: Odorless in the absence of H2S or mercaptans
Vapor Pressure (mm Hg): No data
Vapor Density (air=1): <1
Boiling Point: -259°F
Freezing/Melting Point: No data
Solubility in Water: Slight
Specific Gravity: 0.30+ (Air=1)
Percent Volatile: 100 vol.%
Evaporation Rate (nBuAc=1): N/A (Gas)

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal conditions of storage and handling.

Conditions To Avoid: Avoid all possible sources of ignition (see Sections 5 & 7).

Incompatible Materials: Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products: Combustion can yield carbon dioxide and carbon monoxide.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

No definitive information available on carcinogenicity, mutagenicity, target organs or developmental toxicity.

12. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, would be a RCRA "characteristic" hazardous waste due to the characteristic(s) of ignitability (D001). If the material is spilled to soil or water, characteristic testing of the contaminated materials is recommended. Further, this material is subject to the land disposal restriction in 40 CFR 268.40 and may require treatment prior to disposal to meet specific standards. Consult state and local regulations to determine whether they are more stringent than the federal requirements.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.

13. TRANSPORT INFORMATION

DOT Proper Shipping Name / Technical Name: Hydrocarbon Gas, Liquified N.O.S. (Methane)
Hazard Class or Division: 2.1
ID #: UN1965

14. REGULATORY INFORMATION

This material contains the following chemicals subject to the reporting requirements of **SARA 313** and 40 CFR 372:

--None--

Warning: This material contains the following chemicals which are known to the State of California to cause cancer, birth defects or

other reproductive harm, and are subject to the requirements of **California Proposition 65** (CA Health & Safety Code Section 25249.5):

--None Known--

This material has not been identified as a carcinogen by NTP, IARC, or OSHA.

EPA (CERCLA) Reportable Quantity: --None--

15. DOCUMENTARY INFORMATION

Issue Date: 03/18/03
Previous Issue Date: 11/29/99
Product Code: None
Previous Product Code: None

16. DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

The information in this document is believed to be correct as of the date issued. **HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THIS INFORMATION, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE.** This information and product are furnished on the condition that the person receiving them shall make his own determination as to the suitability of the product for his particular purpose and on the condition that he assume the risk of his use thereof.

ATTACHMENT I

EMISSION UNITS TABLE

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017

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] and Date of Change	Control Device[4]
CE-1	1e	Cat G3516 Compressor Engine	2017	1380 Hp	New	C1
MG-1	2e	30 kW MicroTurbine Generator	2017	30 kW	New	None
RBV-1	3e	TEG Reboiler	2017	0.375 MMBtu/hr	New	None
RSV-1	4e	TEG Dehy Still Vent	2017	20 MMscf/d	New	F-1
F-1	4e	Ground Flare	2017	2 MMBtu/hr	New	APCD
T1	5e	Produced Water Tank	2017	400 BBL	New	None
TL-1	Fugitives	Truck Loading	2017	16,800 gal/yr	New	None
CE-1	Blowdowns	Compressor Blowdown	2017	6,163 scf/event	New	None
PIG Launcher	Blowdowns	Piping Blowdown for PIG	2017	4,133 scf/event	New	None
Desiccant Dehy	Blowdowns	Blowdowns for Desiccant Dehydrator Vessels	2017	13,650 scf/event	New	None

[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

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017

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			
1e	Vertical Stack	CE-1	4SLB RICE CAT G3516BLE	C1	OC	C	8760	NO_X CO VOC SO_2 PM_{10} CH2O HAPs CO2e	3.04 9.13 2.98 0.01 0.10 1.19 1.40 1745	13.33 39.98 13.06 0.03 0.45 5.20 6.14 6947	- 6.08 2.13 - - - - -	- 26.65 9.33 - - - - -	Gas/ Vapor	EE	Can Supply Upon Request
2e	Vertical Stack	MG-1	MicroTurbine Generator	NA	NA	C	8760	NO_X CO VOC CO2e	0.02 0.05 0.01 51	0.08 0.24 0.03 222	-	-	Gas/ Vapor	EE	Can Supply Upon Request
3e	Vertical Stack	RBV-1	TEG Reboiler	NA	NA	C	8760	NO_X CO VOC SO_2 PM_{10} CO2e	0.04 0.03 0.00 0.00 0.00 44	0.16 0.14 0.01 0.00 0.01 192	-	-	Gas/ Vapor	EE	Can Supply Upon Request
4e	Vertical Stack	RSV-1	TEG Still Vent	F-1	Flare	C	8760	NO_X CO VOC SO_2 PM_{10} Benzene Toluene Ethylbenzene Xylene n-Hexane HAPs CO2e	0.14 0.63 7.00 0.09 0.00 0.20 0.70 0.20 0.70 0.20 2.00 --	0.60 2.73 30.6 0.04 0.00 0.90 3.10 0.80 2.90 1.10 8.8 --	- - 0.29 - - 0.00 0.01 0.00 0.01 0.00 0.03 234	- - 1.23 - - 0.02 0.06 0.02 0.06 0.02 0.18 1024	Gas/ Vapor	EE	Can Supply Upon Request
5e	Vertical Stack	T1	Produced Water Tank	NA	NA	C	8760	VOC	0.00	0.00	-	-	Gas/ Vapor	EE	Can Supply Upon Request

Compressor Blowdowns	Vertical Stack	CE-1	Compressor Blowdowns	NA	NA	1 hr/ event	60	VOC CO2e	39.68 36.30	1.19 159	-	-	Gas/ Vapor	EE	Can Supply Upon Request
Pigging Blowdowns	Vertical Stack	PIG	PIG Launcher Blowdowns	NA	NA	1 hr/ event	60	VOC CO2e	26.61 24.26	0.80 107	-	-	Gas/ Vapor	EE	Can Supply Upon Request
Desiccant Dehy Blowdowns	Vertical Stack	Desic cant Dehy	Desiccant Dehy Blowdowns	NA	NA	1 hr/ event	52	VOC CO2e	88.08 69.69	2.29 305.25	-	-	Gas/ Vapor	EE	Can Supply Upon Request

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured 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. uncaptured 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 (ie., 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, all applicable Greenhouse Gases (including CO_2 and methane), etc. **DO NOT LIST** 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).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

ATTACHMENT K

FUGITIVE EMISSIONS DATA SHEET

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017

Attachment K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process 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. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS
1.) Will there be haul road activities? ☐ Yes ☒ No ☐ If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? ☐ Yes ☒ No ☐ If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? ☒ Yes ☐ No ☒ If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)? ☒ Yes ☐ No ☒ If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET. Note: Component count and emission totals are included within site calculations. No monitoring or LDAR required at this site.
6.) Will there be General Clean-up VOC Operations? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered “NO” to all of the items above, it is not necessary to complete the following table, “Fugitive Emissions Summary.”

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS [1]	Maximum Potential Uncontrolled Emissions [2]		Maximum Potential Controlled Emissions [3]		Est. Method Used [4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	-	-	-	-	-	EE
Unpaved Haul Roads	-	-	-	-	-	EE
Storage Pile Emissions	-	-	-	-	-	EE
Loading/Unloading Operations	VOC	0.00	0.00	-	-	EE
Wastewater Treatment Evaporation & Operations	-	-	-	-	-	EE
Equipment Leaks	VOC	0.40	1.74	-	-	EE
General Clean-up VOC Emissions	-	-	-	-	-	EE
Other	-	-	-	-	-	EE

[1] 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, all applicable Greenhouse Gases (including CO_2 and methane), etc. DO NOT LIST H_2, H_2O, N_2, O_2, and Noble Gases.

[2] Give 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).

[3] Give 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).

[4] 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 L

EMISSION UNIT DATA SHEET

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017

INTERNAL COMBUSTION ENGINE DATA SHEET

Complete this data sheet for each internal combustion engine at the facility. Include manufacturer performance data sheet(s) or any other supporting document if applicable. Use extra pages if necessary. *Generator(s) and microturbine generator(s) shall also use this form.*

Emission Unit ID#[1]		CE-1					
Engine Manufacturer/Model		Caterpillar/G3516BLE					
Manufacturers Rated bhp/rpm		1380/1400					
Source Status[2]		NS					
Date Installed/ Modified/Removed/Relocated[3]		2017					
Engine Manufactured /Reconstruction Date[4]		4/16/2012					
Check all applicable Federal Rules for the engine (include EPA Certificate of Conformity if applicable)[5]		☒40CFR60 Subpart JJJJ ☐JJJJ Certified? ☐40CFR60 Subpart IIII ☐IIII Certified? ☒40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources		☐40CFR60 Subpart JJJJ ☐JJJJ Certified? ☐40CFR60 Subpart IIII ☐IIII Certified? ☐40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources		☐40CFR60 Subpart JJJJ ☐JJJJ Certified? ☐40CFR60 Subpart IIII ☐IIII Certified? ☐40CFR63 Subpart ZZZZ ☐ NESHAP ZZZZ/ NSPS JJJJ Window ☐ NESHAP ZZZZ Remote Sources	
Engine Type[6]		4SLB					
APCD Type[7]		OxCat – A/F					
Fuel Type[8]		RG					
H_2S (gr/100 scf)		0.25					
Operating bhp/rpm		1380/1400					
BSFC (BTU/bhp-hr)		8,174 HHV					
Hourly Fuel Throughput		8,741 ft^3/hr					
Annual Fuel Throughput (Must use 8,760 hrs/yr unless emergency generator)		76.58 $MMft^3$/yr Based on LHV					
Fuel Usage or Hours of Operation Metered		Yes ☒ No ☐		Yes ☐ No ☐		Yes ☐ No ☐	
Calculation Methodology[9]	**Pollutant[10]**	**Hourly PTE (lb/hr)[11]**	**Annual PTE (tons/year)[11]**	**Hourly PTE (lb/hr)[11]**	**Annual PTE (tons/year)[11]**	**Hourly PTE (lb/hr)[11]**	**Annual PTE (tons/year)[11]**
MD	NO_x	3.04	13.33				
MD	CO	6.08	26.65				
MD	VOC	2.13	9.33				
AP	SO_2	0.01	0.03				
AP	PM_{10}	0.10	0.45				
MD	Formaldehyde	1.19	5.20				
AP	Total HAPs	1.41	6.14				
AP	GHG (CO_2e)	1744.7	6947.3				

1 Enter the appropriate Source Identification Number for each natural gas-fueled reciprocating internal combustion compressor/generator engine located at the compressor station. Multiple compressor engines should be designated CE-1, CE-2, CE-3 etc. Generator engines should be designated GE-1, GE-2, GE-3 etc. Microturbine generator engines should be designated MT-1, MT-2, MT-3 etc. If more than three (3) engines exist, please use additional sheets.

2 Enter the Source Status using the following codes:

NS	Construction of New Source (installation)	ES	Existing Source
MS	Modification of Existing Source	RS	Relocated Source
REM	Removal of Source		

3 Enter the date (or anticipated date) of the engine's installation (construction of source), modification, relocation or removal.

4 Enter the date that the engine was manufactured, modified or reconstructed.

5 Is the engine a certified stationary spark ignition internal combustion engine according to 40CFR60 Subpart IIII/JJJJ? If so, the engine and control device must be operated and maintained in accordance with the manufacturer's emission-related written instructions. You must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required. If the certified engine is not operated and maintained in accordance with the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and you must demonstrate compliance as appropriate.

Provide a manufacturer's data sheet for all engines being registered.

6 Enter the Engine Type designation(s) using the following codes:

2SLB	Two Stroke Lean Burn	4SRB	Four Stroke Rich Burn
4SLB	Four Stroke Lean Burn		

7 Enter the Air Pollution Control Device (APCD) type designation(s) using the following codes:

A/F	Air/Fuel Ratio	IR	Ignition Retard
HEIS	High Energy Ignition System	SIPC	Screw-in Precombustion Chambers
PSC	Prestratified Charge	LEC	Low Emission Combustion
NSCR	Rich Burn & Non-Selective Catalytic Reduction	OxCat	Oxidation Catalyst
SCR	Lean Burn & Selective Catalytic Reduction		

8 Enter the Fuel Type using the following codes:

PQ	Pipeline Quality Natural Gas	RG	Raw Natural Gas /Production Gas	D	Diesel

9 Enter the Potential Emissions Data Reference designation using the following codes. Attach all reference data used.

MD	Manufacturer's Data	AP	AP-42	
GR	GRI-HAPCalc™	OT	Other	(please list)

10 Enter each engine's Potential to Emit (PTE) for the listed regulated pollutants in pounds per hour and tons per year. PTE shall be calculated at manufacturer's rated brake horsepower and may reflect reduction efficiencies of listed Air Pollution Control Devices. Emergency generator engines may use 500 hours of operation when calculating PTE. PTE data from this data sheet shall be incorporated in the *Emissions Summary Sheet*.

11 PTE for engines shall be calculated from manufacturer's data unless unavailable.

STORAGE VESSEL DATA SHEET

Complete this data sheet if you are the owner or operator of a storage vessel that contains condensate and/or produced water. This form must be completed for ***each*** new or modified bulk liquid storage vessel(s) that contains condensate and/or produced water . (If you have more than one (1) identical tank (i.e. 4-400 bbl condensate tanks), then you can list all on one (1) data sheet). **Include gas sample analysis, flashing emissions, working and breathing losses, USEPA Tanks, simulation software (ProMax, E&P Tanks, HYSYS, etc.), and any other supporting documents where applicable.**

The following information is REQUIRED:

☒ Composition of the representative sample used for the simulation
☒ For each stream that contributes to flashing emissions:
- ☒ Temperature and pressure (inlet and outlet from separator(s))
- ☒ Simulation-predicted composition
- ☒ Molecular weight
- ☒ Flow rate

☒ Resulting flash emission factor or flashing emissions from simulation
☒ Working/breathing loss emissions from tanks and/or loading emissions if simulation is used to quantify those emissions

Additional information may be requested if necessary.

GENERAL INFORMATION

1. Bulk Storage Area Name Cain Run (Laverne) Station	2. Tank Name Produced Water Tank
3. Emission Unit ID number T1	4. Emission Point ID number 5e
5. Date Installed , Modified or Relocated *(for existing tanks)* 2017 Was the tank manufactured after August 23, 2011? ☒ Yes ☐ No	6. Type of change: ☒ New construction ☐ New stored material ☐ Other ☐ Relocation
7A. Description of Tank Modification *(if applicable)* New Installation	
7B. Will more than one material be stored in this tank? *If so, a separate form must be completed for each material.* ☐ Yes ☒ No	
7C. Was USEPA Tanks simulation software utilized? ☐ Yes ☒ No ProMax model simulation report ran (See calculations) ***If Yes, please provide the appropriate documentation and items 8-42 below are not required.***	

TANK INFORMATION

8. Design Capacity *(specify barrels or gallons).* Use the internal cross-sectional area multiplied by internal height. 400 bbl / 16,800 gal	
9A. Tank Internal Diameter (ft.) 12	9B. Tank Internal Height (ft.) 20
10A. Maximum Liquid Height (ft.) 18	10B. Average Liquid Height (ft.) 10
11A. Maximum Vapor Space Height (ft.) 18	11B. Average Vapor Space Height (ft.) 10
12. Nominal Capacity *(specify barrels or gallons).* This is also known as "working volume". 400 bbl /16,800 gal	
13A. Maximum annual throughput (gal/yr) 50,400	13B. Maximum daily throughput (gal/day) 138
14. Number of tank turnovers per year 3	15. Maximum tank fill rate (gal/min) 0.10
16. Tank fill method ☐ Submerged ☒ Splash ☐ Bottom Loading	

17. Is the tank system a variable vapor space system? ☐ Yes ☒ No
If yes, (A) What is the volume expansion capacity of the system (gal)?
(B) What are the number of transfers into the system per year?

18. Type of tank (check all that apply):
☒ Fixed Roof ☒ vertical ☐ horizontal ☐ flat roof ☒ cone roof ☐ dome roof ☐ other (describe)

☐ External Floating Roof ☐ pontoon roof ☐ double deck roof
☐ Domed External (or Covered) Floating Roof
☐ Internal Floating Roof ☐ vertical column support ☒ self-supporting
☐ Variable Vapor Space ☐ lifter roof ☐ diaphragm
☐ Pressurized ☐ spherical ☒ cylindrical
☐ Other (describe)

PRESSURE/VACUUM CONTROL DATA

19. Check as many as apply:
☐ Does Not Apply ☐ Rupture Disc (psig)
☐ Inert Gas Blanket of _____ ☐ Carbon Adsorption[1]
☐ Vent to Vapor Combustion Device[1] (vapor combustors, flares, thermal oxidizers, enclosed combustors)
☐ Conservation Vent (psig) ☐ Condenser[1]
-0.03 Vacuum Setting 0.03 Pressure Setting
☐ Emergency Relief Valve (psig)
Vacuum Setting Pressure Setting
☐ Thief Hatch Weighted ☐ Yes ☐ No
[1] Complete appropriate Air Pollution Control Device Sheet

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

Material Name	Flashing Loss		Working/Breathing Loss		Total Emissions Loss		Estimation Method[1]
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	
VOCs	0.000	0.000	0.000	0.000	0.000	0.000	Promax

[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.

TANK CONSTRUCTION AND OPERATION INFORMATION

21. Tank Shell Construction:
☐ Riveted ☐ Gunite lined ☐ Epoxy-coated rivets ☒ Other (describe) Welded Seams

21A. Shell Color: Green	21B. Roof Color: Green	21C. Year Last Painted: 2017

22. 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):
Must be listed for tanks using VRUs with closed vent system.

24. Is the tank a **Vertical Fixed Roof Tank**? ☒ Yes ☐ No	24A. If yes, for dome roof provide radius (ft): 6 ft	24B. If yes, for cone roof, provide slop (ft/ft): 1/12 (ft/ft) slope

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:
27. Closed Vent System with VRU? ☐ Yes ☒ No			
28. Closed Vent System with Enclosed Combustor? ☐ Yes ☒ No			
SITE INFORMATION			
29. Provide the city and state on which the data in this section are based: Elkins, WV			
30. Daily Avg. Ambient Temperature (°F): 49.06		31. Annual Avg. Maximum Temperature (°F): 61.15	
32. Annual Avg. Minimum Temperature (°F): 36.97		33. Avg. Wind Speed (mph): 6.17	
34. Annual Avg. Solar Insulation Factor (BTU/ft^2-day): 1,193.7		35. Atmospheric Pressure (psia): 13.73	
LIQUID INFORMATION			
36. Avg. daily temperature range of bulk liquid (°F): 49.07	36A. Minimum (°F): 36.97		36B. Maximum (°F): 61.15
37. Avg. operating pressure range of tank (psig): 0.0	37A. Minimum (psig): -0.03		37B. Maximum (psig): 0.03
38A. Minimum liquid surface temperature (°F): 36.97		38B. Corresponding vapor pressure (psia): 6.37	
39A. Avg. liquid surface temperature (°F): 50.67		39B. Corresponding vapor pressure (psia): 6.77	
40A. Maximum liquid surface temperature (°F): 56.45		40B. Corresponding vapor pressure (psia): 7.19	
41. Provide the following for each liquid or gas to be stored in the tank. Add additional pages if necessary. SEE PROMAX MODEL IN CALCULATIONS			
41A. Material name and composition:			
41B. CAS number:			
41C. Liquid density (lb/gal):			
41D. Liquid molecular weight (lb/lb-mole):			
41E. Vapor molecular weight (lb/lb-mole):			
41F. Maximum true vapor pressure (psia):			
41G. Maximum Reid vapor pressure (psia):			
41H. Months Storage per year. From: To:			
42. Final maximum gauge pressure and temperature prior to transfer into tank used as inputs into flashing emission calculations.			

GLYCOL DEHYDRATION UNIT DATA SHEET

Complete this data sheet for each Glycol Dehydration Unit, Reboiler, Flash Tank and/or Regenerator at the facility. Include gas sample analysis and GRI- GLYCalc™ input and aggregate report. Use extra pages if necessary.

Manufacturer: Frederick Logan Company, Inc	Model: NA
Max. Dry Gas Flow Rate: 20 mmscf/day	Reboiler Design Heat Input: 0.375 MMBTU/hr
Design Type: ☒ TEG ☐ DEG ☐ EG	Source Status[1]: NS
Date Installed/Modified/Removed[2]: 2017	Regenerator Still Vent APCD/ERD[3]: FL (Flare)
Control Device/ERD ID#[3]: F-1	Fuel HV (BTU/scf): 1,171
H_2S Content (gr/100 scf): 0.25	Operation (hours/year): 8760
Pump Rate (scfm): 1.5 GPM TEG	
Water Content (wt %) in: Wet Gas: 60.5 lb H20/MMscf Dry Gas: 4.67 lbs H2O/MMSCF	

Is the glycol dehydration unit exempt from 40CFR63 Section 764(d)? ☒ Yes ☐ No: If Yes, answer the following:

The actual annual average flowrate of natural gas to the glycol dehydration unit is less than 85 thousand standard cubic meters per day, as determined by the procedures specified in §63.772(b)(1) of this subpart. ☐ Yes ☒ No

The actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere are less than 0.90 megagram per year (1 ton per year), as determined by the procedures specified in §63.772(b)(2) of this subpart. ☒ Yes ☐ No

Is the glycol dehydration unit located within an Urbanized Area (UA) or Urban Cluster (UC)? ☐ Yes ☒ No

Is a lean glycol pump optimization plan being utilized? ☐ Yes ☒ No

Recycling the glycol dehydration unit back to the flame zone of the reboiler.
☐ Yes ☒ No

Recycling the glycol dehydration unit back to the flame zone of the reboiler and mixed with fuel.
☐ Yes ☒ No

What happens when temperature controller shuts off fuel to the reboiler?
☐ Still vent emissions to the atmosphere.
☐ Still vent emissions stopped with valve.
☐ Still vent emissions to glow plug.

Please indicate if the following equipment is present.
☒ Flash Tank
☒ Burner management system that continuously burns condenser or flash tank vapors

Control Device Technical Data

Pollutants Controlled	Manufacturer's Guaranteed Control Efficiency (%)
VOCs and HAPs	98.0

Emissions Data

Emission Unit ID / Emission Point ID[4]	Description	Calculation Methodology[5]	PTE[6]	Controlled Maximum Hourly Emissions (lb/hr)	Controlled Maximum Annual Emissions (tpy)
RBV-1 / 3e	Reboiler Vent	AP	NO_x	0.04	0.16
		AP	CO	0.03	0.14
		AP	VOC	0.002	0.01
		AP	SO_2	0.000	0.001
		AP	PM_{10}	0.003	0.012
		AP	GHG (CO_2e)	43.88	192.19

RSV-1 / 4e	Glycol Reboiler Still Vent Controlled by Flare	OT	VOC	0.12	0.52
		OT	Benzene	0.00	0.02
		OT	Toluene	0.01	0.05
		OT	Ethylbenzene	0.00	0.01
		OT	Xylenes	0.01	0.04
		OT	n-Hexane	0.00	0.02

1 Enter the Source Status using the following codes:
NS Construction of New Source ES Existing Source
MS Modification of Existing Source

2 Enter the date (or anticipated date) of the glycol dehydration unit's installation (construction of source), modification or removal.

3 Enter the Air Pollution Control Device (APCD)/Emission Reduction Device (ERD) type designation using the following codes and the device ID number:
NA None CD Condenser FL Flare CC Condenser/Combustion Combination TO Thermal Oxidizer
O Other (please list)

4 Enter the appropriate Emission Unit ID Numbers and Emission Point ID Numbers for the glycol dehydration unit reboiler vent and glycol regenerator still vent. The glycol dehydration unit reboiler vent and glycol regenerator still vent should be designated RBV-1 and RSV-1, respectively. If the compressor station incorporates multiple glycol dehydration units, a Glycol Dehydration Emission Unit Data Sheet shall be completed for each, using Source Identification RBV-2 and RSV-2, RBV-3 and RSV-3, etc.

5 Enter the Potential Emissions Data Reference designation using the following codes:
MD Manufacturer's Data AP AP-42
GR GRI-GLYCalc™ OT Other ProMax EOS Simulator (please list)

6 Enter the Reboiler Vent and Glycol Regenerator Still Vent Potential to Emit (PTE) for the listed regulated pollutants in lbs per hour and tons per year. The Glycol Regenerator Still Vent potential emissions may be determined using the most recent version of the thermodynamic software model GRI-GLYCalc™ (Radian International LLC & Gas Research Institute). **Attach all referenced Potential Emissions Data (or calculations) and the GRI-GLYCalc™ Aggregate Calculations Report (shall include emissions reports, equipment reports, and stream reports) to this Glycol Dehydration Emission Unit Data Sheet(s). Backup pumps do not have to be considered as operating for purposes of PTE.** This PTE data shall be incorporated in the Emissions Summary Sheet.

TANKER TRUCK LOADING DATA SHEET

Complete this data sheet for each new or modified bulk liquid transfer area or loading rack at the facility. This is to be used for bulk liquid transfer operations to tanker trucks. Use extra pages if necessary.

Truck Loadout Collection Efficiencies

The following applicable capture efficiencies of a truck loadout are allowed:

- For tanker trucks passing the MACT level annual leak test – 99.2%
- For tanker trucks passing the NSPS level annual leak test – 98.7%
- For tanker trucks not passing one of the annual leak tests listed above – 70%

Compliance with this requirement shall be demonstrated by keeping records of the applicable MACT or NSPS Annual Leak Test certification for ***every*** truck and railcar loaded/unloaded. This requirement can be satisfied if the trucking company provided certification that its entire fleet was compliant. This certification must be submitted in writing to the Director of the DAQ. These additional requirements must be noted in the Registration Application and will be noted on the issued G35-C Registration.

Emission Unit ID#: TL-1	Emission Point ID#: Fugitive	Year Installed/Modified: 2017
Emission Unit Description: Emissions from Truck Loading are vented to Atmosphere from Trucks Vacuum Pump		
Loading Area Data		
Number of Pumps: 1 / On Truck	Number of Liquids Loaded: 1	Max number of trucks loading at one (1) time: 1
Are tanker trucks pressure tested for leaks at this or any other location? ☐ Yes ☐ No ☒ Not Required If Yes, Please describe:		
Provide description of closed vent system and any bypasses. NA		
Are any of the following truck loadout systems utilized? ☐ Closed System to tanker truck passing a MACT level annual leak test? ☐ Closed System to tanker truck passing a NSPS level annual leak test? ☐ Closed System to tanker truck not passing an annual leak test and has vapor return?		

Projected Maximum Operating Schedule (for rack or transfer point as a whole)

Time	Jan – Mar	Apr - Jun	Jul – Sept	Oct - Dec
Hours/day	24	24	24	24
Days/week	7	7	7	7

Bulk Liquid Data (use extra pages as necessary)

Liquid Name	Pipeline Liquids		
Max. Daily Throughput (1000 gal/day)	0.14		
Max. Annual Throughput (1000 gal/yr)	50.4		
Loading Method[1]	SUB		
Max. Fill Rate (gal/min)	75		
Average Fill Time (min/loading)	56		
Max. Bulk Liquid Temperature (°F)	49.1		

True Vapor Pressure[2]		0.00			
Cargo Vessel Condition[3]		C			
Control Equipment or Method[4]		None			
Max. Collection Efficiency (%)		0			
Max. Control Efficiency (%)		0			
Max.VOC Emission Rate	Loading (lb/hr)	0.00			
	Annual (ton/yr)	0.00			
Max.HAP Emission Rate	Loading (lb/hr)	0.00			
	Annual (ton/yr)	0.00			
Estimation Method[5]		0			

1	BF	Bottom Fill	SP	Splash Fill		SUB	Submerged Fill
2	At maximum bulk liquid temperature						
3	B	Ballasted Vessel	C	Cleaned	U	Uncleaned (dedicated service)	
	O	Other (describe)					
4	List as many as apply (complete and submit appropriate Air Pollution Control Device Sheets)						
	CA	Carbon Adsorption	VB	Dedicated Vapor Balance (closed system)			
	ECD	Enclosed Combustion Device	F	Flare			
	TO	Thermal Oxidization or Incineration					
5	EPA	EPA Emission Factor in AP-42			MB	Material Balance	
	TM	Test Measurement based upon test data submittal			O	Other (describe)	ProMax

ATTACHMENT M

AIR POLLUTION CONTROL DEVICE

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017

Attachment M
Air Pollution Control Device Sheet
(Oxidation Catalyst)

Control Device ID No. (C1):

Equipment Information

1. Manufacturer: Emit . Model No. ELZ-4200Z-1616F	2. Control Device Name: Engine Catalytic Converter Type: Oxidation Catalyst
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. See attached information for arrangement, size, flows, temperatures, catalyst type, and dimensions	
4. On a separate sheet(s) supply all data and calculations used in selecting or designing this collection device. This device was designed to meet the 2,1,0.7 g/hp hr requirements for NOx, CO, VOCs. See Cat Spec Sheet	
5. Provide a scale diagram of the control device showing internal construction. See Converter Drawing Attached	
6. Submit a schematic and diagram with dimensions and flow rates. Catalyst Specs attached list 9,193 acfm at exhaust temp of 1004F and Catalyst Dimensions of 35.875 by 14.875 by 3.50 inches	
7. Guaranteed minimum collection efficiency for each pollutant collected: The catalyst manufacturer list 33% reduction efficiency for CO and 29% reduction efficiency for VOCs	
8. Attached efficiency curve and/or other efficiency information. NA	
9. Design inlet volume: 3316 SCFM	10. Capacity: NA
11. Indicate the liquid flow rate and describe equipment provided to measure pressure drop and flow rate, if any. No liquid flow associated with this catalytic converter and although pressure drop may be measured periodically, the inlet and outlet temperature will be measured continuously by this unit in order to assess performance with manufacturer's operating requirements.	
12. Attach any additional data including auxiliary equipment and operation details to thoroughly evaluate the control equipment. NA	
13. Description of method of handling the collected material(s) for reuse of disposal. NA	

Gas Stream Characteristics

14. Are halogenated organics present?	☐ Yes	☒ No
Are particulates present?	☐ Yes	☒ No
Are metals present?	☐ Yes	☒ No

15. Inlet Emission stream parameters:	**Maximum**	**Typical**
Pressure (mmHg):	NA	
Heat Content (BTU/scf):	NA	
Oxygen Content (%):	8.4-9.1 %	
Moisture Content (%):	NA	
Relative Humidity (%):	NA	

16. Type of pollutant(s) controlled: ☐ SO_x ☐ Odor
☐ Particulate (type): ☒ Other CO, VOC

17. Inlet gas velocity: 41.3 ft/sec

18. Pollutant specific gravity:

19. Gas flow into the collector:
9193 cfm ACF @ 1004°F

20. Gas stream temperature:
Inlet: 750-1350 °F
Outlet: 1004-1350 °F

21. Gas flow rate:
Design Maximum: 9193 ACFM
Average Expected: ACFM

22. Particulate Grain Loading in grains/scf:
Inlet: NA
Outlet:

23. Emission rate of each pollutant (specify) into and out of collector:

Pollutant	IN Pollutant		Emission Capture Efficiency %	OUT Pollutant		Control Efficiency %
	lb/hr	grains/acf		lb/hr	grains/acf	
A CO	9.13		100	6.09		33
B VOC	2.98		100	2.12		29
C						
D						
E						

24. Dimensions of stack: Height 12 ft. Diameter 0.83 ft.

25. Supply a curve showing proposed collection efficiency versus gas volume from 25 to 130 percent of design rating of collector. NA

Particulate Distribution

26. Complete the table:	Particle Size Distribution at Inlet to Collector	Fraction Efficiency of Collector
Particulate Size Range (microns)	Weight % for Size Range	Weight % for Size Range
0 – 2		
2 – 4		
4 – 6		
6 – 8		
8 – 10		
10 – 12		
12 – 16		
16 – 20		
20 – 30		
30 – 40		
40 – 50		
50 – 60		
60 – 70		
70 – 80		
80 – 90		
90 – 100		
>100		

27. Describe any air pollution control device inlet and outlet gas conditioning processes (e.g., gas cooling, gas reheating, gas humidification): NA

28. Describe the collection material disposal system: NA

29. Have you included ***Other Collectores Control Device*** in the Emissions Points Data Summary Sheet? Yes

30. **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:
The inlet and outlet catalyst temperatures will be measured to assure proper operation in accordance with manufacturer's specifications	All maintenance records will be maintained and made available upon request.
REPORTING: Any malfunctions of control equipment that cause an emission exceedance will be reported to the Director of the WV DAQ. Additionally, the stack testing compliance demonstration results will be reported in accordance with 40CFR60, subpart JJJJ	TESTING: The engine will be tested to verify compliance with NSPS JJJJ emission limitations for NOx, CO, and VOCs. This shall consist of an initial test as well as ongoing periodic testing.

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.

31. Manufacturer's Guaranteed Control Efficiency for each air pollutant. 33% reduction efficiency for CO, 29% reduction efficiency for VOCs

32. Manufacturer's Guaranteed Control Efficiency for each air pollutant. Same as #31

33. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

NA

AIR POLLUTION CONTROL DEVICE
Vapor Combustion Control Device Sheet

Complete this vapor combustion control device sheet for each enclosed combustion device, flare, thermal oxidizer, or completion combustion device that is located at the natural gas production pad for the purpose of thermally destructing waste gas to control emissions of regulated pollutants to the atmosphere.

IMPORTANT: READ THE INSTRUCTIONS ACCOMPANYING THIS FORM BEFORE COMPLETING.

General Information

1. Control Device ID#: F-1	2. Installation Date: 2017 ☒ New	
3. Maximum Rated Total Flow Capacity: 2,000 scfh 48,000 scfd	4. Maximum Design Heat Input: 2 MMBtu/hr	5. Design Heat Content: 1,000 BTU/scf

Control Device Information

6. Select the type of vapor combustion control device being used: ☐ Enclosed Combustion Device ☐ Elevated Flare ☒ Ground Flare ☐ Thermal Oxidizer ☐ Completion Combustion Device

7. Manufacturer: The Frederick Logan Company, Inc	8. Hours of operation per year: 8760

9. List the emission units whose emissions are controlled by this vapor combustion control device: (Emission Point ID#: 4e)

10. Emission Unit ID#	Emission Source Description:	Emission Unit ID#	Emission Source Description:
RSV-1	Dehy Reboiler Still Vent and Dehy TEG Flash Separator		

If this vapor combustor controls emissions from more than six emission units, please attach additional pages.

11. Assist Type	12. Flare Height	13. Tip Diameter	14. Was the design per §60.18?
☐ Steam - ☐ Air - ☐ Pressure - ☒ Non -	20 ft	To Be Determined	☒ Yes ☐ No

Waste Gas Information

15. Maximum waste gas flow rate (scfm):	16. Heat value of waste gas stream (BTU/ft3)	17. Temperature of the emissions stream (°F)	18. Exit Velocity of the emissions stream (ft/s)
33.33	200 or greater	1450	14.7

19. Provide an attachment with the characteristics of the waste gas stream to be burned.

Pilot Information

20. Type/Grade of pilot fuel:	21. Number of pilot lights:	22. Fuel flow rate to pilot flame per pilot (scf/hr):	23. Heat input per pilot (BTU/hr):	24. Will automatic re-ignition be used?
Fuel Gas	1	5	5000	☒ Yes ☐ No

25. If automatic re-ignition will be used, describe the method: Electronic re-ignition will be installed and monitored for proof of pilot flame through flame ionization, auto relight.

26. Describe the method of controlling flame: Temperature monitoring of combustion chamber to keep between 1450F and 1600F

27. Is pilot flame equipped with a monitor to detect the presence of the flame?	28. If yes, what type?
☒ Yes ☐ No	☐ Thermocouple ☐ Infra-Red ☐ Ultra Violet ☐ Camera with monitoring control room ☒ Other, describe: Ionization rod which sends a signal to controller as long as it is in contact with the flame.

29. Pollutant(s) Controlled	30. % Capture Efficiency	31. Manufacturer's Guaranteed Control Efficiency (%)
VOC	100	98

32. Has the control device been tested by the manufacturer and certified? No

33. Describe all operating ranges and maintenance procedures required by the manufacturer to maintain warranty: Available Upon request

34. Additional Information Attached? ☒ **YES** ☐ **NO**

Please attach a copy of manufacturer's data sheet.
Please attach a copy of manufacturer's drawing.
Please attach a copy of the manufacturer's performance testing.

If any of the requested information is not available, please contact the manufacturer.

INSTRUCTIONS:
Vapor Combustion Control Device

This form assumes one vapor combustion control device emissions are being released from the emission point identification number (including the waste gas emissions and pilot emissions). If multiple vapor combustion control devices are being used at the oil and natural gas production facility, a vapor control device sheet must be completed for each device. The same form is being used for all types of vapor combustion control devices.

General Information

1. Enter the control device ID#(s) that has been assigned to this control device. A unique control device identification number should identify each control device located at the affected facility.
2. Enter the date that the control device was installed at the affected facility. Include the month, day, and year. If this is a new control device that has yet to be installed, check the "NEW" box.
3. Enter the maximum rated total flow rate of the vapor combustion device. This includes the flow rate of all materials to be burned including the pilot fuel and the waste gas.
4. Enter the maximum rated design heat input capacity of the vapor combustion device in terms of million British thermal units per hour (MMBtu/hr).
5. Enter the total design heat content of the pilot in terms of million British thermal units per hour (MMBtu/hr).

Control Device Information

6. Indicate the type of vapor combustion device that applies.
7. Enter the manufacturer and model number of the control device.
8. Enter the hours of operation that the control device is planned to be used. This should be the same basis as the emissions calculations.
9. Enter the emission point identification number.
10. Enter ALL of the emission units whose emissions will be controlled and then emitted from the control device.
11. Select whether the flare is steam-assisted, air-assisted, pressure-assisted, or non-assisted.
12. Enter the height of the stack in terms of feet.
13. Enter the tip diameter (in feet) of the top of the stack where the emissions are discharged.
14. Is the applicant having the combustion device designed per §60.18? Only flares required by an NSPS standard are required to be designed and operated in accordance with §60.18.

Waste Gas Information

The waste gas is the vapor emissions that are being controlled.

15. Enter the waste gas flow rate in cubic feet per minute that is being consumed.
16. Enter the heat content of the waste gas being combusted in units of BTU per cubic feet.
17. Enter the minimum temperature of the emissions stream (°F).
18. Enter the velocity in feet per second of the gas as it discharges from the top of the stack.
19. Provide the characterization of the waste gas stream that is being controlled. This could be a certificate of analysis of the natural gas from this facility or from a similar facility. This is the basis of the emissions calculations.

Pilot Information

20. Enter the type/grade(s) of fuel that will combusted in the combustion flare's pilot (examples: natural gas pipeline quality, propane, etc.).
21. How many pilot lights does the device have?
22. What is the fuel capacity for each pilot?
23. What is the heat input for each pilot?
24. Is the system designed with automatic re-ignition?
25. Describe the re-ignition method and system.
26. Describe the method of controlling the pilot flame.
27. Is the pilot flame equipped with a monitoring device?
28. What is the monitoring device for the pilot flame?

**continued next page*

Control Information

29. Enter the types of pollutants that the control equipment controls (i.e., reduces). If numerous pollutants are controlled, indicate the different pollutants controlled in line with their respective control efficiencies.
30. What is the % capture efficiency of the collection system to the control device? In other words, what is the percentage of the waste gas stream will be controlled?
31. Enter the control efficiency of the control equipment for each pollutant being controlled. The manufacturer typically provides a manufacturer's minimum guarantee control efficiency. Provide the manufacturer's data sheet that documents the minimum guarantee.
32. Please answer if the control device had a performance test conducted by the manufacturer and if it is certified.
33. Describe the manufacturer's operating and maintenance requirements that the guaranteed control efficiency is based upon.
34. Please include any additional information associated with the control device you feel should be submitted with this application. Please attach a copy of the manufacturer's data sheet. Please include the manufacturer's performance testing.

ATTACHMENT N

SUPPORTING EMISSIONS CALCULATIONS

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017

Table 1. Annual Potential To Emit (PTE)
CONE Midstream Partners LP

Total Point Source Emissions for Cain Run (Laverne) Station

Source	PM	PM10	PM2.5	SO2	NOx	CO	VOC	CO2e
Slop/Brine Tank (tons/yr)	--	--	--	--	--	--	0.00	--
Dehy Reboiler Burner (tons/yr)	0.01	0.01	0.01	0.00	0.16	0.14	0.01	192
Dehydration/Ground Flare (ton/yr)	--	--	--	0.04	0.60	2.72	1.23	1,024
MicroTurbine (ton/yr)	--	--	--	--	0.08	0.24	0.03	222
Compressor Engine (tons/yr)	0.45	0.45	0.45	0.03	13.33	26.65	9.33	6,947
Compressor Blowdowns (tons/yr)	--	--	--	--	--	--	1.19	158
Pigging Blowdown Emissions (tons/yr)	--	--	--	--	--	--	0.80	106
Desiccant Dehy Blowdown Emissions (tons/yr)	--	--	--	--	--	--	2.29	305
Total Point Source Emissions (ton/yr)	0.46	0.46	0.46	0.06	14.17	29.75	14.88	8,955
(lb/hr)	0.10	0.10	0.10	0.01	3.23	6.79	3.40	2,045

Fugitive Emissions

Source	PM	PM10	PM2.5	SO2	NOx	CO	VOC	CO2e
Truck Loading (ton/yr)	--	--	--	--	--	--	0.00	--
Piping Fugitives (ton/yr)	--	--	--	--	--	--	1.74	29
Total Emissions	0.000	0.000	0.000	0.000	0.000	0.000	1.740	29

External emission sources within 1/4 mile radius of Cain Run (Laverne) Station (CNX - Oxford 11 Well Pad)

Source	PM	PM10	PM2.5	SO2	NOx	CO	VOC	CO2e
Tanks with VDU 98% DRE (ton/yr)	--	--	--	--	--	--	1.450	--
Gas Processing Units (ton/yr)	0.196	0.196	0.196	0.015	2.576	2.164	0.142	3075.020
Line heaters (ton/yr)	0.082	0.082	0.082	0.006	1.074	0.902	0.059	1281.258
Low Pressure Separator (ton/yr)	0.016	0.016	0.016	0.001	0.215	0.180	0.012	256.252
Vapor Destruction Unit (VDU) (tons/yr)	--	--	--	0.181	5.378	24.519	11.073	9215.319
Process Flare (ton/yr)	--	--	--	0.011	0.188	0.855	1.077	314.101
Thermoelectic Burner (ton/yr)	--	--	--	--	0.005	0.002	--	--
Truck Loading (ton/yr)	--	--	--	--	--	--	1.763	--
Piping Fugitives (ton/yr)	--	--	--	--	--	--	21.865	238.979
Total Point Source Emissions (ton/yr)	0.29	0.29	0.29	0.22	9.44	28.62	14.13	14380.93
Total Point Source Emissions (lb/hr)	0.07	0.07	0.07	0.05	2.15	6.53	3.23	3283.32

Table C-1. Tank Emissions
CONE Midstream Partners LP

Emission Unit	Tank Contents	Control Devices	Tank Throughput (bbls/day)	Flashing and W&B Emissions (lb/hr) *(a)*	Uncontrolled VOC Emissions (ton/yr)
T-1	Brine Tank	None	3.29	0.000	0.000
Total				**0.000**	**0.000**

(a) Emissions are taken from ProMax 4.0. combination of the flashing and working/ breathing losses determinted from representative site sampling at Cain Run Station

Notes:

Promax Results Summary (Complete results located in Attachment I)

Water Tank Vented Emissions

Pollutant	lb/hr
Propane	0.00
i-Butane	0.00
n-Butane	0.00
i-Pentane	0.00
n-Pentane	0.00
Hexane	0.00
Isohexane	0.00
Neohexane	0.00
2,2,4-Trimethylpentane	0.00
Benzene	0.00
Heptane	0.00
Toluene	0.00
Octane	0.00
Ethylbenzene	0.00
o-Xylene	0.00
Nonane	0.00
Decane	0.00
VOCs	**0.00**

Produced Water based on

	50,400	gal/yr
	1200.00	bbl/yr
	3.29	bbl/day
	0.14	bbl/hr
GWR	0.00	VOC/bbl Water

Table C-2 Reboiler Burner (RBV-1) Rates and Emissions
CONE Midstream Partners LP

Pollutant	Emission Factor			Emissions (lbs/hr)	Emissions (tons/yr)
Criteria Pollutants					
PM/PM10/PM2.5	7.6	lb/MMcf	(1)	0.003	0.012
SO_2	0.6	lb/MMcf	(1)	0.000	0.001
NOx	100	lb/MMcf	(2)	0.04	0.16
CO	84	lb/MMcf	(2)	0.03	0.14
VOC	5.5	lb/MMcf	(1)	0.002	0.009
Hazardous Air Pollutants					
Arsenic	2.0E-04	lb/MMcf	(3)	7.35E-8	3.22E-7
Benzene	2.1E-03	lb/MMcf	(4)	7.72E-7	3.38E-6
Beryllium	1.2E-05	lb/MMcf	(3)	4.41E-9	1.93E-8
Cadmium	1.1E-03	lb/MMcf	(3)	4.04E-7	1.77E-6
Chromium	1.4E-03	lb/MMcf	(3)	5.15E-7	2.25E-6
Cobalt	8.4E-05	lb/MMcf	(3)	3.09E-8	1.35E-7
Dichlorobenzene	1.2E-03	lb/MMcf	(4)	4.41E-7	1.93E-6
Formaldehyde	7.5E-02	lb/MMcf	(4)	2.76E-5	1.21E-4
Hexane	1.8E+00	lb/MMcf	(4)	6.62E-4	2.90E-3
Lead	5.0E-04	lb/MMcf	(3)	1.84E-7	8.05E-7
Manganese	3.8E-04	lb/MMcf	(3)	1.40E-7	6.12E-7
Mercury	2.6E-04	lb/MMcf	(3)	9.56E-8	4.19E-7
Naphthalene	6.1E-04	lb/MMcf	(4)	2.24E-7	9.82E-7
Nickel	2.1E-03	lb/MMcf	(3)	7.72E-7	3.38E-6
PAH/POM	1.3E-03	lb/MMcf	(4)	4.74E-7	2.07E-6
Selenium	2.4E-05	lb/MMcf	(3)	8.82E-9	3.86E-8
Toluene	3.4E-03	lb/MMcf	(4)	1.25E-6	5.48E-6
Total HAP	**1.9E+00**	**lb/MMCF**		6.95E-4	3.04E-3
Greenhouse Gas Emissions					
CO_2	116.89	lb/MMBtu	(5)	4.38E+1	1.92E+2
CH_4	2.2E-03	lb/MMBtu	(5)	8.27E-4	3.62E-3
N_2O	0.0	lb/MMBtu	(5)	8.27E-5	3.62E-4
CO_2e (b)	-	-		43.8787	192.1888

Calculations:

(a) Annual emissions (tons/yr) = [Annual Usage (MMBtu/yr or MMCF/yr)]x [Number of Identical Heaters] x [Emission Factor (lb/MMBtu or lb/MMCF)] / [2,000 lb/ton]

Number of Line Heaters=	1	
Fuel Use (MMBtu/hr) =	0.375	
Hours of Operation (hr/yr)=	8760	
PTE Fuel Use (MMcf/yr) =	3.2	(7)

(b) CO_2 equivalent = [(CO_2 emissions)*(GWP_{CO2})]+[(CH_4 emissions)*(GWP_{CH4})]+[(N_2O emissions)*(GWP_{N2O})]

Global Warming Potential (GWP)

CO_2	1	(6)
CH_4	25	(6)
N_2O	298	(6)

Notes:

(1) AP-42, Chapter 1.4, Table 1.4-2. Emission Factors For Criteria Pollutants and Greenhouse Gases From Natural Gas Combustion, July 1998.

(2) AP-42, Chapter 1.4, Table 1.4-1. Emission Factors For Nitrogen Oxides (Nox) and Carbon Monoxide(CO) From Natural Gas Combustion, July 1998.

(3) AP-42, Chapter 1.4, Table 1.4-4. Emission Factors For Metals From Natural Gas Combustion, July 1998.

(4) AP-42, Chapter 1.4, Table 1.4-3. Emission Factors for Speciated Organic Compounds from Natural Gas Combustion, July 1998.

(5) Emission factors are from 40 CFR 98, Subpart C, Table C-1 and C-2.

(6) Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-1

(7) MMBtu to MMcf conversion factor is 1020. AP-42, Chapter 1.4

Table C-2a. TEG Dehydration Units with Ground Flare Control System
CONE Midstream Partners LP

Stream	Uncontrolled Emission Rates			Controlled Rates	
Components	lb/hr	lb/d	tpy	lb/hr	tpy
Methane	3.3	79.5	14.5	0.07	0.29
Ethane	2.4	57.7	10.5	0.05	0.21
Propane	1.4	33.5	6.1	0.03	0.12
n-Hexane	0.2	5.8	1.1	0.00	0.02
Benzene	0.2	5.0	0.9	0.00	0.02
Toluene	0.7	17.2	3.1	0.01	0.06
Ethylbenzene	0.2	4.2	0.8	0.00	0.02
Xylene	0.7	16.1	2.9	0.01	0.06
VOC	7.0	167.6	30.6	0.14	**0.61**
Total HAPs	2.0	48.4	8.8	0.04	**0.18**
CO2e				1.7	**7.3**

Emission estimates were calculated using ProMax Software. The ProMax Simulation Report is provided within supporting attachments.

Specs

20 MMscf/d dehy
1.5 gpm TEG max pump rate (Kimray 9015)
Column Pressure 955 psig
Column Temperature 112 F
Wet gas water content - 74.96 lb Water/MMscf Gas
Dry gas water content - 4.93 lb H20/ MMscf
Flash Tank Temperature 149 F
Flash Tank Pressure 60 psia

Table C-3 Ground Flare Emissions
CONE Midstream Partners LP

Pollutant	Emission Factor (lb/MMBtu)	Volume (scf/hr)	Gas Heat Value (Btu/scf)	(MMBtu/ 1000000Btu)	Emissions (lbs/hr)	Emissions (ton/yr)
CO	0.31	2,000	1,000	(1/1,000,000)	0.62	2.72
NOx	0.068	2,000	1,000	(1/1,000,000)	0.14	0.60
VOC[a]	0.14	2,000	1,000	(1/1,000,000)	0.28	1.23
CO2e	116.89	2,000	1,000	(1/1,000,000)	233.78	1023.96

[a] - Measured as methane equivalent, assumed worst case

Example Formula:

$$emissions\left(\frac{ton}{yr}\right) = emission\,factor\left(\frac{lb}{MMBtu}\right) \times Volume\left(\frac{scf}{hr}\right) \times gas\,heat\,value\left(\frac{Btu}{scf}\right) \times \frac{MMBtu}{1{,}000{,}000\,Btu} \times \frac{8760\,hrs}{1\,yr} \times \frac{1\,ton}{2{,}000\,lbs}$$

Emission Factor = AP-42 Tables 13.5-1 and 2 emission factor for specific pollutant
Volume = 2000 scf/hr set to equate to 2 MMBtu/hr Ground Flare rating
Hours of operation calculated at 8760
Gas Heat Value = 1866 Btu/scf taken from tank header sample taken 6-10-16

Pollutant	Volume (scf/hr)	grain H2S/ 100 scf	Mol Fraction	Mol weight (g/mol)	(lb-mol /scf)	Emissions (lbs/hr)	Emissions (ton/yr)
SO2	2,000	15.26	0.0002423	64.00	1/379.4	0.0818	0.0358

Example Formula:

$$emissions\left(\frac{ton}{yr}\right) = Volume\left(\frac{scf}{hr}\right) \times mol\,fraction\left(\frac{H2S}{100\,scf} \times 0.00001588\right) \times molecular\,weight \times \frac{lb\text{-}mol}{scf} \times \frac{876\,hrs}{1\,yr} \times \frac{1\,ton}{2{,}000\,lbs}$$

$$\frac{1\,grain\,H2S}{100\,scf} = 15.26\,ppm\,of\,H2S$$

H2S conversion taken from supporting Sulfur Measurement Handbook
grain H2S/100 scf = 15.26
Volume = 8333 scf/hr
Hours of operation calculated at 8760
1 lb mol = 379.4 cubic feet

For Pilot Light

Pollutant	Emission Factor (lb/MMBtu)	Volume (scf/hr)	Gas Heat Value (Btu/scf)	(MMBtu/ 1000000Btu)	Emissions (lbs/hr)	Emissions (ton/yr)
CO	0.31	5	1,197	(1/1,000,000)	0.0019	0.0081
NOx	0.068	5	1,197	(1/1,000,000)	0.0004	0.0018
VOC[a]	0.14	5	1,197	(1/1,000,000)	0.0008	0.0037

[a] - Measured as methane equivalent, assumed worst case

Example Formula:

$$emissions\left(\frac{ton}{yr}\right) = emission\,factor\left(\frac{lb}{MMBtu}\right) \times Volume\left(\frac{scf}{hr}\right) \times gas\,heat\,value\left(\frac{Btu}{scf}\right) \times \frac{MMBtu}{1{,}000{,}000\,Btu} \times \frac{8760\,hrs}{1\,yr} \times \frac{1\,ton}{2{,}000\,lbs}$$

Emission Factor = AP-42 Tables 13.5-1 and 2 emission factor for specific pollutant
Gas Heat Value = 1197 Btu/scf average of two sales gas samples taken 6-10-16

Pollutant	Volume (scf/hr)	grain H2S/ 100 scf	Mol Fraction	Mol weight (g/mol)	(lb-mol /scf)	Emissions (lbs/hr)	Emissions (ton/yr)
SO2	5.00	15.26	0.0002423	64.00	1/379.4	0.0002	0.0009

Example Formula:

$$emissions\left(\frac{ton}{yr}\right) = Volume\left(\frac{scf}{hr}\right) \times mol\,fraction\left(\frac{H2S}{100\,scf} \times 0.00001588\right) \times molecular\,weight \times \frac{lb\text{-}mol}{scf} \times \frac{8760\,hrs}{1\,yr} \times \frac{1\,ton}{2{,}000\,lbs}$$

$$\frac{1\,grain\,H2S}{100\,scf} = 15.26\,ppm\,of\,H2S$$

H2S conversion taken from supporting Sulfur Measurement Handbook
grain H2S/100 scf = 15.26

1 lb mol = 379.4 cubic feet

Ground Flare and Pilot Combined		
Pollutant	lb/hr	ton/yr
CO	**0.622**	**2.724**
Nox	**0.136**	**0.597**
VOC	**0.281**	**1.230**
SO2	**0.082**	**0.037**

Table C-4 MicroTurbine (MT-1) Emissions
CONE Midstream Partners LP

Pollutant	Emission Factor (lb/MWhe)	Power Rating (kW)	Conversion (MW/kW)	Emissions (lbs/hr)	Emissions (ton/yr)
NOx	0.64	30	(1/1,000)	0.02	0.08
CO	1.80	30	(1/1,000)	0.05	0.24
VOC	0.23	30	(1/1,000)	0.01	0.03
CO2	1690.00	30.00	(1/1,000)	50.70	222.07

Example Formula:

NOx (lb/hr) = Emiss Factor (lb/MWhe) * Power (kW) * Conv Factor (MW/kW)

MWhe = Mega Watt Hour electrical power

Emission factor comes from Capstone Technical Reference for MicroTurbine System at Maximum Exhaust Emissions, Table 1.

Table C-5 Compressor Engine Emissions (CE-1)
Caterpillar G3516BLE; 4SLB
CONE Midstream Partners LP

Pollutant	Emission Factor			PTE (lb/hr)		PTE (tons/yr)	
Criteria Pollutants							
PM/PM10/PM2.5**	9.98E-03	lb/MMBtu	(1)	0.10	(a)	0.45	(c)
SO_2	5.88E-04	lb/MMBtu	(1)	0.01	(a)	0.03	(c)
NOx	1.00E+00	g/hp-hr	(2)	3.04	(b)	13.33	(d)
CO	2.00E+00	g/hp-hr	(2)	6.08	(b)	26.65	(d)
VOC	7.00E-01	g/hp-hr	(2)	2.13	(b)	9.33	(d)
Hazardous Air Pollutants							
1,1,2,2-Tetrachloroethane	4.00E-05	lb/MMBtu	(1)	0.000	(a)	0.002	(c)
1,1,2-Trichloroethane	3.18E-05	lb/MMBtu	(1)	0.000	(a)	0.001	(c)
1,3-Butadiene	2.67E-04	lb/MMBtu	(1)	0.003	(a)	0.012	(c)
1,3-Dichloropropene	2.64E-05	lb/MMBtu	(1)	0.000	(a)	0.001	(c)
2-Methylnapthalene	3.32E-05	lb/MMBtu	(1)	0.000	(a)	0.001	(c)
2,2,4-Trimethylpentane	2.50E-05	lb/MMBtu	(1)	0.000	(a)	0.001	(c)
Acetaldehyde	8.36E-03	lb/MMBtu	(1)	0.086	(a)	0.375	(c)
Acrolein	5.14E-03	lb/MMBtu	(1)	0.053	(a)	0.230	(c)
Benzene	4.40E-04	lb/MMBtu	(1)	0.005	(a)	0.020	(c)
Biphenyl	2.12E-03	lb/MMBtu	(1)	0.022	(a)	0.095	(c)
Carbon Tetrachloride	3.67E-05	lb/MMBtu	(1)	0.000	(a)	0.002	(c)
Chlorobenzene	3.04E-05	lb/MMBtu	(1)	0.000	(a)	0.001	(c)
Chloroform	2.85E-05	lb/MMBtu	(1)	0.000	(a)	0.001	(c)
Ethylbenzene	3.97E-05	lb/MMBtu	(1)	0.000	(a)	0.002	(c)
Ethylene Dibromide	4.43E-05	lb/MMBtu	(1)	0.000	(a)	0.002	(c)
Formaldehyde	3.90E-01	g/hp-hr	(2)	1.187	(b)	5.197	(d)
Methanol	2.50E-03	lb/MMBtu	(1)	0.026	(a)	0.112	(c)
Methylene Chloride	2.00E-05	lb/MMBtu	(1)	0.000	(a)	0.001	(c)
n-Hexane	1.11E-03	lb/MMBtu	(1)	0.011	(a)	0.050	(c)
Naphthalene	7.44E-05	lb/MMBtu	(1)	0.001	(a)	0.003	(c)
PAH (POM)	2.69E-05	lb/MMBtu	(1)	0.000	(a)	0.001	(c)
Phenol	1.04E-05	lb/MMBtu	(1)	0.000	(a)	0.000	(c)
Styrene	2.36E-05	lb/MMBtu	(1)	0.000	(a)	0.001	(c)
Toluene	4.08E-04	lb/MMBtu	(1)	0.004	(a)	0.018	(c)
Vinyl Chloride	1.49E-05	lb/MMBtu	(1)	0.000	(a)	0.001	(c)
Xylenes	1.84E-04	lb/MMBtu	(1)	0.002	(a)	0.008	(c)
Total HAP				**1.402**		**6.140**	
Greenhouse Gas Emissions						Metric Tonne/yr	
CO_2	5.13E+02	g/hp-hr	(2)	1560.71	(b)	6214.48	(d)
CH_4	2.41E+00	g/hp-hr	(2)	7.33	(b)	29.19	(d)
N_2O	2.2E-04	lb/MMBtu	(3)	0.00	(a)	0.01	(c)
CO_2e [(e)]	-	-		1744.69		6947.29	

** includes condensible PM

Calculations:

Hourly Emissions - If emission factor note 1 is used, use calculation (a). If emission factor note 2 is used, use calculation (b).

(a) Hourly Emissions (lb/hr) = Emission factor (lb/MMBtu) * (1MMBtu/1000000 Btu) * Engine Power Output (hp) * BSFC (Btu/hp-hr)

(b) Hourly Emissions (lb/hr) = Emission factor (g/hp-hr) * Engine Power Output (hp) * (lb/453.6g)

Annual Emissions - If emission factor note 1 is used, use calculation (c). If emission factor note 2 is used, use calculation (d).

(c) Annual emissions (tons/yr) = Emission factor (lb/MMBtu) * (1MMBtu/1000000Btu) * Engine Power Output (hp) * BSFC (Btu/hp-hr) * Annual Hours of operation (hr/yr) * (1ton/2000lbs)

(d) Annual emissions (tons/yr) = Emission factor (g/hp-hr) * Engine Power Output (hp) * Annual Hours of operation (hr/yr) * (1ton/2000lbs) * (lb/453.6g)

MAXIMUM HOURLY EMISSION INPUTS

Engine Power Output (kW) =	1029	
Engine Power Output (hp) =	1,380	
Number of Engines =	1	
BSFC (BTU/HP-hr) =	7,417	(4)
Heat Content Natural Gas(Btu/scf) =	1,171.0	(5)
Fuel Throughput (ft3/hr) =	8,740.8	(6)
PTE Hours of Operation =	8,760	

(e) CO_2 equivalent = [(CO_2 emissions)*(GWP_{CO2})]+[(CH_4 emissions)*(GWP_{CH4})]+[(N_2O emissions)*(GWP_{N2O})]

Global Warming Potential (GWP)

CO_2	1	(7)
CH_4	25	(7)
N_2O	298	(7)

Notes:

(1) AP-42, Chapter 3.2, Table 3.2-2. Natural Gas-fired Reciprocating Engines (7/00). *Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines.*

(2) Emission factors supplied from manufacturer's specification sheet

(3) Emission factors supplied from 40 CFR 98, Subpart C, Table C-1 and C-2.

(4) Fuel consumption from manufacturer's specification sheet.

(5) Value obtained from AP-42, Chapter 3.2, Table 3.2-1, footnote b

(6) Fuel throughput = BSFC (BTU/HP-hr) x Power (HP) / Heat Content (BTU/scf)

(7) Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-1

Table C-6 Compressor Blowdown Venting Emissions
Caterpillar G3516BLE; 4SLB
CONE Midstream Partners LP

Pollutant	Volume (scf/event)	Moles (lbmol)	Molecular Weight of Gas	lbs VOC/event	Events per Year	Emissions (lbs/hr)	Emissions (ton/yr)
VOC[a]	6,163	16.01	19.61	40	60	39.68	1.19
CO2e						36.30	158.42

Measured VOC content of GPU Gas 12.64 % wt. and methane = 67.29 % wt. from 6-10-16 FESCO sampling.

Table C-6a. Compressor Blowdown Venting
CONE Midstream Partners LP

3516B, 1-Stage (Note: assumed ideal gas behavior and used OD for volume calc)

ENTER the following Values:

Suction Pressure, psig	330	Suction Temperature, F	70	
InterstageP	492		145	1st Stage disch temp
			242	2nd Stage disch temp
Discharge Pressure, psig	920	Discharge Temperature, F	130	

Cylinders	Bore, in	Stroke, in	Rod Diameter, in	Pocket Clearance,	Total	Temperature, R	Pressure, psig	Calculated Moles	section volumes FT3 @ STP
1st Stage Cylinder	14.13	4.50	2.00	0.00	691	604	492	0.03	12
1st Stage Cylinder (blank case)	14.13	4.50	2.00	0.00	691	604	330	0.02	8
2nd Stage Cylinder	9.63	4.50	2.00	0.00	313	701	920	0.02	9
2nd Stage Cylinder	6.25	4.50	2.00	0.00	124	701	920	0.01	3
Scrubbers/Suction & Discharge Drums	**OD, in**	**Height/Length, in**	**Total Volume, in^3**			**Temperature, R**	**Pressure, psig**	**Calculated Moles**	
1st Stage Scrubber	36.00	70.00	71251			529	330	2.50	967
1st Stage Suction Drum	24.00	72.00	32572			529	330	1.14	442
1st Stage Discharge Drum	20.00	123.00	38642			604	492	1.75	675
2nd Stage Scrubber	30.00	68.00	48066			589	492	2.23	861
2nd Stage Suction Drum	16.00	30.00	6032			589	492	0.28	108
2nd Stage Discharge Drum	20.00	58.00	18221			701	920	1.31	506
2nd Stage Scrubber2	20.00	63.00	19792			589	492	0.92	355
2nd Stage Suction Drum2	12.75	30.00	3830			589	492	0.18	69
2nd Stage Discharge Drum2	20.00	51.00	16022			701	920	1.15	445
Cooler Section	**No. of Tubes**	**OD, in**	**Length, in**	**Total Tube Volume, in^3**		**Temperature, R**	**Pressure, psig**	**Calculated Moles**	
1st Stage Cooler Section	62	0.75	288	7889		604	492	0.36	138
2nd Stage Cooler Section1	78	1.00	288	17643		701	920	1.27	490
2nd Stage Cooler Section2	70	0.63	288	6185		701	920	0.44	172
Piping	**OD, in**	**Length, in**	**Total Piping Volume, in^3**			**Temperature, R**	**Pressure, psig**	**Calculated Moles**	
1st Stage Piping	10.00	118	9268			529	330	0.33	126
2nd Stage Piping	6.00	255	7210			604	492	0.33	126
piping after Cooler	4.00	72	905			589	920	0.08	30
Bypass	3.00	265	1873			589	920	0.16	62
							Total Estimated Moles of Gas Discharged to Atmosphere per Blowdown =	14.51	
							Total Estimated Volume of Blowdown Gas, ft^3 @ STP (68F, 14.7 psia) =	5603	5603
								+10%	6163
								ACF, Feet Cubed	177.8

Table C-7 PIG Laincher Blowdown Venting Emissions
CONE Midstream Partners LP

Pollutant	Volume (scf/event)	Moles (lbmol)	Molecular Weight of Gas	lbs VOC/event	Events per Year	Emissions (lbs/hr)	Emissions (ton/yr)
VOC[a]	4,133	10.74	19.61	27	60	26.61	0.80
CO2e						24.26	106.24

Measured VOC content of GPU Gas 12.64 % wt. and methane = 67.29 % wt. from 6-10-16 FESCO sampling.

OXFORD-11 PAD PIG LAUNCHER BLOWDOWN VOLUME

SPOOLS	LOCATION	LENGTH	FT	PIPE OD	PIPE WT	PIPE ID	AREA, FT^2	VOL, FT^3
	INLET DOOR FLG	0'-8.375"		24	0.562	22.876	2.854	
10A	INLET w (1) FLANGE			24	0.562	22.876		
15	24X24 TEE	2'-10"		24	0.562	22.876		
	PAST TEE			24	0.562	22.876		
	SUM	10'-2.625"	10.219					29.167
18	24X20 REDUCER			24	0.562	22.876		
		20"	***20***	20	0.500	19		3.997
9A	NARROW BARREL	4'-24"	6	20	0.500	19	1.969	11.814
	24X24 TEE SIDE	0'-5"	0.417	24	0.562	22.876	2.854	1.189
17	24X12 REDUCER			24	0.562	22.876		
		1'-3.625"	***15.625***	12.75	0.375	12		2.230
	(1) 12" WNRF FLG	0'-6.25"	0.521			12	0.785	0.409
7A	12" SIDE off tee	7'-7.25"	7.604	12.75	0.375	12	0.785	5.972
2	12" LR 90 ELL		0.500	12.750	0.375	12	0.785	1.851
7B	12" to Cradle	1'-5"	1.417	12.75	0.375	12	0.785	1.113
7B	12" Cradle to Valve	11'-3.375"	11.281	12.75	0.375	12	0.785	8.860

LAUNCHER VOLUME = 66.600 ft^3

Pressure, psig	**950**
Temperature, ^oF	**90**

$$PV = nRT$$

BLOWDOWN VOLUME = **4,133** ft^3

Table C-8. Desiccant Dehydrator Blowdown Emissions
CONE Midstream Partners LP

GAS LOSS DESSICANT (GLD)

$$GLD = \frac{H * ID^2 * \pi * P_2 * \%G * 365\ days/yr}{4 * P_1 * T * 1{,}000\ cf/Mcf}$$

	2.00	Number of Dessicant beds			
ID	**55.00**	inches	4.58	*ID*	Inside Diameter (feet)
H	**120.00**	inches	10.00	*H*	Vessel height by vendor specification (feet)
%G	**55%**			*%G*	Percentage of gas volume in the vessel
P_1	**14**	psia		P_1	Atmospheric pressure (psia)
P_2	**1050**	psig		P_2	Gas pressure (psig)
T	**7**	days		*T*	Time between refilling (days)

GLD/Bed	**354.9**	**MCF/yr**		*GLD*	Desiccant dehydrator gas loss (Mcf/year)	
Total GLD	**709.7**	**MCF/yr**		1870.207	lb-mol/yr	**18.15 TPY**
Total GLD	**13649**	**scf/event**				
					VDU	
VDU (Y/N)	**n**		***Burn Efficiency***		**98%**	

TOTAL GAS LOSS EMISSIONS	**18.15**	**TPY**
VOC (NMNEHC) LOSS EMISSIONS	**2.29**	**TPY**
CO2e LOSS EMISSIONS	**305.25**	**TPY**

Each vessel holds 20 drums

(a)Promax Inlet Gas Composition used for wt % VOC at 12.64%

(b) Methane wt % taken as 67.29% from Promax gas inlet composition. CO2e factor of 25 applied for methane conversion

Table C-9. Truck Loading (TL) VOC Emissions
CONE Midstream Partners LP

Contents	Volume Transferred	Loading Loss [(a)] (lb VOC/1000gal)	PTE VOC Emissions (lb/hr)	PTE VOC Emissions (ton/yr) [(b)]
Salt Brine	50,400 gal/yr	0.000	0.000	0.000
Total			**0.000**	**0.000**

Calculations:

(a) Loading Loss (lbs/1000 gal) = 12.46x[Saturation Factor] x [True Vapor Pressure of Liquid Loaded (psia)] x[Molecular Weight of Vapors(lbs/lb-mole)]/ [Temperature of Bulk Liquid Loaded(°R)]

(b) Annual Emissions(tons/yr) = [Loading Loss (lb VOC/ 1000 gal)]*[Volume Transferred(gal/yr)]/1000/2000

	Water	
Saturation factor	0.60	Note [(1)]
Pvap (psia)	0.00	Note [(2)]
Molecular Weight (lb/lb-mol)	18.00	Note [(2)]
Bulk Liquid Tempurature (F)	60.00	Note [(2)]

Notes:

(1) AP-42 Section 5.2

(2) ProMax Oxford 11 - 1.096 BBLs of brine per day

Table C-10. Fugitive Leak Emissions
CONE Midstream Partners LP

Fugitive emissions from valves and fittings are calculated using the major equipment default component count approach from 40 CFR Part 98 because site-specific component counts have not been collected.

Pollutant	Emission Factor			PTE[(a) Gas Service] (tons/yr)
Valves	9.9E-03	lb/hr/source	(1)	7.39
Low Bleed Pneumatic Valves	9.9E-03	lb/hr/source	(1)	1.09
Flanges	8.6E-04	lb/hr/source	(1)	2.51
Connectors	4.4E-04	lb/hr/source	(1)	1.29
Other Points in Gas Service	1.9E-02	lb/hr/source	(1)	1.50
Total Gas Released	-	-		13.77
Total VOC Released (gas service)			(b)	**1.74**
Calculations:		**Total CO2e**	(c) (4)	29.27

(a) Annual emissions (tons/yr) = [Emission Factor (lb/hr/source)] x [Number of Sources] x [Hours of Operation per Year] x [0.0005 tons/ lb]

(b)Promax Inlet Gas Composition used for wt % VOC at 12.64%

(c) Methane wt % taken as 67.29% from Promax gas inlet composition. CO2e factor of 25 applied for methane conversion

Number of Components in Gas Service

Valves=	170	(2)
Low Bleed Pneumatic Valves=	25	(2)
Connectors=	666	(2)
Other Points in Gas Service =	8	(2)
Maximum Hour of Operation =	8,760	

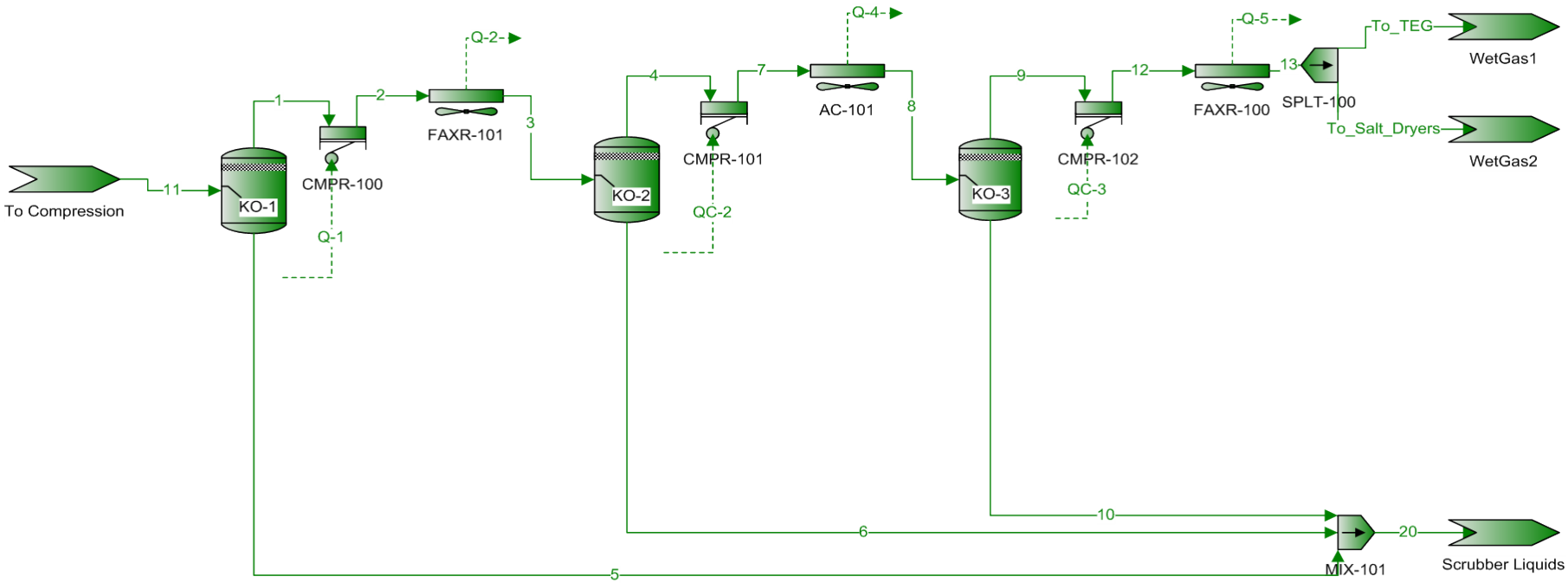
Notes:

(1) Emission factors from Table 2-4. Oil and Gas Production Operations Average Emission Factors, EPA's 1995 Protocol for Equipment Leaks Emission Estimates

(2) *Default Average Component Counts for Major Onshore Natural Gas Production Equipment* from 40 CFR 98, Subpart W, Table W-1B - Plus varibility factor of 2

(4) Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-1

Cat G3516 Compressor



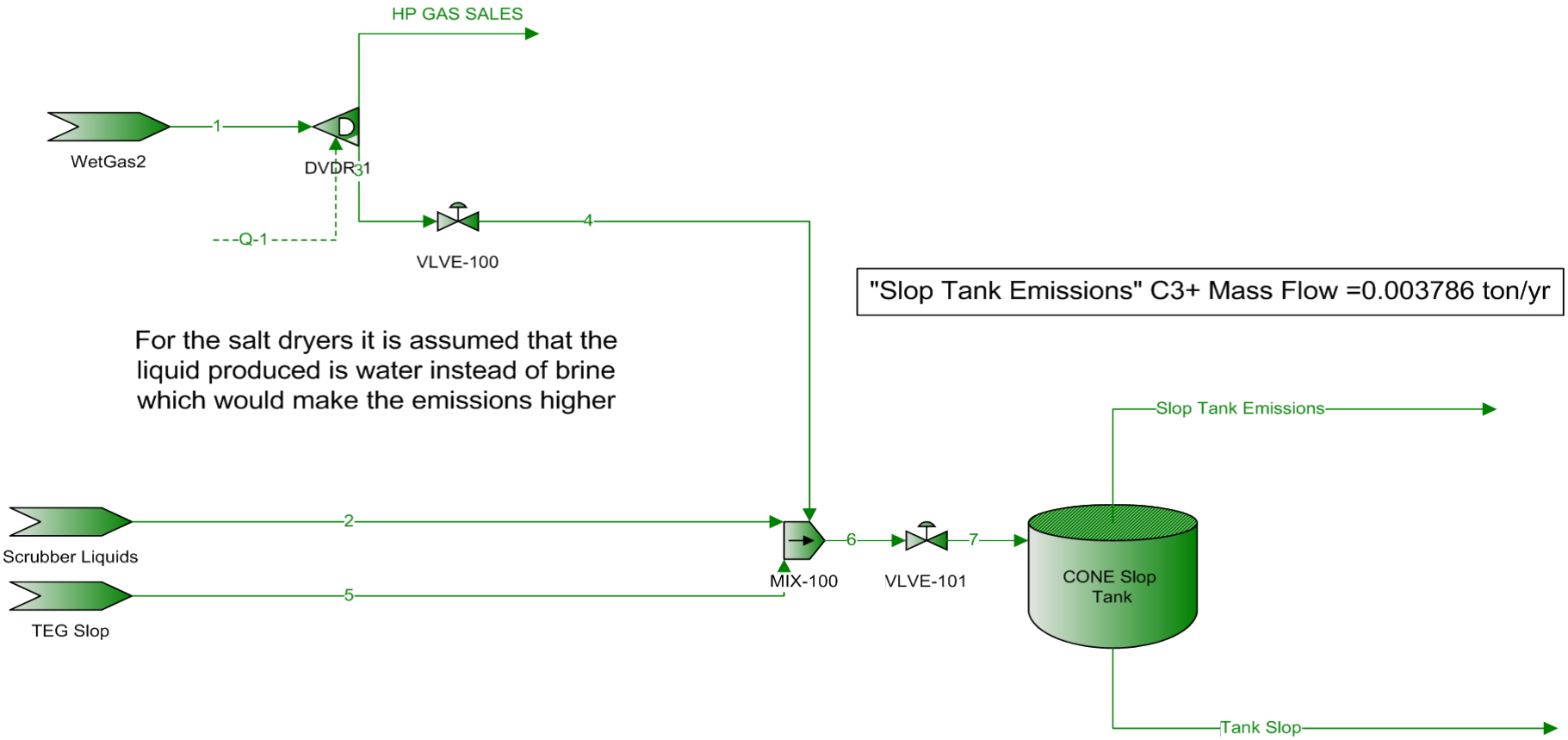
Process Streams		To_Salt_Dryers	To_TEG	1	2	3	4	5	6	7	8	9	10	11	12	13	20
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	SPLT-100	SPLT-100	KO-1	CMPR-100	FAXR-101	KO-2	KO-1	KO-2	CMPR-101	AC-101	KO-3	KO-3	To Compression	CMPR-102	FAXR-100	MIX-101
	To Block:	WetGas2	WetGas1	CMPR-100	FAXR-101	KO-2	CMPR-101	MIX-101	MIX-101	AC-101	KO-3	CMPR-102	MIX-101	KO-1	FAXR-100	SPLT-100	Scrubber Liquids
Mole Fraction		%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Nitrogen		0.484975	0.484975	0.484975	0.484975	0.484975	0.484975			0.484975	0.484975	0.484975		0.484975	0.484975	0.484975	
Oxygen		0	0	0	0	0	0			0	0	0		0	0	0	
CO2		0.177382	0.177382	0.177382	0.177382	0.177382	0.177382			0.177382	0.177382	0.177382		0.177382	0.177382	0.177382	
Methane		81.7323	81.7323	81.7323	81.7323	81.7323	81.7323			81.7323	81.7323	81.7323		81.7323	81.7323	81.7323	
Ethane		12.2830	12.2830	12.2830	12.2830	12.2830	12.2830			12.2830	12.2830	12.2830		12.2830	12.2830	12.2830	
Propane		3.13544	3.13544	3.13544	3.13544	3.13544	3.13544			3.13544	3.13544	3.13544		3.13544	3.13544	3.13544	
i-Butane		0.432431	0.432431	0.432431	0.432431	0.432431	0.432431			0.432431	0.432431	0.432431		0.432431	0.432431	0.432431	
n-Butane		0.729290	0.729290	0.729290	0.729290	0.729290	0.729290			0.729290	0.729290	0.729290		0.729290	0.729290	0.729290	
2,2-Dimethylpropane		0.0127058	0.0127058	0.0127058	0.0127058	0.0127058	0.0127058			0.0127058	0.0127058	0.0127058		0.0127058	0.0127058	0.0127058	
i-Pentane		0.219972	0.219972	0.219972	0.219972	0.219972	0.219972			0.219972	0.219972	0.219972		0.219972	0.219972	0.219972	
n-Pentane		0.184034	0.184034	0.184034	0.184034	0.184034	0.184034			0.184034	0.184034	0.184034		0.184034	0.184034	0.184034	
Neohexane		0.0107189	0.0107189	0.0107189	0.0107189	0.0107189	0.0107189			0.0107189	0.0107189	0.0107189		0.0107189	0.0107189	0.0107189	
Cyclopentane		0	0	0	0	0	0			0	0	0		0	0	0	
2,3-Dimethylbutane		0.0153270	0.0153270	0.0153270	0.0153270	0.0153270	0.0153270			0.0153270	0.0153270	0.0153270		0.0153270	0.0153270	0.0153270	
Isohexane		0.0727757	0.0727757	0.0727757	0.0727757	0.0727757	0.0727757			0.0727757	0.0727757	0.0727757		0.0727757	0.0727757	0.0727757	
3-Methylpentane		0.0434427	0.0434427	0.0434427	0.0434427	0.0434427	0.0434427			0.0434427	0.0434427	0.0434427		0.0434427	0.0434427	0.0434427	
Hexane		0.0795505	0.0795505	0.0795505	0.0795505	0.0795505	0.0795505			0.0795505	0.0795505	0.0795505		0.0795505	0.0795505	0.0795505	
Methylcyclopentane		0.0110518	0.0110518	0.0110518	0.0110518	0.0110518	0.0110518			0.0110518	0.0110518	0.0110518		0.0110518	0.0110518	0.0110518	
Benzene		0.00291017	0.00291017	0.00291017	0.00291017	0.00291017	0.00291017			0.00291017	0.00291017	0.00291017		0.00291017	0.00291017	0.00291017	
Cyclohexane		0.0119870	0.0119870	0.0119870	0.0119870	0.0119870	0.0119870			0.0119870	0.0119870	0.0119870		0.0119870	0.0119870	0.0119870	
2-Methylhexane		0.0250245	0.0250245	0.0250245	0.0250245	0.0250245	0.0250245			0.0250245	0.0250245	0.0250245		0.0250245	0.0250245	0.0250245	
3-Methylhexane		0.0210966	0.0210966	0.0210966	0.0210966	0.0210966	0.0210966			0.0210966	0.0210966	0.0210966		0.0210966	0.0210966	0.0210966	
2,2,4-Trimethylpentane		0	0	0	0	0	0			0	0	0		0	0	0	
2,3-Dimethylpentane		0.00955593	0.00955593	0.00955593	0.00955593	0.00955593	0.00955593			0.00955593	0.00955593	0.00955593		0.00955593	0.00955593	0.00955593	
n-Heptane		0.0272676	0.0272676	0.0272676	0.0272676	0.0272676	0.0272676			0.0272676	0.0272676	0.0272676		0.0272676	0.0272676	0.0272676	
Methylcyclohexane		0.0227152	0.0227152	0.0227152	0.0227152	0.0227152	0.0227152			0.0227152	0.0227152	0.0227152		0.0227152	0.0227152	0.0227152	
Toluene		0.00567794	0.00567794	0.00567794	0.00567794	0.00567794	0.00567794			0.00567794	0.00567794	0.00567794		0.00567794	0.00567794	0.00567794	
2-Methylheptane		0.00748954	0.00748954	0.00748954	0.00748954	0.00748954	0.00748954			0.00748954	0.00748954	0.00748954		0.00748954	0.00748954	0.00748954	
n-Octane		0.00763527	0.00763527	0.00763527	0.00763527	0.00763527	0.00763527			0.00763527	0.00763527	0.00763527		0.00763527	0.00763527	0.00763527	
Ethylbenzene		0.00104702	0.00104702	0.00104702	0.00104702	0.00104702	0.00104702			0.00104702	0.00104702	0.00104702		0.00104702	0.00104702	0.00104702	
m-Xylene		0.00225967	0.00225967	0.00225967	0.00225967	0.00225967	0.00225967			0.00225967	0.00225967	0.00225967		0.00225967	0.00225967	0.00225967	
o-Xylene		0.00127816	0.00127816	0.00127816	0.00127816	0.00127816	0.00127816			0.00127816	0.00127816	0.00127816		0.00127816	0.00127816	0.00127816	
2,2-Dimethylheptane		0.00133740	0.00133740	0.00133740	0.00133740	0.00133740	0.00133740			0.00133740	0.00133740	0.00133740		0.00133740	0.00133740	0.00133740	
n-Nonane		0.00163162	0.00163162	0.00163162	0.00163162	0.00163162	0.00163162			0.00163162	0.00163162	0.00163162		0.00163162	0.00163162	0.00163162	
2-Methylnonane		0.000101507	0.000101507	0.000101507	0.000101507	0.000101507	0.000101507			0.000101507	0.000101507	0.000101507		0.000101507	0.000101507	0.000101507	
n-Decane		0.000376491	0.000376491	0.000376491	0.000376491	0.000376491	0.000376491			0.000376491	0.000376491	0.000376491		0.000376491	0.000376491	0.000376491	
Undecane		0	0	0	0	0	0			0	0	0		0	0	0	
Water		0.191630	0.191630	0.191630	0.191630	0.191630	0.191630			0.191630	0.191630	0.191630		0.191630	0.191630	0.191630	
TEG		0	0	0	0	0	0			0	0	0		0	0	0	
Argon		0	0	0	0	0	0			0	0	0		0	0	0	
CO		0	0	0	0	0	0			0	0	0		0	0	0	
C07s Others		0.00983657	0.00983657	0.00983657	0.00983657	0.00983657	0.00983657			0.00983657	0.00983657	0.00983657		0.00983657	0.00983657	0.00983657	
C08s Others		0.0189306	0.0189306	0.0189306	0.0189306	0.0189306	0.0189306			0.0189306	0.0189306	0.0189306		0.0189306	0.0189306	0.0189306	
C09s Others		0.00408620	0.00408620	0.00408620	0.00408620	0.00408620	0.00408620			0.00408620	0.00408620	0.00408620		0.00408620	0.00408620	0.00408620	
C10s Others		0.00131827	0.00131827	0.00131827	0.00131827	0.00131827	0.00131827			0.00131827	0.00131827	0.00131827		0.00131827	0.00131827	0.00131827	
C11s		0.000380903	0.000380903	0.000380903	0.000380903	0.000380903	0.000380903			0.000380903	0.000380903	0.000380903		0.000380903	0.000380903	0.000380903	
C12s		7.90292E-05	7.90292E-05	7.90292E-05	7.90292E-05	7.90292E-05	7.90292E-05			7.90292E-05	7.90292E-05	7.90292E-05		7.90292E-05	7.90292E-05	7.90292E-05	
C13s		1.91003E-05	1.91003E-05	1.91003E-05	1.91003E-05	1.91003E-05	1.91003E-05			1.91003E-05	1.91003E-05	1.91003E-05		1.91003E-05	1.91003E-05	1.91003E-05	
C14s		4.00838E-06	4.00838E-06	4.00838E-06	4.00838E-06	4.00838E-06	4.00838E-06			4.00838E-06	4.00838E-06	4.00838E-06		4.00838E-06	4.00838E-06	4.00838E-06	
C15s		9.03753E-07	9.03753E-07	9.03753E-07	9.03753E-07	9.03753E-07	9.03753E-07			9.03753E-07	9.03753E-07	9.03753E-07		9.03753E-07	9.03753E-07	9.03753E-07	
C16s		2.03248E-07	2.03248E-07	2.03248E-07	2.03248E-07	2.03248E-07	2.03248E-07			2.03248E-07	2.03248E-07	2.03248E-07		2.03248E-07	2.03248E-07	2.03248E-07	
C17s		5.12027E-08	5.12027E-08	5.12027E-08	5.12027E-08	5.12027E-08	5.12027E-08			5.12027E-08	5.12027E-08	5.12027E-08		5.12027E-08	5.12027E-08	5.12027E-08	
C18s		1.46306E-08	1.46306E-08	1.46306E-08	1.46306E-08	1.46306E-08	1.46306E-08			1.46306E-08	1.46306E-08	1.46306E-08		1.46306E-08	1.46306E-08	1.46306E-08	
C19s		4.04461E-09	4.04461E-09	4.04461E-09	4.04461E-09	4.04461E-09	4.04461E-09			4.04461E-09	4.04461E-09	4.04461E-09		4.04461E-09	4.04461E-09	4.04461E-09	
C20s		1.05967E-09	1.05967E-09	1.05967E-09	1.05967E-09	1.05967E-09	1.05967E-09			1.05967E-09	1.05967E-09	1.05967E-09		1.05967E-09	1.05967E-09	1.05967E-09	
C21s		2.86104E-10	2.86104E-10	2.86104E-10	2.86104E-10	2.86104E-10	2.86104E-10			2.86104E-10	2.86104E-10	2.86104E-10		2.86104E-10	2.86104E-10	2.86104E-10	
C22s		9.74110E-11	9.74110E-11	9.74110E-11	9.74110E-11	9.74110E-11	9.74110E-11			9.74110E-11	9.74110E-11	9.74110E-11		9.74110E-11	9.74110E-11	9.74110E-11	
C23s		3.13423E-11	3.13423E-11	3.13423E-11	3.13423E-11	3.13423E-11	3.13423E-11			3.13423E-11	3.13423E-11	3.13423E-11		3.13423E-11	3.13423E-11	3.13423E-11	
C24s		1.08056E-11	1.08056E-11	1.08056E-11	1.08056E-11	1.08056E-11	1.08056E-11			1.08056E-11	1.08056E-11	1.08056E-11		1.08056E-11	1.08056E-11	1.08056E-11	
C25s		2.94773E-12	2.94773E-12	2.94773E-12	2.94773E-12	2.94773E-12	2.94773E-12			2.94773E-12	2.94773E-12	2.94773E-12		2.94773E-12	2.94773E-12	2.94773E-12	
C26s		1.28318E-12	1.28318E-12	1.28318E-12	1.28318E-12	1.28318E-12	1.28318E-12			1.28318E-12	1.28318E-12	1.28318E-12		1.28317E-12	1.28318E-12	1.28318E-12	
C27s		5.91126E-13	5.91126E-13	5.91126E-13	5.91126E-13	5.91126E-13	5.91126E-13			5.91126E-13	5.91126E-13	5.91126E-13		5.91119E-13	5.91126E-13	5.91126E-13	
C28s		1.54488E-13	1.54488E-13	1.54488E-13	1.54488E-13	1.54488E-13	1.54488E-13			1.54488E-13	1.54488E-13	1.54488E-13		1.54484E-13	1.54488E-13	1.54488E-13	
C29s		7.63490E-14	7.63490E-14	7.63490E-14	7.63490E-14	7.63490E-14	7.63490E-14			7.63490E-14	7.63490E-14	7.63490E-14		7.63451E-14	7.63490E-14	7.63490E-14	
C30s		0	0	0	0	0	0			0	0	0		2.92806E-14	0	0	
C31s		2.59309E-13	2.59309E-13	2.59309E-13	2.59309E-13	2.59309E-13	2.59309E-13			2.59309E-13	2.59309E-13	2.59309E-13		2.59293E-13	2.59309E-13	2.59309E-13	

Process Streams		To_Salt_Dryers	To_TEG	1	2	3	4	5	6	7	8	9	10	11	12	13	20
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	SPLT-100	SPLT-100	KO-1	CMPR-100	FAXR-101	KO-2	KO-1	KO-2	CMPR-101	AC-101	KO-3	KO-3	To Compression	CMPR-102	FAXR-100	MIX-101
	To Block:	WetGas2	WetGas1	CMPR-100	FAXR-101	KO-2	CMPR-101	MIX-101	MIX-101	AC-101	KO-3	CMPR-102	MIX-101	KO-1	FAXR-100	SPLT-100	Scrubber Liquids
Property	**Units**																
Temperature	°F	110	110	71.9594	179.193	110*	109.966			201.512	110*	109.968		72	179.482	110*	
Pressure	psig	1005.91	1005.91	199.5	392.276	389.276	388.776	199.5	388.776	671.207	668.207	667.707	667.707	200	1008.91	1005.91	667.707
Mole Fraction Vapor	%	99.9659	99.9659	100	100	100	100	0	0	100	100	100	0	100	100	99.9659	
Mole Fraction Light Liquic	%	0.0340992	0.0340992	0	0	0	0			0	0	0		0	0	0.0340992	
Mole Fraction Heavy Liqu	%	0	0	0	0	0	0			0	0	0		0	0	0	
Molecular Weight	lb/lbmol	19.8016	19.8016	19.8016	19.8016	19.8016	19.8016			19.8016	19.8016	19.8016		19.8016	19.8016	19.8016	
Mass Density	lb/ft^3	3.94970	3.94970	0.781780	1.23200	1.40875	1.40698			2.04300	2.50168	2.49985		0.783628	3.28563	3.94970	
Mass Flow	lb/h	439.227	43483.5	43922.7	43922.7	43922.7	43922.7	0	0	43922.7	43922.7	43922.7	0	43922.7	43922.7	43922.7	0
Std Vapor Volumetric Flo	MMSCFD	0.202019	19.9999	20.2019	20.2019	20.2019	20.2019	0	0	20.2019	20.2019	20.2019	0	20.2019	20.2019	20.2019	0
Std Liquid Volumetric Flo	sgpm	2.63084	260.453	263.084	263.084	263.084	263.084	0	0	263.084	263.084	263.084	0	263.084	263.084	263.084	0
Net Ideal Gas Heating Va	Btu/ft^3	1084.79	1084.79	1084.79	1084.79	1084.79	1084.79			1084.79	1084.79	1084.79		1084.79	1084.79	1084.79	
Gross Ideal Gas Heating '	Btu/ft^3	1197.62	1197.62	1197.62	1197.62	1197.62	1197.62			1197.62	1197.62	1197.62		1197.62	1197.62	1197.62	
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Nitrogen		3.01352	298.338	301.352	301.352	301.352	301.352	0	0	301.352	301.352	301.352	0	301.352	301.352	301.352	0
Oxygen		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CO2		1.73159	171.427	173.159	173.159	173.159	173.159	0	0	173.159	173.159	173.159	0	173.159	173.159	173.159	0
Methane		290.839	28793.1	29083.9	29083.9	29083.9	29083.9	0	0	29083.9	29083.9	29083.9	0	29083.9	29083.9	29083.9	0
Ethane		81.9240	8110.48	8192.40	8192.40	8192.40	8192.40	0	0	8192.40	8192.40	8192.40	0	8192.40	8192.40	8192.40	0
Propane		30.6678	3036.11	3066.78	3066.78	3066.78	3066.78	0	0	3066.78	3066.78	3066.78	0	3066.78	3066.78	3066.78	0
i-Butane		5.57503	551.928	557.503	557.503	557.503	557.503	0	0	557.503	557.503	557.503	0	557.503	557.503	557.503	0
n-Butane		9.40223	930.821	940.223	940.223	940.223	940.223	0	0	940.223	940.223	940.223	0	940.223	940.223	940.223	0
2,2-Dimethylpropane		0.203338	20.1305	20.3338	20.3338	20.3338	20.3338	0	0	20.3338	20.3338	20.3338	0	20.3338	20.3338	20.3338	0
i-Pentane		3.52034	348.513	352.034	352.034	352.034	352.034	0	0	352.034	352.034	352.034	0	352.034	352.034	352.034	0
n-Pentane		2.94521	291.576	294.521	294.521	294.521	294.521	0	0	294.521	294.521	294.521	0	294.521	294.521	294.521	0
Neohexane		0.204891	20.2842	20.4891	20.4891	20.4891	20.4891	0	0	20.4891	20.4891	20.4891	0	20.4891	20.4891	20.4891	0
Cyclopentane		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2,3-Dimethylbutane		0.292974	29.0044	29.2974	29.2974	29.2974	29.2974	0	0	29.2974	29.2974	29.2974	0	29.2974	29.2974	29.2974	0
Isohexane		1.39110	137.719	139.110	139.110	139.110	139.110	0	0	139.110	139.110	139.110	0	139.110	139.110	139.110	0
3-Methylpentane		0.830402	82.2098	83.0402	83.0402	83.0402	83.0402	0	0	83.0402	83.0402	83.0402	0	83.0402	83.0402	83.0402	0
Hexane		1.52060	150.539	152.060	152.060	152.060	152.060	0	0	152.060	152.060	152.060	0	152.060	152.060	152.060	0
Methylcyclopentane		0.206312	20.4249	20.6312	20.6312	20.6312	20.6312	0	0	20.6312	20.6312	20.6312	0	20.6312	20.6312	20.6312	0
Benzene		0.0504224	4.99181	5.04224	5.04224	5.04224	5.04224	0	0	5.04224	5.04224	5.04224	0	5.04224	5.04224	5.04224	0
Cyclohexane		0.223769	22.1532	22.3769	22.3769	22.3769	22.3769	0	0	22.3769	22.3769	22.3769	0	22.3769	22.3769	22.3769	0
2-Methylhexane		0.556200	55.0638	55.6200	55.6200	55.6200	55.6200	0	0	55.6200	55.6200	55.6200	0	55.6200	55.6200	55.6200	0
3-Methylhexane		0.468898	46.4209	46.8898	46.8898	46.8898	46.8898	0	0	46.8898	46.8898	46.8898	0	46.8898	46.8898	46.8898	0
2,2,4-Trimethylpentane		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2,3-Dimethylpentane		0.212392	21.0268	21.2392	21.2392	21.2392	21.2392	0	0	21.2392	21.2392	21.2392	0	21.2392	21.2392	21.2392	0
n-Heptane		0.606053	59.9993	60.6053	60.6053	60.6053	60.6053	0	0	60.6053	60.6053	60.6053	0	60.6053	60.6053	60.6053	0
Methylcyclohexane		0.494715	48.9768	49.4715	49.4715	49.4715	49.4715	0	0	49.4715	49.4715	49.4715	0	49.4715	49.4715	49.4715	0
Toluene		0.116043	11.4883	11.6043	11.6043	11.6043	11.6043	0	0	11.6043	11.6043	11.6043	0	11.6043	11.6043	11.6043	0
2-Methylheptane		0.189766	18.7868	18.9766	18.9766	18.9766	18.9766	0	0	18.9766	18.9766	18.9766	0	18.9766	18.9766	18.9766	0
n-Octane		0.193458	19.1524	19.3458	19.3458	19.3458	19.3458	0	0	19.3458	19.3458	19.3458	0	19.3458	19.3458	19.3458	0
Ethylbenzene		0.0246561	2.44095	2.46561	2.46561	2.46561	2.46561	0	0	2.46561	2.46561	2.46561	0	2.46561	2.46561	2.46561	0
m-Xylene		0.0532126	5.26805	5.32126	5.32126	5.32126	5.32126	0	0	5.32126	5.32126	5.32126	0	5.32126	5.32126	5.32126	0
o-Xylene		0.0300993	2.97983	3.00993	3.00993	3.00993	3.00993	0	0	3.00993	3.00993	3.00993	0	3.00993	3.00993	3.00993	0
2,2-Dimethylheptane		0.0380475	3.76670	3.80475	3.80475	3.80475	3.80475	0	0	3.80475	3.80475	3.80475	0	3.80475	3.80475	3.80475	0
n-Nonane		0.0464175	4.59533	4.64175	4.64175	4.64175	4.64175	0	0	4.64175	4.64175	4.64175	0	4.64175	4.64175	4.64175	0
2-Methylnonane		0.00320356	0.317153	0.320356	0.320356	0.320356	0.320356	0	0	0.320356	0.320356	0.320356	0	0.320356	0.320356	0.320356	0
n-Decane		0.0118821	1.17632	1.18821	1.18821	1.18821	1.18821	0	0	1.18821	1.18821	1.18821	0	1.18821	1.18821	1.18821	0
Undecane		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water		0.765762	75.8104	76.5762	76.5762	76.5762	76.5762	0	0	76.5762	76.5762	76.5762	0	76.5762	76.5762	76.5762	0
TEG		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Argon		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CO		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C07s Others		0.218629	21.6443	21.8629	21.8629	21.8629	21.8629	0	0	21.8629	21.8629	21.8629	0	21.8629	21.8629	21.8629	0
C08s Others		0.479655	47.4858	47.9655	47.9655	47.9655	47.9655	0	0	47.9655	47.9655	47.9655	0	47.9655	47.9655	47.9655	0
C09s Others		0.116247	11.5085	11.6247	11.6247	11.6247	11.6247	0	0	11.6247	11.6247	11.6247	0	11.6247	11.6247	11.6247	0
C10s Others		0.0416048	4.11888	4.16048	4.16048	4.16048	4.16048	0	0	4.16048	4.16048	4.16048	0	4.16048	4.16048	4.16048	0
C11s		0.0132065	1.30744	1.32065	1.32065	1.32065	1.32065	0	0	1.32065	1.32065	1.32065	0	1.32065	1.32065	1.32065	0
C12s		0.00298591	0.295606	0.298591	0.298591	0.298591	0.298591	0	0	0.298591	0.298591	0.298591	0	0.298591	0.298591	0.298591	0
C13s		0.000781082	0.0773272	0.0781082	0.0781082	0.0781082	0.0781082	0	0	0.0781082	0.0781082	0.0781082	0	0.0781082	0.0781082	0.0781082	0
C14s		0.000176389	0.0174626	0.0176389	0.0176389	0.0176389	0.0176389	0	0	0.0176389	0.0176389	0.0176389	0	0.0176389	0.0176389	0.0176389	0
C15s		4.25817E-05	0.00421559	0.00425817	0.00425817	0.00425817	0.00425817	0	0	0.00425817	0.00425817	0.00425817	0	0.00425817	0.00425817	0.00425817	0
C16s		1.02087E-05	0.00101066	0.00102087	0.00102087	0.00102087	0.00102087	0	0	0.00102087	0.00102087	0.00102087	0	0.00102087	0.00102087	0.00102087	0
C17s		2.73111E-06	0.000270380	0.000273111	0.000273111	0.000273111	0.000273111	0	0	0.000273111	0.000273111	0.000273111	0	0.000273111	0.000273111	0.000273111	0
C18s		8.25905E-07	8.17646E-05	8.25905E-05	8.25905E-05	8.25905E-05	8.25905E-05	0	0	8.25905E-05	8.25905E-05	8.25905E-05	0	8.25905E-05	8.25905E-05	8.25905E-05	0
C19s		2.40904E-07	2.38495E-05	2.40904E-05	2.40904E-05	2.40904E-05	2.40904E-05	0	0	2.40904E-05	2.40904E-05	2.40904E-05	0	2.40904E-05	2.40904E-05	2.40904E-05	0
C20s		6.64124E-08	6.57483E-06	6.64124E-06	6.64124E-06	6.64124E-06	6.64124E-06	0	0	6.64124E-06	6.64124E-06	6.64124E-06	0	6.64124E-06	6.64124E-06	6.64124E-06	0
C21s		1.88212E-08	1.86329E-06	1.88212E-06	1.88212E-06	1.88212E-06	1.88212E-06	0	0	1.88212E-06	1.88212E-06	1.88212E-06	0	1.88212E-06	1.88212E-06	1.88212E-06	0
C22s		6.71117E-09	6.64406E-07	6.71117E-07	6.71117E-07	6.71117E-07	6.71117E-07	0	0	6.71117E-07	6.71117E-07	6.71117E-07	0	6.71117E-07	6.71117E-07	6.71117E-07	0
C23s		2.25686E-09	2.23429E-07	2.25686E-07	2.25686E-07	2.25686E-07	2.25686E-07	0	0	2.25686E-07	2.25686E-07	2.25686E-07	0	2.25685E-07	2.25686E-07	2.25686E-07	0
C24s		8.11700E-10	8.03583E-08	8.11700E-08	8.11700E-08	8.11700E-08	8.11700E-08	0	0	8.11700E-08	8.11700E-08	8.11700E-08	0	8.11699E-08	8.11700E-08	8.11700E-08	0
C25s		2.30600E-10	2.28294E-08	2.30600E-08	2.30600E-08	2.30600E-08	2.30600E-08	0	0	2.30600E-08	2.30600E-08	2.30600E-08	0	2.30599E-08	2.30600E-08	2.30600E-08	0
C26s		1.04374E-10	1.03331E-08	1.04374E-08	1.04374E-08	1.04374E-08	1.04374E-08	0	0	1.04374E-08	1.04374E-08	1.04374E-08	0	1.04374E-08	1.04374E-08	1.04374E-08	0
C27s		4.99218E-11	4.94226E-09	4.99218E-09	4.99218E-09	4.99218E-09	4.99218E-09	0	0	4.99218E-09	4.99218E-09	4.99218E-09	0	4.99212E-09	4.99218E-09	4.99218E-09	0
C28s		1.35275E-11	1.33922E-09	1.35275E-09	1.35275E-09	1.35275E-09	1.35275E-09	0	0	1.35275E-09	1.35275E-09	1.35275E-09	0	1.35271E-09	1.35275E-09	1.35275E-09	0
C29s		6.92290E-12	6.85367E-10	6.92290E-10	6.92290E-10	6.92290E-10	6.92290E-10	0	0	6.92290E-10	6.92290E-10	6.92290E-10	0	6.92254E-10	6.92290E-10	6.92290E-10	0
C30s		0	0	0	0	0	0	0	0	0	0	0	0	2.74610E-10	0	0	0
C31s		2.51263E-11	2.48750E-09	2.51263E-09	2.51263E-09	2.51263E-09	2.51263E-09	0	0	2.51263E-09	2.51263E-09	2.51263E-09	0	2.51248E-09	2.51263E-09	2.51263E-09	0

Salt Dehydration System

THESE EMISSIONS WILL
BE CALCULATED USING
EPAs CORRELATION

Names	Units	HP GAS SALES
Water Content	lbm/MMSCF	9.1147



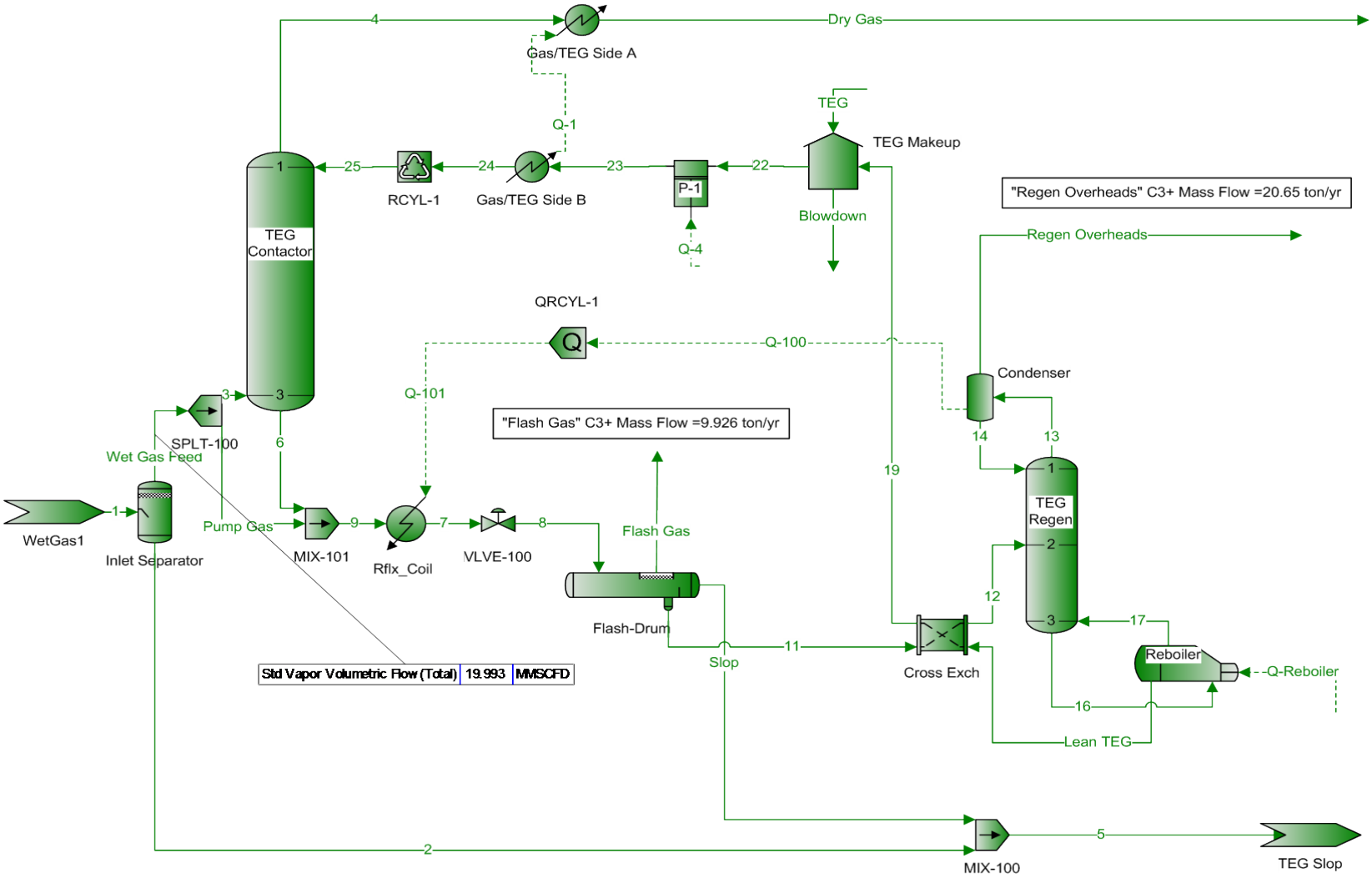
"Slop Tank Emissions" C3+ Mass Flow =0.003786 ton/yr

For the salt dryers it is assumed that the liquid produced is water instead of brine which would make the emissions higher

Process Streams		HP GAS SALES	Slop Tank Emissions	Tank Slop	1	2	3	4	5	6	7
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	DVDR-1	CONE Slop Tank	CONE Slop Tank	WetGas2	Scrubber Liquids	DVDR-1	VLVE-100	TEG Slop	MIX-100	VLVE-101
	To Block:	--	--	--	DVDR-1	MIX-100	VLVE-100	MIX-100	MIX-100	VLVE-101	CONE Slop Tank
Mole Fraction		%	%	%	%	%	%	%	%	%	%
Nitrogen		0.485813	0.273103	2.65613E-06	0.484975		0	0	0.000340458	0.000323910	0.000323910
Oxygen		0	0	0	0		0	0	0	0	0
CO2		0.177688	1.95107	0.000658833	0.177382		0	0	0.00310402	0.00295314	0.00295314
Methane		81.8735	76.1911	0.00150904	81.7323		0	0	0.0957884	0.0911325	0.0911325
Ethane		12.3042	10.3483	0.000263476	12.2830		0	0	0.0130715	0.0124361	0.0124361
Propane		3.14086	1.38968	2.45103E-05	3.13544		0	0	0.00174396	0.00165919	0.00165919
i-Butane		0.433178	0.0871982	8.82898E-07	0.432431		0	0	0.000108740	0.000103455	0.000103455
n-Butane		0.730550	0.223276	3.65827E-06	0.729290		0	0	0.000279903	0.000266299	0.000266299
2,2-Dimethylpropane		0.0127277	0.00135341	8.77714E-09	0.0127058		0	0	1.68259E-06	1.60081E-06	1.60081E-06
i-Pentane		0.220352	0.0304957	3.06878E-07	0.219972		0	0	3.80277E-05	3.61793E-05	3.61793E-05
n-Pentane		0.184352	0.0137642	7.45661E-08	0.184034		0	0	1.70966E-05	1.62656E-05	1.62656E-05
Neohexane		0.0107375	0.000497209	1.81509E-09	0.0107189		0	0	6.16664E-07	5.86691E-07	5.86691E-07
Cyclopentane		0	0	0	0		0	0	0	0	0
2,3-Dimethylbutane		0.0153535	0.00136186	9.96901E-09	0.0153270		0	0	1.69430E-06	1.61195E-06	1.61195E-06
Isohexane		0.0729014	0.00536523	3.41502E-08	0.0727757		0	0	6.66953E-06	6.34535E-06	6.34535E-06
3-Methylpentane		0.0435178	0.00731819	1.07386E-07	0.0434427		0	0	9.16109E-06	8.71580E-06	8.71580E-06
Hexane		0.0796880	0.00288047	9.84425E-09	0.0795505		0	0	3.57180E-06	3.39819E-06	3.39819E-06
Methylcyclopentane		0.0110709	0.00312312	7.22205E-08	0.0110518		0	0	3.93731E-06	3.74593E-06	3.74593E-06
Benzene		0.00291519	0.0274103	4.50137E-05	0.00291017		0	0	8.11484E-05	7.72041E-05	7.72041E-05
Cyclohexane		0.0120077	0.00664516	3.27045E-07	0.0119870		0	0	8.55955E-06	8.14350E-06	8.14350E-06
2-Methylhexane		0.0250678	0.000699716	2.21328E-09	0.0250245		0	0	8.67465E-07	8.25301E-07	8.25301E-07
3-Methylhexane		0.0211331	0.000664296	2.35477E-09	0.0210966		0	0	8.23820E-07	7.83778E-07	7.83778E-07
2,2,4-Trimethylpentane		0	0	0	0		0	0	0	0	0
2,3-Dimethylpentane		0.00957244	0.000499189	2.83599E-09	0.00955593		0	0	6.20184E-07	5.90040E-07	5.90040E-07
n-Heptane		0.0273147	0.000480709	1.06628E-09	0.0272676		0	0	5.95477E-07	5.66534E-07	5.66534E-07
Methylcyclohexane		0.0227545	0.00445750	9.46660E-08	0.0227152		0	0	5.61072E-06	5.33801E-06	5.33801E-06
Toluene		0.00568775	0.0360266	4.56604E-05	0.00567794		0	0	9.24806E-05	8.79855E-05	8.79855E-05
2-Methylheptane		0.00750248	9.00543E-05	1.61550E-10	0.00748954		0	0	1.11514E-07	1.06094E-07	1.06094E-07
n-Octane		0.00764846	4.97688E-05	5.36593E-11	0.00763527		0	0	6.15914E-08	5.85977E-08	5.85977E-08
Ethylbenzene		0.00104883	0.00424051	4.25091E-06	0.00104702		0	0	9.70588E-06	9.23412E-06	9.23412E-06
m-Xylene		0.00226357	0.00745792	5.61125E-06	0.00225967		0	0	1.51121E-05	1.43776E-05	1.43776E-05
o-Xylene		0.00128037	0.00617290	9.39822E-06	0.00127816		0	0	1.74990E-05	1.66485E-05	1.66485E-05
2,2-Dimethylheptane		0.00133971	3.31215E-06	1.53617E-12	0.00133740		0	0	4.09682E-09	3.89769E-09	3.89769E-09
n-Nonane		0.00163444	5.13709E-06	3.60564E-12	0.00163162		0	0	6.35538E-09	6.04647E-09	6.04647E-09
2-Methylnonane		0.000101682	7.88625E-08	1.87121E-14	0.000101507		0	0	9.75267E-11	9.27863E-11	9.27863E-11
n-Decane		0.000377141	2.69503E-07	6.28547E-14	0.000376491		0	0	3.33284E-10	3.17085E-10	3.17085E-10
Undecane		0	0	0	0		0	0	0	0	0
Water		0.0191961	9.37184	99.9974	0.191630		100	100	99.8852	99.8908	99.8908
TEG		0	0	0	0		0	0	0	0	0
Argon		0	0	0	0		0	0	0	0	0
CO		0	0	0	0		0	0	0	0	0
C07s Others		0.00985356	0.000853441	8.70998E-09	0.00983657		0	0	1.06435E-06	1.01262E-06	1.01262E-06
C08s Others		0.0189633	0.00192823	2.98324E-08	0.0189306		0	0	2.41541E-06	2.29801E-06	2.29801E-06
C09s Others		0.00409326	0.000413758	8.27540E-09	0.00408620		0	0	5.20266E-07	4.94978E-07	4.94978E-07
C10s Others		0.00132055	0.000104664	2.14806E-09	0.00131827		0	0	1.31663E-07	1.25263E-07	1.25263E-07
C11s		0.000381561	1.97514E-05	3.49399E-10	0.000380903		0	0	2.47878E-08	2.35830E-08	2.35830E-08
C12s		7.91657E-05	2.62477E-06	3.94207E-11	7.90292E-05		0	0	3.28671E-09	3.12695E-09	3.12695E-09
C13s		1.91333E-05	4.04240E-07	5.13566E-12	1.91003E-05		0	0	5.05201E-10	4.80646E-10	4.80646E-10
C14s		4.01530E-06	5.44787E-08	5.90580E-13	4.00838E-06		0	0	6.79785E-11	6.46744E-11	6.46744E-11
C15s		9.05314E-07	7.29570E-09	6.25998E-14	9.03753E-07		0	0	9.08627E-12	8.64462E-12	8.64462E-12
C16s		2.03599E-07	7.15801E-10	3.62060E-15	2.03248E-07		0	0	8.88831E-13	8.45629E-13	8.45629E-13
C17s		5.12912E-08	8.65258E-11	2.82231E-16	5.12027E-08		0	0	1.07278E-13	1.02064E-13	1.02064E-13
C18s		1.46559E-08	0	0	1.46306E-08		0	0	0	0	0
C19s		4.05160E-09	0	0	4.04461E-09		0	0	0	0	0
C20s		1.06150E-09	0	0	1.05967E-09		0	0	0	0	0
C21s		2.86599E-10	0	0	2.86104E-10		0	0	0	0	0
C22s		9.75793E-11	0	0	9.74110E-11		0	0	0	0	0
C23s		3.13964E-11	0	0	3.13423E-11		0	0	0	0	0
C24s		1.08243E-11	0	0	1.08056E-11		0	0	0	0	0
C25s		2.95283E-12	0	0	2.94773E-12		0	0	0	0	0
C26s		1.28539E-12	0	0	1.28318E-12		0	0	0	0	0
C27s		5.92147E-13	0	0	5.91126E-13		0	0	0	0	0
C28s		1.54755E-13	0	0	1.54488E-13		0	0	0	0	0
C29s		7.64809E-14	0	0	7.63490E-14		0	0	0	0	0
C30s		0	0	0	0		0	0	0	0	0
C31s		2.59757E-13	0	0	2.59309E-13		0	0	0	0	0

Process Streams		HP GAS SALES	Slop Tank Emissions	Tank Slop	1	2	3	4	5	6	7
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	DVDR-1	CONE Slop Tank	CONE Slop Tank	WetGas2	Scrubber Liquids	DVDR-1	VLVE-100	TEG Slop	MIX-100	VLVE-101
	To Block:	--	--	--	DVDR-1	MIX-100	VLVE-100	MIX-100	MIX-100	VLVE-101	CONE Slop Tank
Property	**Units**										
Temperature	°F	110	112.517	112.517	110		110	112.764	110	112.539	112.517
Pressure	psig	1002.91	0	0	1005.91	667.707	1002.91	20*	1005.91	20	0*
Mole Fraction Vapor	%	100	100	0	99.9659		0	0	0	0.107554	0.117632
Mole Fraction Light Liquid	%	0	0	100	0.0340992		100	100	100	99.8924	99.8824
Mole Fraction Heavy Liquid	%	0	0	0	0		0	0	0	0	0
Molecular Weight	lb/lbmol	19.8047	18.8917	18.0155	19.8016		18.0153	18.0153	18.0166	18.0166	18.0166
Mass Density	lb/ft^3	3.93557	0.0453244	61.7814	3.94970		61.8776	61.7803	61.7889	37.4874	23.0520
Mass Flow	lb/h	438.538	0.0174906	14.1626	439.227	0	0.689185	0.689185	13.4909	14.1801	14.1801
Std Vapor Volumetric Flow	MMSCFD	0.201671	8.43214E-06	0.00715979	0.202019	0	0.000348417	0.000348417	0.00681981	0.00716822	0.00716822
Std Liquid Volumetric Flow	sgpm	2.62946	0.000100007	0.0283133	2.63084	0	0.00137773	0.00137773	0.0270356	0.0284133	0.0284133
Net Ideal Gas Heating Value	Btu/ft^3	1086.66	908.741	0.0232623	1084.79		0	0	1.14801	1.09221	1.09221
Gross Ideal Gas Heating Value	Btu/ft^3	1199.60	1009.70	50.3342	1197.62		50.3101	50.3101	51.5216	51.4628	51.4628
Mass Flow		**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**	**lb/h**
Nitrogen		3.01352	7.08313E-05	5.84938E-07	3.01352	0	0	0	7.14163E-05	7.14163E-05	7.14163E-05
Oxygen		0	0	0	0	0	0	0	0	0	0
CO2		1.73159	0.000794973	0.000227939	1.73159	0	0	0	0.00102291	0.00102291	0.00102291
Methane		290.839	0.0113164	0.000190312	290.839	0	0	0	0.0115067	0.0115067	0.0115067
Ethane		81.9240	0.00288086	6.22812E-05	81.9240	0	0	0	0.00294315	0.00294315	0.00294315
Propane		30.6678	0.000567340	8.49648E-06	30.6678	0	0	0	0.000575837	0.000575837	0.000575837
i-Butane		5.57503	4.69227E-05	4.03411E-07	5.57503	0	0	0	4.73261E-05	4.73261E-05	4.73261E-05
n-Butane		9.40223	0.000120148	1.67153E-06	9.40223	0	0	0	0.000121820	0.000121820	0.000121820
2,2-Dimethylpropane		0.203338	9.04045E-07	4.97826E-09	0.203338	0	0	0	9.09023E-07	9.09023E-07	9.09023E-07
i-Pentane		3.52034	2.03705E-05	1.74057E-07	3.52034	0	0	0	2.05445E-05	2.05445E-05	2.05445E-05
n-Pentane		2.94521	9.19420E-06	4.22927E-08	2.94521	0	0	0	9.23649E-06	9.23649E-06	9.23649E-06
Neohexane		0.204891	3.96693E-07	1.22964E-09	0.204891	0	0	0	3.97923E-07	3.97923E-07	3.97923E-07
Cyclopentane		0	0	0	0	0	0	0	0	0	0
2,3-Dimethylbutane		0.292974	1.08655E-06	6.75353E-09	0.292974	0	0	0	1.09330E-06	1.09330E-06	1.09330E-06
Isohexane		1.39110	4.28060E-06	2.31351E-08	1.39110	0	0	0	4.30374E-06	4.30374E-06	4.30374E-06
3-Methylpentane		0.830402	5.83875E-06	7.27487E-08	0.830402	0	0	0	5.91150E-06	5.91150E-06	5.91150E-06
Hexane		1.52060	2.29816E-06	6.66901E-09	1.52060	0	0	0	2.30483E-06	2.30483E-06	2.30483E-06
Methylcyclopentane		0.206312	2.43347E-06	4.77814E-08	0.206312	0	0	0	2.48125E-06	2.48125E-06	2.48125E-06
Benzene		0.0504224	1.98228E-05	2.76412E-05	0.0504224	0	0	0	4.74640E-05	4.74640E-05	4.74640E-05
Cyclohexane		0.223769	5.17775E-06	2.16375E-07	0.223769	0	0	0	5.39413E-06	5.39413E-06	5.39413E-06
2-Methylhexane		0.556200	6.49129E-07	1.74345E-09	0.556200	0	0	0	6.50872E-07	6.50872E-07	6.50872E-07
3-Methylhexane		0.468898	6.16270E-07	1.85490E-09	0.468898	0	0	0	6.18125E-07	6.18125E-07	6.18125E-07
2,2,4-Trimethylpentane		0	0	0	0	0	0	0	0	0	0
2,3-Dimethylpentane		0.212392	4.63100E-07	2.23397E-09	0.212392	0	0	0	4.65334E-07	4.65334E-07	4.65334E-07
n-Heptane		0.606053	4.45956E-07	8.39928E-10	0.606053	0	0	0	4.46796E-07	4.46796E-07	4.46796E-07
Methylcyclohexane		0.494715	4.05205E-06	7.30700E-08	0.494715	0	0	0	4.12512E-06	4.12512E-06	4.12512E-06
Toluene		0.116043	3.07324E-05	3.30732E-05	0.116043	0	0	0	6.38056E-05	6.38056E-05	6.38056E-05
2-Methylheptane		0.189766	9.52383E-08	1.45070E-10	0.189766	0	0	0	9.53834E-08	9.53834E-08	9.53834E-08
n-Octane		0.193458	5.26338E-08	4.81854E-11	0.193458	0	0	0	5.26820E-08	5.26820E-08	5.26820E-08
Ethylbenzene		0.0246561	4.16805E-06	3.54780E-06	0.0246561	0	0	0	7.71585E-06	7.71585E-06	7.71585E-06
m-Xylene		0.0532126	7.33047E-06	4.68314E-06	0.0532126	0	0	0	1.20136E-05	1.20136E-05	1.20136E-05
o-Xylene		0.0300993	6.06741E-06	7.84373E-06	0.0300993	0	0	0	1.39111E-05	1.39111E-05	1.39111E-05
2,2-Dimethylheptane		0.0380475	3.93294E-09	1.54885E-12	0.0380475	0	0	0	3.93449E-09	3.93449E-09	3.93449E-09
n-Nonane		0.0464175	6.09993E-09	3.63540E-12	0.0464175	0	0	0	6.10357E-09	6.10357E-09	6.10357E-09
2-Methylnonane		0.00320356	1.03885E-10	2.09299E-14	0.00320356	0	0	0	1.03906E-10	1.03906E-10	1.03906E-10
n-Decane		0.0118821	3.55014E-10	7.03044E-14	0.0118821	0	0	0	3.55084E-10	3.55084E-10	3.55084E-10
Undecane		0	0	0	0	0	0	0	0	0	0
Water		0.0765762	0.00156314	14.1620	0.765762	0	0.689185	0.689185	13.4744	14.1636	14.1636
TEG		0	0	0	0	0	0	0	0	0	0
Argon		0	0	0	0	0	0	0	0	0	0
CO		0	0	0	0	0	0	0	0	0	0
C07s Others		0.218629	7.91741E-07	6.86103E-09	0.218629	0	0	0	7.98602E-07	7.98602E-07	7.98602E-07
C08s Others		0.479655	2.03924E-06	2.67892E-08	0.479655	0	0	0	2.06602E-06	2.06602E-06	2.06602E-06
C09s Others		0.116247	4.91308E-07	8.34371E-09	0.116247	0	0	0	4.99651E-07	4.99651E-07	4.99651E-07
C10s Others		0.0416048	1.37873E-07	2.40266E-09	0.0416048	0	0	0	1.40275E-07	1.40275E-07	1.40275E-07
C11s		0.0132065	2.85835E-08	4.29340E-10	0.0132065	0	0	0	2.90128E-08	2.90128E-08	2.90128E-08
C12s		0.00298591	4.13929E-09	5.27864E-11	0.00298591	0	0	0	4.19208E-09	4.19208E-09	4.19208E-09
C13s		0.000781082	6.89987E-10	7.44323E-12	0.000781082	0	0	0	6.97431E-10	6.97431E-10	6.97431E-10
C14s		0.000176389	1.00063E-10	9.21064E-13	0.000176389	0	0	0	1.00984E-10	1.00984E-10	1.00984E-10
C15s		4.25817E-05	1.43478E-11	1.04533E-13	4.25817E-05	0	0	0	1.44523E-11	1.44523E-11	1.44523E-11
C16s		1.02087E-05	1.50065E-12	6.44512E-15	1.02087E-05	0	0	0	1.50710E-12	1.50710E-12	1.50710E-12
C17s		2.73111E-06	1.92635E-13	5.33529E-16	2.73111E-06	0	0	0	1.93169E-13	1.93169E-13	1.93169E-13
C18s		8.25905E-07	0	0	8.25905E-07	0	0	0	0	0	0
C19s		2.40904E-07	0	0	2.40904E-07	0	0	0	0	0	0
C20s		6.64124E-08	0	0	6.64124E-08	0	0	0	0	0	0
C21s		1.88212E-08	0	0	1.88212E-08	0	0	0	0	0	0
C22s		6.71117E-09	0	0	6.71117E-09	0	0	0	0	0	0
C23s		2.25686E-09	0	0	2.25686E-09	0	0	0	0	0	0
C24s		8.11700E-10	0	0	8.11700E-10	0	0	0	0	0	0
C25s		2.30600E-10	0	0	2.30600E-10	0	0	0	0	0	0
C26s		1.04374E-10	0	0	1.04374E-10	0	0	0	0	0	0
C27s		4.99218E-11	0	0	4.99218E-11	0	0	0	0	0	0
C28s		1.35275E-11	0	0	1.35275E-11	0	0	0	0	0	0
C29s		6.92290E-12	0	0	6.92290E-12	0	0	0	0	0	0
C30s		0	0	0	0	0	0	0	0	0	0
C31s		2.51263E-11	0	0	2.51263E-11	0	0	0	0	0	0

TEG Dehydration System



Process Streams		Dry Gas	Flash Gas	Lean TEG Regen Overheads	Wet Gas Feed	1	4	5	13	14	16	17
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	Gas/TEG Side A	Flash-Drum	Reboiler	Condenser	Inlet Separator	WetGas1	TEG Contactor	MIX-100	TEG Regen	Condenser	TEG Regen	Reboiler
	To Block:	--	--	Cross Exch	--	SPLT-100	Inlet Separator	Gas/TEG Side A	TEG Slop	Condenser	TEG Regen	Reboiler	TEG Regen
Mole Fraction		%	%	%	%	%	%	%	%	%	%	%	%
Nitrogen		0.485923	0.132460	1.41818E-14	0.000213820	0.485140	0.484975	0.485923	0.000340458	0.000159267	1.85125E-09	1.49090E-11	4.45832E-11
Oxygen		0	0	0	0	0	0	0	0	0	0	0	0
CO2		0.177551	0.839727	2.93563E-09	0.0428699	0.177441	0.177382	0.177551	0.00310402	0.0319343	8.08073E-06	4.75952E-07	1.41832E-06
Methane		81.8857	62.8541	3.86192E-10	0.374210	81.7601	81.7323	81.8857	0.0957884	0.278737	6.07770E-06	1.88453E-07	5.63130E-07
Ethane		12.3038	21.4181	5.42824E-09	0.415348	12.2871	12.2830	12.3038	0.0130715	0.309379	6.61678E-06	1.27110E-06	3.79264E-06
Propane		3.14025	7.39156	1.32243E-08	0.265427	3.13651	3.13544	3.14025	0.00174396	0.197708	3.07882E-06	2.11814E-06	6.31166E-06
i-Butane		0.433094	0.962904	3.41796E-09	0.0414469	0.432578	0.432431	0.433094	0.000108740	0.0308723	2.08878E-07	4.55944E-07	1.35749E-06
n-Butane		0.730266	2.02472	2.24422E-08	0.127295	0.729539	0.729290	0.730266	0.000279903	0.0948180	1.43842E-06	2.50527E-06	7.45169E-06
2,2-Dimethylpropane		0.0127242	0.0298917	3.17161E-10	0.00177139	0.0127101	0.0127058	0.0127242	1.68259E-06	0.00131945	6.00452E-09	3.34936E-08	9.95896E-08
i-Pentane		0.220212	0.653068	4.04047E-08	0.0700064	0.220047	0.219972	0.220212	3.80277E-05	0.0521453	3.94705E-07	3.13230E-06	9.29215E-06
n-Pentane		0.184205	0.596697	6.03241E-08	0.0742524	0.184097	0.184034	0.184205	1.70966E-05	0.0553080	3.98362E-07	4.30532E-06	1.27624E-05
Neohexane		0.0107280	0.0344543	5.55247E-09	0.00493099	0.0107226	0.0107189	0.0107280	6.16664E-07	0.00367292	1.03589E-08	3.48780E-07	1.03258E-06
Cyclopentane		0	0	0	0	0	0	0	0	0	0	0	0
2,3-Dimethylbutane		0.0153344	0.0541525	1.92389E-08	0.0102708	0.0153322	0.0153270	0.0153344	1.69430E-06	0.00765037	3.40620E-08	1.06580E-06	3.15082E-06
Isohexane		0.0728174	0.246688	7.82603E-08	0.0453664	0.0728005	0.0727757	0.0728174	6.66953E-06	0.0337918	2.15450E-07	4.59802E-06	1.36025E-05
3-Methylpentane		0.0434511	0.159573	1.00559E-07	0.0368375	0.0434575	0.0434427	0.0434511	9.16109E-06	0.0274390	3.39968E-07	5.27716E-06	1.55903E-05
Hexane		0.0795802	0.273806	1.40052E-07	0.0597200	0.0795777	0.0795505	0.0795802	3.57180E-06	0.0444833	1.85743E-07	7.51507E-06	2.22080E-05
Methylcyclopentane		0.0110068	0.0585756	9.28190E-07	0.0389043	0.0110556	0.0110518	0.0110068	3.93731E-06	0.0289785	4.90955E-07	2.59306E-05	7.57416E-05
Benzene		0.00279403	0.0219375	4.36406E-05	0.0788120	0.00291113	0.00291017	0.00279403	8.11484E-05	0.0587146	4.09488E-05	0.000569756	0.00161791
Cyclohexane		0.0119450	0.0570764	1.36463E-06	0.0382656	0.0119910	0.0119870	0.0119450	8.55955E-06	0.0285028	8.53718E-07	3.21658E-05	9.35295E-05
2-Methylhexane		0.0250219	0.0846915	1.26703E-07	0.0268463	0.0250331	0.0250245	0.0250219	8.67465E-07	0.0199968	3.77127E-08	5.49433E-06	1.61880E-05
3-Methylhexane		0.0210848	0.0761836	1.83302E-07	0.0285840	0.0211038	0.0210966	0.0210848	8.23820E-07	0.0212912	4.04870E-08	7.25306E-06	2.13378E-05
2,2,4-Trimethylpentane		0	0	0	0	0	0	0	0	0	0	0	0
2,3-Dimethylpentane		0.00954830	0.0356267	1.16970E-07	0.0143333	0.00955919	0.00955593	0.00954830	6.20184E-07	0.0106764	3.50604E-08	4.32804E-06	1.27176E-05
n-Heptane		0.0272524	0.0917957	3.00521E-07	0.0374204	0.0272769	0.0272676	0.0272524	5.95477E-07	0.0278731	6.21137E-08	1.14748E-05	3.37368E-05
Methylcyclohexane		0.0226240	0.0969997	4.24910E-06	0.0812880	0.0227230	0.0227152	0.0226240	5.61072E-06	0.0605487	8.69760E-07	9.09622E-05	0.000263717
Toluene		0.00533547	0.0369561	0.000366538	0.231998	0.00567985	0.00567794	0.00533547	9.24806E-05	0.172832	0.000101133	0.00371297	0.0103799
2-Methylheptane		0.00748280	0.0233404	1.68753E-07	0.0121592	0.00749209	0.00748954	0.00748280	1.11514E-07	0.00905696	1.57604E-08	5.55868E-06	1.62968E-05
n-Octane		0.00762475	0.0230308	3.28362E-07	0.0148868	0.00763788	0.00763527	0.00762475	6.15914E-08	0.0110886	1.61899E-08	9.56657E-06	2.79715E-05
Ethylbenzene		0.000973825	0.00544430	0.000154558	0.0490280	0.00104737	0.00104702	0.000973825	9.70588E-06	0.0365228	1.41467E-05	0.00130582	0.00359944
m-Xylene		0.00210520	0.0113522	0.000374758	0.105629	0.00226043	0.00225967	0.00210520	1.51121E-05	0.0786870	3.01545E-05	0.00308893	0.00849626
o-Xylene		0.00115137	0.00667876	0.000534886	0.0840318	0.00127859	0.00127816	0.00115137	1.74990E-05	0.0626017	3.72652E-05	0.00376653	0.0102048
2,2-Dimethylheptane		0.00133593	0.00370384	5.12302E-08	0.00239613	0.00133786	0.00133540	0.00133593	4.09682E-09	0.00178479	6.80758E-10	1.43459E-06	4.19060E-06
n-Nonane		0.00162710	0.00435234	2.65736E-07	0.00473429	0.00163217	0.00163162	0.00162710	6.35538E-09	0.00352640	1.57245E-09	5.84094E-06	1.69482E-05
2-Methylnonane		0.000101149	0.000228507	3.51003E-08	0.000349649	0.000101542	0.000101507	0.000101149	9.75267E-11	0.000260441	4.51041E-11	6.60975E-07	1.90788E-06
n-Decane		0.000374961	0.000794718	2.42975E-07	0.00143425	0.000376619	0.000376491	0.000374961	3.33284E-10	0.00106832	2.13162E-10	3.93972E-06	1.13046E-05
Undecane		0	0	0	0	0	0	0	0	0	0	0	0
Water		0.0103927	1.56977	7.08801	97.4585	0.157624	0.191630	0.0103927	99.8852	98.1056	99.9946	35.4742	92.0267
TEG		5.89572E-05	0.000633196	92.9105	9.69445E-06	0	0	5.89572E-05	0	0.00131666	0.00513230	64.5127	7.93709
Argon		0	0	0	0	0	0	0	0	0	0	0	0
CO		0	0	0	0	0	0	0	0	0	0	0	0
C07s Others		0.00982373	0.0363350	2.17441E-07	0.0180847	0.00983993	0.00983657	0.00982373	1.06435E-06	0.0134707	1.03347E-07	7.63808E-06	2.24219E-05
C08s Others		0.0188652	0.0654092	2.74681E-06	0.0621268	0.0189370	0.0189306	0.0188652	2.41541E-06	0.0462761	4.58170E-07	6.87022E-05	0.000200102
C09s Others		0.00405866	0.0126555	3.49327E-06	0.0224432	0.00408760	0.00408620	0.00405866	5.20266E-07	0.0167172	1.86362E-07	6.29197E-05	0.000181312
C10s Others		0.00130371	0.00354076	5.36115E-06	0.0110360	0.00131872	0.00131827	0.00130371	1.31663E-07	0.00822033	8.47244E-08	7.17878E-05	0.000204127
C11s		0.000374602	0.000868643	6.42710E-06	0.00457987	0.000381033	0.000380903	0.000374602	2.47878E-08	0.00341139	2.80470E-08	6.53301E-05	0.000182680
C12s		7.70412E-05	0.000152368	5.92955E-06	0.00139483	7.90561E-05	7.90292E-05	7.70412E-05	3.28671E-09	0.00103896	6.74294E-09	4.52547E-05	0.000123600
C13s		1.83524E-05	3.11382E-05	6.76561E-06	0.000504940	1.91068E-05	1.91003E-05	1.83524E-05	5.05201E-10	0.000376112	1.92760E-09	3.84212E-05	0.000101487
C14s		3.75711E-06	5.54245E-06	6.82665E-06	0.000158664	4.00974E-06	4.00838E-06	3.75711E-06	6.79785E-11	0.000118183	4.83991E-10	2.87035E-05	7.22877E-05
C15s		8.14040E-07	1.05943E-06	6.27477E-06	4.90737E-05	9.04061E-07	9.03753E-07	8.14040E-07	9.08627E-12	3.65532E-05	1.12831E-10	1.98444E-05	4.68787E-05
C16s		1.74491E-07	1.98580E-07	3.77883E-06	1.24215E-05	2.03318E-07	2.03248E-07	1.74491E-07	8.88831E-13	9.25230E-06	1.68821E-11	9.44319E-06	2.07281E-05
C17s		4.01435E-08	4.23801E-08	2.27893E-06	3.24582E-06	5.12202E-08	5.12027E-08	4.01435E-08	1.07278E-13	2.41769E-06	2.83336E-12	4.49191E-06	8.90072E-06
C18s		1.04457E-08	9.97124E-09	1.07314E-06	8.39969E-07	1.46356E-08	1.46306E-08	1.04457E-08	0	6.25662E-07	3.38125E-13	1.76611E-06	3.14669E-06
C19s		2.50738E-09	2.26534E-09	4.49682E-07	2.06203E-07	4.04599E-09	4.04461E-09	2.50738E-09	0	1.53593E-07	3.68790E-14	6.27863E-07	9.82843E-07
C20s		5.33896E-10	4.80864E-10	1.66374E-07	4.73081E-08	1.06003E-09	1.05967E-09	5.33896E-10	0	3.52381E-08	3.56648E-15	2.01128E-07	2.70366E-07
C21s		1.05085E-10	1.02009E-10	6.01728E-08	1.09413E-08	2.86202E-10	2.86104E-10	1.05085E-10	0	8.14978E-09	3.43755E-16	6.41842E-08	7.21759E-08
C22s		2.41472E-11	2.63118E-11	2.50970E-08	3.05630E-09	9.74442E-11	9.74110E-11	2.41472E-11	0	2.27652E-09	3.66087E-17	2.41912E-08	2.23868E-08
C23s		4.84781E-12	6.18124E-12	9.25503E-09	7.75176E-10	3.13530E-11	3.13423E-11	4.84781E-12	0	5.77400E-10	3.35570E-18	8.22273E-09	6.16612E-09
C24s		1.14523E-12	1.57252E-12	3.41495E-09	2.08587E-10	1.08093E-11	1.08056E-11	1.14523E-12	0	1.55369E-10	2.59469E-19	2.85806E-09	1.74861E-09
C25s		2.12674E-13	3.16372E-13	9.74995E-10	4.41222E-11	2.94874E-12	2.94773E-12	2.12674E-13	0	3.28650E-11	1.50764E-20	7.77957E-10	3.85408E-10
C26s		6.28488E-14	1.01927E-13	4.37658E-10	1.48649E-11	1.28361E-12	1.28318E-12	6.28488E-14	0	1.10723E-11	1.35848E-21	3.36220E-10	1.34130E-10
C27s		0	3.49313E-14	2.05886E-10	5.30349E-12	5.91327E-13	5.91126E-13	0	0	3.95038E-12	1.28699E-22	1.53494E-10	4.91154E-11
C28s		0	7.39858E-15	5.41210E-11	1.13282E-12	1.54540E-13	1.54488E-13	0	0	8.43798E-13	5.17923E-24	3.95295E-11	1.04597E-11
C29s		0	3.01886E-15	2.68490E-11	4.62990E-13	7.63750E-14	7.63490E-14	0	0	3.44865E-13	3.85060E-25	1.92906E-11	4.23245E-12
C30s		0	0	0	0	0	0	0	0	0	0	0	0
C31s		0	4.36646E-16	9.46367E-11	1.69203E-13	2.59397E-13	2.59309E-13	0	0	1.26033E-13	2.67995E-21	6.41343E-11	3.36591E-12

Process Streams		Dry Gas	Flash Gas	Lean TEG	Regen Overheads	Wet Gas Feed	1	4	5	13	14	16	17
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: **Total**	From Block:	Gas/TEG Side A	Flash-Drum	Reboiler	Condenser	Inlet Separator	WetGas1	TEG Contactor	MIX-100	TEG Regen	Condenser	TEG Regen	Reboiler
	To Block:	--	--	Cross Exch	--	SPLT-100	Inlet Separator	Gas/TEG Side A	TEG Slop	Condenser	TEG Regen	Reboiler	TEG Regen
Property	**Units**												
Temperature	°F	111.628	149.037	400.000	210.720	110	110	109.633	110	211.463	210.720	278.004	400.000
Pressure	psig	955	60	0.504051	0.00405122	1005.91	1005.91	960	1005.91	0.00405122	0.00405122	0.504051	0.504051
Mole Fraction Vapor	%	100	100	0	100	100	99.9659	100	0	100	0	0	100
Mole Fraction Light Liquid	%	0	0	100	0	0	0.0340992	0	100	0	100	100	0
Mole Fraction Heavy Liquid	%	0	0	0	0	0	0	0	0	0	0	0	0
Molecular Weight	lb/lbmol	19.8026	24.5519	140.805	19.1851	19.8022	19.8016	19.8026	18.0166	18.8884	18.0222	103.285	28.5352
Mass Density	lb/ft^3	3.70409	0.285660	58.0719	0.0395390	3.94855	3.94970	3.74883	61.7889	0.0388846	59.8881	63.0892	0.0473433
Mass Flow	lb/h	43399.1	7.58124	846.391	63.5348	43470.0	43483.5	43399.1	13.4909	83.9782	20.4434	932.489	86.0972
Std Vapor Volumetric Flow	MMSCFD	19.9601	0.00281229	0.0547467	0.0301614	19.9931	19.9999	19.9601	0.00681981	0.0404925	0.0103311	0.0822265	0.0274798
Std Liquid Volumetric Flow	sgpm	260.253	0.0403829	1.49965	0.133116	260.426	260.453	260.253	0.0270356	0.173982	0.0408658	1.66355	0.163901
Net Ideal Gas Heating Value	Btu/ft^3	1086.65	1298.33	3503.75	80.3035	1085.16	1084.79	1086.65	1.14801	59.8672	0.203887	2433.41	301.039
Gross Ideal Gas Heating Value	Btu/ft^3	1199.59	1426.34	3834.19	135.114	1198.01	1197.62	1199.59	51.5216	113.534	50.5298	2678.26	375.349
Mass Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Nitrogen		298.327	0.0114580	2.38808E-14	0.000198363	298.338	298.338	298.327	7.14163E-05	0.000198364	5.88266E-10	3.77069E-11	3.76830E-11
Oxygen		0	0	0	0	0	0	0	0	0	0	0	0
CO2		171.249	0.114115	7.76606E-09	0.0624807	171.426	171.427	171.249	0.00102291	0.0624847	4.03404E-06	1.89111E-06	1.88334E-06
Methane		28789.8	3.11358	3.72415E-10	0.198808	28793.1	28793.1	28789.8	0.0115067	0.198809	1.10600E-06	2.72949E-07	2.72576E-07
Ethane		8108.07	1.98864	9.81143E-09	0.413598	8110.47	8110.48	8108.07	0.00294315	0.413601	2.25689E-06	3.45069E-06	3.44088E-06
Propane		3034.72	1.00644	3.50528E-08	0.387603	3036.11	3036.11	3034.72	0.000575837	0.387605	1.54001E-06	8.43251E-06	8.39746E-06
i-Butane		551.676	0.172815	1.19416E-08	0.0797776	551.928	551.928	551.676	4.73261E-05	0.0797778	1.37714E-07	2.39255E-06	2.38061E-06
n-Butane		930.212	0.363381	7.84080E-08	0.245020	930.821	930.821	930.212	0.000121820	0.245021	9.48358E-07	1.31463E-05	1.30679E-05
2,2-Dimethylpropane		20.1196	0.00665940	1.37551E-09	0.00423244	20.1305	20.1305	20.1196	9.09023E-07	0.00423244	4.91417E-09	2.18172E-07	2.16796E-07
i-Pentane		348.201	0.145494	1.75232E-07	0.167268	348.513	348.513	348.201	2.05445E-05	0.167269	3.23032E-07	2.04033E-05	2.02280E-05
n-Pentane		291.265	0.132935	2.61621E-07	0.177414	291.576	291.576	291.265	9.23649E-06	0.177414	3.26025E-07	2.80441E-05	2.77825E-05
Neohexane		20.2610	0.00916816	2.87623E-08	0.0140723	20.2842	20.2842	20.2610	3.97923E-07	0.0140723	1.01260E-08	2.71358E-06	2.68482E-06
Cyclopentane		0	0	0	0	0	0	0	0	0	0	0	0
2,3-Dimethylbutane		28.9607	0.0144098	9.96590E-08	0.0293113	29.0044	29.0044	28.9607	1.09330E-06	0.0293114	3.32963E-08	8.29212E-06	8.19246E-06
Isohexane		137.524	0.0656430	4.05395E-07	0.129468	137.719	137.719	137.524	4.30374E-06	0.129469	2.10607E-07	3.57735E-05	3.53681E-05
3-Methylpentane		82.0622	0.0424619	5.20901E-07	0.105128	82.2098	82.2098	82.0622	5.91150E-06	0.105129	3.32326E-07	4.10573E-05	4.05364E-05
Hexane		150.296	0.0728588	7.25482E-07	0.170432	150.539	150.539	150.296	2.30483E-06	0.170432	1.81568E-07	5.84687E-05	5.77432E-05
Methylcyclopentane		20.3012	0.0152222	4.69562E-06	0.108430	20.4249	20.4249	20.3012	2.48125E-06	0.108430	4.68692E-07	0.000197025	0.000192330
Benzene		4.78307	0.00529129	0.000204909	0.203871	4.99177	4.99181	4.78307	4.74640E-05	0.203908	3.62829E-05	0.00401802	0.00381311
Cyclohexane		22.0317	0.0148326	6.90353E-06	0.106649	22.1532	22.1532	22.0317	5.39413E-06	0.106650	8.15006E-07	0.000244402	0.000237498
2-Methylhexane		54.9485	0.0262043	7.63160E-07	0.0890854	55.0638	55.0638	54.9485	6.50872E-07	0.0890855	4.28654E-08	4.97047E-05	4.89416E-05
3-Methylhexane		46.3024	0.0235719	1.10407E-06	0.0948520	46.4209	46.4209	46.3024	6.18125E-07	0.0948521	4.60188E-08	6.56152E-05	6.45111E-05
2,2,4-Trimethylpentane		0	0	0	0	0	0	0	0	0	0	0	0
2,3-Dimethylpentane		20.9682	0.0110232	7.04535E-07	0.0475631	21.0268	21.0268	20.9682	4.65334E-07	0.0475631	3.98507E-08	3.91538E-05	3.84493E-05
n-Heptane		59.8467	0.0284024	1.81011E-06	0.124174	59.9993	59.9993	59.8467	4.46796E-07	0.124174	7.06004E-08	0.000103807	0.000101997
Methylcyclohexane		48.6832	0.0294088	2.50784E-05	0.264316	48.9768	48.9768	48.6832	4.12512E-06	0.264317	9.68707E-07	0.000806340	0.000781261
Toluene		10.7739	0.0105144	0.00203008	0.707899	11.4882	11.4883	10.7739	6.38056E-05	0.708005	0.000105701	0.0308865	0.0288564
2-Methylheptane		18.7326	0.00823266	1.15872E-06	0.0459968	18.7868	18.7868	18.7326	9.53834E-08	0.0459968	2.04214E-08	5.73263E-05	5.61675E-05
n-Octane		19.0879	0.00812343	2.25466E-06	0.0563149	19.1524	19.1524	19.0879	5.26820E-08	0.0563149	2.09779E-08	9.86593E-05	9.64046E-05
Ethylbenzene		2.26580	0.00178476	0.000986339	0.172374	2.44094	2.44095	2.26580	7.71585E-06	0.172391	1.70365E-05	0.0125162	0.0115299
m-Xylene		4.89817	0.00372151	0.00239158	0.371375	5.26804	5.26805	4.89817	1.20136E-05	0.371411	3.63142E-05	0.0296071	0.0272156
o-Xylene		2.67888	0.00218944	0.00341347	0.295442	2.97982	2.97983	2.67888	1.39111E-05	0.295487	4.48774E-05	0.0361019	0.0326885
2,2-Dimethylheptane		3.75506	0.00146684	3.94961E-07	0.0101773	3.76670	3.76670	3.75506	3.93449E-09	0.0101773	9.90401E-10	1.66115E-05	1.62166E-05
n-Nonane		4.57350	0.00172367	2.04870E-06	0.0201083	4.59533	4.59533	4.57350	6.10357E-09	0.0201083	2.28768E-09	6.76339E-05	6.55852E-05
2-Methylnonane		0.315405	0.000100393	3.00202E-07	0.00164751	0.317153	0.317153	0.315405	1.03906E-10	0.00164751	7.27962E-11	8.49065E-06	8.19045E-06
n-Decane		1.16921	0.000349155	2.07809E-06	0.00675806	1.17632	1.17632	1.16921	3.55084E-10	0.00675806	3.44034E-10	5.06083E-05	4.85302E-05
Undecane		0	0	0	0	0	0	0	0	0	0	0	0
Water		4.10325	0.0873240	7.67572	58.1444	62.3360	75.8104	4.10325	13.4744	78.5788	20.4344	57.6980	50.0223
TEG		0.194038	0.000293620	838.706	4.82127E-05	0	0	0.194038	0	0.00879094	0.00874273	874.669	35.9635
Argon		0	0	0	0	0	0	0	0	0	0	0	0
CO		0	0	0	0	0	0	0	0	0	0	0	0
C07s Others		21.5731	0.0112424	1.30970E-06	0.0600116	21.6443	21.6443	21.5731	7.98602E-07	0.0600118	1.17468E-07	6.90983E-05	6.77886E-05
C08s Others		47.2278	0.0230713	1.88607E-05	0.235019	47.4858	47.4858	47.2278	2.06602E-06	0.235019	5.93672E-07	0.000708524	0.000689663
C09s Others		11.4082	0.00501200	2.69315E-05	0.0953250	11.5085	11.5085	11.4082	4.99651E-07	0.0953253	2.71128E-07	0.000728564	0.000701633
C10s Others		4.06527	0.00155562	4.58523E-05	0.0520006	4.11888	4.11888	4.06527	1.40275E-07	0.0520008	1.36742E-07	0.000922162	0.000876310
C11s		1.28325	0.000419258	6.03882E-05	0.0237074	1.30744	1.30744	1.28325	2.90128E-08	0.0237075	4.97295E-08	0.000921943	0.000861555
C12s		0.287597	8.01403E-05	6.07123E-05	0.00786811	0.295606	0.295606	0.287597	4.19208E-09	0.00786813	1.30285E-08	0.000695940	0.000635228
C13s		0.0741516	1.77263E-05	7.49772E-05	0.00308288	0.0773272	0.0773272	0.0741516	6.97431E-10	0.00308288	4.03115E-09	0.000639510	0.000564533
C14s		0.0163353	3.39526E-06	8.14097E-05	0.00104242	0.0174626	0.0174626	0.0163353	1.00984E-10	0.00104242	1.08917E-09	0.000514111	0.000432701
C15s		0.00378957	6.94883E-07	8.01192E-05	0.000345208	0.00421559	0.00421559	0.00378957	1.44523E-11	0.000345208	2.71867E-10	0.000380567	0.000300448
C16s		0.000865939	1.38850E-07	5.14358E-05	9.31483E-05	0.00101066	0.00101066	0.000865939	1.50710E-12	9.31484E-05	4.33637E-11	0.000193055	0.000141619
C17s		0.000211559	3.14684E-08	3.29414E-05	2.58481E-05	0.000270380	0.000270380	0.000211559	1.93169E-13	2.58481E-05	7.72862E-12	9.75204E-05	6.45789E-05
C18s		5.82606E-05	7.83582E-09	1.64169E-05	7.07928E-06	8.17646E-05	8.17646E-05	5.82606E-05	0	7.07928E-06	9.76111E-13	4.05794E-05	2.41625E-05
C19s		1.47556E-05	1.87832E-09	7.25834E-06	1.83366E-06	2.38495E-05	2.38495E-05	1.47556E-05	0	1.83366E-06	1.12331E-13	1.52212E-05	7.96289E-06
C20s		3.30603E-06	4.19536E-10	2.82572E-06	4.42663E-07	6.57483E-06	6.57483E-06	3.30603E-06	0	4.42663E-07	1.14307E-14	5.13061E-06	2.30489E-06
C21s		6.83019E-07	9.34170E-11	1.07272E-06	1.07461E-07	1.86329E-06	1.86329E-06	6.83019E-07	0	1.07461E-07	1.15645E-15	1.71857E-06	6.45853E-07
C22s		1.64372E-07	2.52353E-11	4.68572E-07	3.14372E-08	6.64406E-07	6.64406E-07	1.64372E-07	0	3.14372E-08	1.28982E-16	6.78370E-07	2.09799E-07
C23s		3.44897E-08	6.19607E-12	1.80599E-07	8.33359E-09	2.23429E-07	2.23429E-07	3.44897E-08	0	8.33359E-09	1.23569E-17	2.40995E-07	6.03955E-08
C24s		8.49980E-09	1.64440E-12	6.95175E-08	2.33932E-09	8.03583E-08	8.03583E-08	8.49980E-09	0	2.33932E-09	9.96746E-19	8.73847E-08	1.78672E-08
C25s		1.64382E-09	3.44537E-13	2.06699E-08	5.15331E-10	2.28294E-08	2.28294E-08	1.64382E-09	0	5.15331E-10	6.03149E-20	2.47711E-08	4.10120E-09
C26s		5.05098E-10	1.15415E-13	9.64734E-09	1.80521E-10	1.03331E-08	1.03331E-08	5.05098E-10	0	1.80521E-10	5.65089E-21	1.11314E-08	1.48407E-09
C27s		0	4.10670E-14	4.71196E-09	6.68699E-11	4.94226E-09	4.94226E-09	0	0	6.68699E-11	5.55829E-22	5.27618E-09	5.64219E-10
C28s		0	9.01860E-15	1.28426E-09	1.48096E-11	1.33922E-09	1.33922E-09	0	0	1.48096E-11	2.31922E-23	1.40884E-09	1.24584E-10
C29s		0	3.81062E-15	6.59747E-10	6.26780E-12	6.85367E-10	6.85367E-10	0	0	6.26780E-12	1.78553E-24	7.11950E-10	5.22031E-11
C30s		0	0	0	0	0	0	0	0	0	0	0	0
C31s		0	5.88991E-16	2.48505E-09	2.44781E-12	2.48750E-09	2.48750E-09	0	0	2.44781E-12	1.32798E-20	2.52941E-09	4.43643E-11

June 20, 2016

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: CONSOL Energy Inc.
CNX Center
1000 CONSOL Energy Drive
Canonsburg, Pennsylvania 15317

Sample: Oxford Pad 11-K
GPU Outlet Gas
Sampled @ 986 psig & 72 °F

Date Sampled: 06/10/16 Job Number: 62455.001

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286

COMPONENT	MOL%	GPM
Nitrogen	0.448	
Carbon Dioxide	0.177	
Methane	81.912	
Ethane	12.141	3.239
Propane	3.164	0.870
Isobutane	0.450	0.147
n-Butane	0.738	0.232
2-2 Dimethylpropane	0.010	0.004
Isopentane	0.231	0.084
n-Pentane	0.184	0.067
Hexanes	0.275	0.113
Heptanes Plus	0.270	0.120
Totals	100.000	4.875

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.563	(Air=1)
Molecular Weight	102.86	
Gross Heating Value	5421	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	0.689	(Air=1)
Compressibility (Z)	0.9968	
Molecular Weight	19.90	
Gross Heating Value		
Dry Basis	1205	BTU/CF
Saturated Basis	1185	BTU/CF

Base Conditions: 14.650 PSI & 60 Deg F

Sampled By: (16) Campos
Analyst: RG
Processor: OA
Cylinder ID: T-2382

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Nitrogen	0.448		0.631
Carbon Dioxide	0.177		0.391
Methane	81.912		66.028
Ethane	12.141	3.239	18.344
Propane	3.164	0.870	7.010
Isobutane	0.450	0.147	1.314
n-Butane	0.738	0.232	2.155
2,2 Dimethylpropane	0.010	0.004	0.036
Isopentane	0.231	0.084	0.837
n-Pentane	0.184	0.067	0.667
2,2 Dimethylbutane	0.014	0.006	0.061
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.019	0.008	0.082
2 Methylpentane	0.090	0.037	0.390
3 Methylpentane	0.054	0.022	0.234
n-Hexane	0.098	0.040	0.424
Methylcyclopentane	0.010	0.003	0.042
Benzene	0.003	0.001	0.012
Cyclohexane	0.013	0.004	0.055
2-Methylhexane	0.031	0.014	0.156
3-Methylhexane	0.028	0.013	0.141
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.030	0.013	0.150
n-Heptane	0.036	0.017	0.181
Methylcyclohexane	0.029	0.012	0.143
Toluene	0.008	0.003	0.037
Other C8's	0.042	0.019	0.233
n-Octane	0.013	0.007	0.075
Ethylbenzene	0.000	0.000	0.000
M & P Xylenes	0.005	0.002	0.027
O-Xylene	0.000	0.000	0.000
Other C9's	0.012	0.006	0.076
n-Nonane	0.004	0.002	0.026
Other C10's	0.004	0.002	0.028
n-Decane	0.002	0.001	0.014
Undecanes (11)	0.000	0.000	0.000
Totals	100.000	4.875	100.000

Computed Real Characteristics of Total Sample

Specific Gravity	0.689	(Air=1)
Compressibility (Z)	0.9968	
Molecular Weight	19.90	

Gross Heating Value

Dry Basis	1205	BTU/CF
Saturated Basis	1185	BTU/CF

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

Sample: Oxford Pad 11-K
GPU Outlet Gas
Sampled @ 986 psig & 72 °F

Date Sampled: 06/10/16 Job Number: 62455.001

GLYCALC FORMAT

COMPONENT	MOL%	GPM	Wt %
Carbon Dioxide	0.177		0.391
Hydrogen Sulfide	----		----
Nitrogen	0.448		0.631
Methane	81.912		66.028
Ethane	12.141	3.239	18.344
Propane	3.164	0.870	7.010
Isobutane	0.450	0.147	1.314
n-Butane	0.748	0.236	2.191
Isopentane	0.231	0.084	0.837
n-Pentane	0.184	0.067	0.667
Cyclopentane	0.000	0.000	0.000
n-Hexane	0.098	0.040	0.424
Cyclohexane	0.013	0.004	0.055
Other C6's	0.177	0.073	0.767
Heptanes	0.135	0.060	0.670
Methylcyclohexane	0.029	0.012	0.143
2,2,4 Trimethylpentane	0.000	0.000	0.000
Benzene	0.003	0.001	0.012
Toluene	0.008	0.003	0.037
Ethylbenzene	0.000	0.000	0.000
Xylenes	0.005	0.002	0.027
Octanes Plus	0.077	0.038	0.452
Totals	100.000	4.875	100.000

Real Characteristics Of Octanes Plus:

Specific Gravity	4.045	(Air=1)
Molecular Weight	116.78	
Gross Heating Value	5995	BTU/CF

Real Characteristics Of Total Sample:

Specific Gravity	0.689	(Air=1)
Compressibility (Z)	0.9968	
Molecular Weight	19.90	
Gross Heating Value		
Dry Basis	1205	BTU/CF
Saturated Basis	1185	BTU/CF

June 21, 2016

FESCO, Ltd.
1100 FESCO Avenue - Alice, Texas 78332

For: CONSOL Energy Inc.
CNX Center
1000 CONSOL Energy Drive
Canonsburg, Pennsylvania 15317

Sample: Oxford Pad 11-K
GPU Outlet Hydrocarbon Liquid
Sampled @ 986 psig & 72 °F

Date Sampled: 06/10/16 Job Number: 62455.002

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2186-M

COMPONENT	MOL %	LIQ VOL %	WT %
Nitrogen	0.041	0.014	0.019
Carbon Dioxide	0.095	0.050	0.070
Methane	24.624	12.819	6.597
Ethane	15.338	12.602	7.702
Propane	11.166	9.451	8.223
Isobutane	2.945	2.961	2.859
n-Butane	6.316	6.117	6.130
2,2 Dimethylpropane	0.078	0.092	0.094
Isopentane	3.817	4.289	4.600
n-Pentane	3.656	4.071	4.405
2,2 Dimethylbutane	0.197	0.252	0.283
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.295	0.372	0.425
2 Methylpentane	1.804	2.300	2.596
3 Methylpentane	1.164	1.460	1.675
n-Hexane	2.468	3.118	3.552
Heptanes Plus	25.995	40.033	50.769
Totals:	100.000	100.000	100.000

Characteristics of Heptanes Plus:

Specific Gravity	0.7392	(Water=1)
°API Gravity	59.92	@ 60°F
Molecular Weight	116.9	
Vapor Volume	20.06	CF/Gal
Weight	6.16	Lbs/Gal

Characteristics of Total Sample:

Specific Gravity	0.5829	(Water=1)
°API Gravity	111.25	@ 60°F
Molecular Weight	59.9	
Vapor Volume	30.90	CF/Gal
Weight	4.86	Lbs/Gal

Base Conditions: 14.650 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

Sampled By: (20) Cucinotta
Analyst: XG
Processor: XGdjv
Cylinder ID: W-1417

David Dannhaus 361-661-7015

TANKS DATA INPUT REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Carbon Dioxide	0.095	0.050	0.070
Nitrogen	0.041	0.014	0.019
Methane	24.624	12.819	6.597
Ethane	15.338	12.602	7.702
Propane	11.166	9.451	8.223
Isobutane	2.945	2.961	2.859
n-Butane	6.394	6.209	6.225
Isopentane	3.817	4.289	4.600
n-Pentane	3.656	4.071	4.405
Other C-6's	3.460	4.384	4.979
Heptanes	7.008	9.566	11.445
Octanes	7.806	11.338	14.131
Nonanes	3.292	5.545	6.972
Decanes Plus	5.747	11.153	14.572
Benzene	0.072	0.062	0.093
Toluene	0.494	0.508	0.760
E-Benzene	0.428	0.508	0.759
Xylenes	1.148	1.354	2.035
n-Hexane	2.468	3.118	3.552
2,2,4 Trimethylpentane	0.000	0.000	0.000
Totals:	100.000	100.000	100.000

Characteristics of Total Sample:

Specific Gravity	0.5829	(Water=1)
°API Gravity	111.25	@ 60°F
Molecular Weight	59.9	
Vapor Volume	30.90	CF/Gal
Weight	4.86	Lbs/Gal

Characteristics of Decanes (C10) Plus:

Specific Gravity	0.7616	(Water=1)
Molecular Weight	151.8	

Characteristics of Atmospheric Sample:

°API Gravity	69.96	@ 60°F
Reid Vapor Pressure Equivalent (D-5191)	12.25	psi

QUALITY CONTROL CHECK			
	Sampling Conditions	Test Samples	
Cylinder Number	------	W1417*	W1013
Pressure, PSIG	986	968	964
Temperature, °F	72	72	72

* Sample used for analysis

TOTAL EXTENDED REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Nitrogen	0.041	0.014	0.019
Carbon Dioxide	0.095	0.050	0.070
Methane	24.624	12.819	6.597
Ethane	15.338	12.602	7.702
Propane	11.166	9.451	8.223
Isobutane	2.945	2.961	2.859
n-Butane	6.316	6.117	6.130
2,2 Dimethylpropane	0.078	0.092	0.094
Isopentane	3.817	4.289	4.600
n-Pentane	3.656	4.071	4.405
2,2 Dimethylbutane	0.197	0.252	0.283
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.295	0.372	0.425
2 Methylpentane	1.804	2.300	2.596
3 Methylpentane	1.164	1.460	1.675
n-Hexane	2.468	3.118	3.552
Methylcyclopentane	0.540	0.587	0.759
Benzene	0.072	0.062	0.093
Cyclohexane	0.467	0.488	0.656
2-Methylhexane	1.735	2.478	2.904
3-Methylhexane	1.401	1.975	2.344
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C-7's	0.761	1.054	1.260
n-Heptane	2.105	2.983	3.522
Methylcyclohexane	1.692	2.089	2.774
Toluene	0.494	0.508	0.760
Other C-8's	4.594	6.855	8.456
n-Octane	1.521	2.394	2.902
E-Benzene	0.428	0.508	0.759
M & P Xylenes	0.542	0.646	0.961
O-Xylene	0.606	0.708	1.075
Other C-9's	2.360	3.934	4.977
n-Nonane	0.932	1.611	1.996
Other C-10's	2.221	4.069	5.241
n-decane	0.518	0.976	1.230
Undecanes(11)	1.447	2.719	3.552
Dodecanes(12)	0.777	1.577	2.089
Tridecanes(13)	0.434	0.946	1.270
Tetradecanes(14)	0.192	0.448	0.610
Pentadecanes(15)	0.091	0.227	0.312
Hexadecanes(16)	0.033	0.088	0.123
Heptadecanes(17)	0.017	0.047	0.066
Octadecanes(18)	0.008	0.025	0.035
Nonadecanes(19)	0.004	0.012	0.017
Eicosanes(20)	0.001	0.004	0.006
Heneicosanes(21)	0.001	0.003	0.004
Docosanes(22)	0.001	0.002	0.003
Tricosanes(23)	0.000	0.002	0.002
Tetracosanes(24)	0.000	0.001	0.002
Pentacosanes(25)	0.000	0.001	0.001
Hexacosanes(26)	0.000	0.001	0.001
Heptacosanes(27)	0.000	0.001	0.001
Octacosanes(28)	0.000	0.001	0.001
Nonacosanes(29)	0.000	0.000	0.001
Triacontanes(30)	0.000	0.000	0.001
Hentriacontanes Plus(31+)	0.001	0.003	0.004
Total	100.000	100.000	100.000

June 15, 2016

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: CONSOL Energy Inc.
CNX Center
1000 CONSOL Energy Drive
Canonsburg, Pennsylvania 15317

Sample: Oxford Pad II-B
GPU Outlet Gas
Gas Sampled @ 988 psig & 74 °F

Date Sampled: 06/10/2016 Job Number: 62454.001

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286

COMPONENT	MOL%	GPM
Nitrogen	0.528	
Carbon Dioxide	0.179	
Methane	82.263	
Ethane	12.342	3.292
Propane	2.981	0.819
Isobutane	0.382	0.125
n-Butane	0.650	0.204
2-2 Dimethylpropane	0.015	0.006
Isopentane	0.171	0.062
n-Pentane	0.150	0.054
Hexanes	0.162	0.067
Heptanes Plus	0.177	0.078
Totals	100.000	4.707

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.563	(Air=1)
Molecular Weight	102.89	
Gross Heating Value	5414	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	0.679	(Air=1)
Compressibility (Z)	0.9969	
Molecular Weight	19.61	
Gross Heating Value		
Dry Basis	1189	BTU/CF
Saturated Basis	1169	BTU/CF

Base Conditions: 14.650 PSI & 60 Deg F

Sampled By: (20) Cucinotta
Analyst: MR
Processor: NG
Cylinder ID: T-3252

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Nitrogen	0.528		0.754
Carbon Dioxide	0.179		0.402
Methane	82.263		67.287
Ethane	12.342	3.292	18.921
Propane	2.981	0.819	6.702
Isobutane	0.382	0.125	1.132
n-Butane	0.650	0.204	1.926
2,2 Dimethylpropane	0.015	0.006	0.055
Isopentane	0.171	0.062	0.629
n-Pentane	0.150	0.054	0.552
2,2 Dimethylbutane	0.007	0.003	0.031
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.012	0.005	0.053
2 Methylpentane	0.052	0.022	0.228
3 Methylpentane	0.031	0.013	0.136
n-Hexane	0.060	0.025	0.264
Methylcyclopentane	0.008	0.003	0.034
Benzene	0.003	0.001	0.012
Cyclohexane	0.010	0.003	0.043
2-Methylhexane	0.017	0.008	0.087
3-Methylhexane	0.016	0.007	0.082
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.019	0.008	0.096
n-Heptane	0.023	0.011	0.118
Methylcyclohexane	0.020	0.008	0.100
Toluene	0.005	0.002	0.023
Other C8's	0.027	0.013	0.152
n-Octane	0.009	0.005	0.052
Ethylbenzene	0.000	0.000	0.000
M & P Xylenes	0.003	0.001	0.016
O-Xylene	0.000	0.000	0.000
Other C9's	0.010	0.005	0.064
n-Nonane	0.003	0.002	0.020
Other C10's	0.001	0.001	0.007
n-Decane	0.002	0.001	0.015
Undecanes (11)	0.001	0.001	0.007
Totals	100.000	4.707	100.000

Computed Real Characteristics of Total Sample

Specific Gravity	0.679	(Air=1)
Compressibility (Z)	0.9969	
Molecular Weight	19.61	

Gross Heating Value

Dry Basis	1189	BTU/CF
Saturated Basis	1169	BTU/CF

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

Sample: Oxford Pad II-B
GPU Outlet Gas
Gas Sampled @ 988 psig & 74 °F

Date Sampled: 06/10/2016 Job Number: 62454.001

GLYCALC FORMAT

COMPONENT	MOL%	GPM	Wt %
Carbon Dioxide	0.179		0.402
Hydrogen Sulfide	----		----
Nitrogen	0.528		0.754
Methane	82.263		67.287
Ethane	12.342	3.292	18.921
Propane	2.981	0.819	6.702
Isobutane	0.382	0.125	1.132
n-Butane	0.665	0.210	1.981
Isopentane	0.171	0.062	0.629
n-Pentane	0.150	0.054	0.552
Cyclopentane	0.000	0.000	0.000
n-Hexane	0.060	0.025	0.264
Cyclohexane	0.010	0.003	0.043
Other C6's	0.102	0.042	0.448
Heptanes	0.083	0.037	0.417
Methylcyclohexane	0.020	0.008	0.100
2,2,4 Trimethylpentane	0.000	0.000	0.000
Benzene	0.003	0.001	0.012
Toluene	0.005	0.002	0.023
Ethylbenzene	0.000	0.000	0.000
Xylenes	0.003	0.001	0.016
Octanes Plus	0.053	0.026	0.317
Totals	100.000	4.707	100.000

Real Characteristics Of Octanes Plus:

Specific Gravity	4.067	(Air=1)
Molecular Weight	117.43	
Gross Heating Value	6056	BTU/CF

Real Characteristics Of Total Sample:

Specific Gravity	0.679	(Air=1)
Compressibility (Z)	0.9969	
Molecular Weight	19.61	
Gross Heating Value		
Dry Basis	1189	BTU/CF
Saturated Basis	1169	BTU/CF

June 21, 2016

FESCO, Ltd.
1100 FESCO Avenue - Alice, Texas 78332

For: CONSOL Energy Inc.
CNX Center
1000 CONSOL Energy Drive
Canonsburg, Pennsylvania 15317

Sample: Oxford Pad 11-B
GPU Outlet Hydrocarbon Liquid
Sampled @ 988 psig & 74 °F

Date Sampled: 06/10/16 Job Number: 62454.002

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2186-M

COMPONENT	MOL %	LIQ VOL %	WT %
Nitrogen	0.045	0.014	0.018
Carbon Dioxide	0.098	0.047	0.062
Methane	24.583	11.707	5.698
Ethane	15.024	11.292	6.527
Propane	10.106	7.825	6.439
Isobutane	2.373	2.182	1.992
n-Butane	5.265	4.665	4.421
2,2 Dimethylpropane	0.062	0.067	0.065
Isopentane	2.852	2.931	2.973
n-Pentane	2.893	2.947	3.016
2,2 Dimethylbutane	0.134	0.157	0.167
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.219	0.252	0.272
2 Methylpentane	1.420	1.656	1.768
3 Methylpentane	0.923	1.059	1.149
n-Hexane	2.082	2.406	2.592
Heptanes Plus	31.922	50.791	62.840
Totals:	100.000	100.000	100.000

Characteristics of Heptanes Plus:

Specific Gravity	0.7626	(Water=1)
°API Gravity	54.04	@ 60°F
Molecular Weight	136.2	
Vapor Volume	17.77	CF/Gal
Weight	6.35	Lbs/Gal

Characteristics of Total Sample:

Specific Gravity	0.6164	(Water=1)
°API Gravity	98.06	@ 60°F
Molecular Weight	69.2	
Vapor Volume	28.27	CF/Gal
Weight	5.14	Lbs/Gal

Base Conditions: 14.650 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

Sampled By: (20) Cucinotta
Analyst: XG
Processor: XGdjv
Cylinder ID: W-1015

David Dannhaus 361-661-7015

TANKS DATA INPUT REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Carbon Dioxide	0.098	0.047	0.062
Nitrogen	0.045	0.014	0.018
Methane	24.583	11.707	5.698
Ethane	15.024	11.292	6.527
Propane	10.106	7.825	6.439
Isobutane	2.373	2.182	1.992
n-Butane	5.327	4.732	4.486
Isopentane	2.852	2.931	2.973
n-Pentane	2.893	2.947	3.016
Other C-6's	2.695	3.124	3.356
Heptanes	6.012	7.457	8.464
Octanes	7.689	10.164	12.032
Nonanes	3.674	5.650	6.739
Decanes Plus	12.541	25.446	32.661
Benzene	0.091	0.072	0.103
Toluene	0.474	0.446	0.631
E-Benzene	0.369	0.400	0.566
Xylenes	1.072	1.157	1.645
n-Hexane	2.082	2.406	2.592
2,2,4 Trimethylpentane	0.000	0.000	0.000
Totals:	100.000	100.000	100.000

Characteristics of Total Sample:

Specific Gravity	0.6164	(Water=1)
°API Gravity	98.06	@ 60°F
Molecular Weight	69.2	
Vapor Volume	28.27	CF/Gal
Weight	5.14	Lbs/Gal

Characteristics of Decanes (C10) Plus:

Specific Gravity	0.7912	(Water=1)
Molecular Weight	180.3	

Characteristics of Atmospheric Sample:

°API Gravity	62.33	@ 60°F
Reid Vapor Pressure Equivalent (D-5191)	9.58	psi

QUALITY CONTROL CHECK			
	Sampling Conditions	Test Samples	
Cylinder Number	------	W-1015*	W-1005
Pressure, PSIG	988	972	958
Temperature, °F	74	74	74

* Sample used for analysis

TOTAL EXTENDED REPORT - GPA 2186-M

COMPONENT	Mol %	LiqVol %	Wt %
Nitrogen	0.045	0.014	0.018
Carbon Dioxide	0.098	0.047	0.062
Methane	24.583	11.707	5.698
Ethane	15.024	11.292	6.527
Propane	10.106	7.825	6.439
Isobutane	2.373	2.182	1.992
n-Butane	5.265	4.665	4.421
2,2 Dimethylpropane	0.062	0.067	0.065
Isopentane	2.852	2.931	2.973
n-Pentane	2.893	2.947	3.016
2,2 Dimethylbutane	0.134	0.157	0.167
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.219	0.252	0.272
2 Methylpentane	1.420	1.656	1.768
3 Methylpentane	0.923	1.059	1.149
n-Hexane	2.082	2.406	2.592
Methylcyclopentane	0.474	0.472	0.577
Benzene	0.091	0.072	0.103
Cyclohexane	0.521	0.498	0.633
2-Methylhexane	1.317	1.721	1.907
3-Methylhexane	1.089	1.405	1.576
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C-7's	0.666	0.838	0.954
n-Heptane	1.946	2.523	2.817
Methylcyclohexane	1.788	2.020	2.537
Toluene	0.474	0.446	0.631
Other C-8's	4.201	5.697	6.691
n-Octane	1.699	2.447	2.805
E-Benzene	0.369	0.400	0.566
M & P Xylenes	0.505	0.551	0.775
O-Xylene	0.567	0.606	0.870
Other C-9's	2.393	3.624	4.365
n-Nonane	1.281	2.026	2.374
Other C-10's	2.581	4.296	5.269
n-decane	0.890	1.535	1.829
Undecanes(11)	2.454	4.190	5.212
Dodecanes(12)	1.627	3.001	3.785
Tridecanes(13)	1.266	2.503	3.200
Tetradecanes(14)	0.870	1.843	2.389
Pentadecanes(15)	0.623	1.414	1.855
Hexadecanes(16)	0.436	1.057	1.398
Heptadecanes(17)	0.331	0.850	1.134
Octadecanes(18)	0.284	0.767	1.030
Nonadecanes(19)	0.225	0.632	0.854
Eicosanes(20)	0.171	0.501	0.680
Heneicosanes(21)	0.131	0.403	0.551
Docosanes(22)	0.114	0.365	0.502
Tricosanes(23)	0.094	0.314	0.434
Tetracosanes(24)	0.080	0.274	0.381
Pentacosanes(25)	0.052	0.184	0.257
Hexacosanes(26)	0.052	0.194	0.272
Heptacosanes(27)	0.053	0.202	0.284
Octacosanes(28)	0.030	0.119	0.169
Nonacosanes(29)	0.031	0.127	0.180
Triacontanes(30)	0.024	0.102	0.145
Hentriacontanes Plus(31+)	0.121	0.570	0.848
Total	100.000	100.000	100.000

June 15, 2016

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: CONSOL Energy Inc.
CNX Center
1000 CONSOL Energy Drive
Canonsburg, Pennsylvania 15317

Sample: Oxford Pad II
Low Pressure Separator Gas
Sampled @ 45 psig & 107 °F

Date Sampled: 06/10/2016 Job Number: 62456.001

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286

COMPONENT	MOL%	GPM
Nitrogen	0.670	
Carbon Dioxide	0.199	
Methane	44.353	
Ethane	24.701	6.628
Propane	15.021	4.152
Isobutane	3.068	1.007
n-Butane	5.893	1.864
2-2 Dimethylpropane	0.060	0.023
Isopentane	1.920	0.705
n-Pentane	1.570	0.571
Hexanes	1.438	0.595
Heptanes Plus	1.107	0.489
Totals	100.000	16.034

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.563	(Air=1)
Molecular Weight	102.28	
Gross Heating Value	5387	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	1.100	(Air=1)
Compressibility (Z)	0.9910	
Molecular Weight	31.58	
Gross Heating Value		
Dry Basis	1836	BTU/CF
Saturated Basis	1805	BTU/CF

Base Conditions: 14.650 PSI & 60 Deg F

Sampled By: (20) Cucinotta
Analyst: MR
Processor: NG
Cylinder ID: T-3207

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Nitrogen	0.670		0.594
Carbon Dioxide	0.199		0.277
Methane	44.353		22.531
Ethane	24.701	6.628	23.517
Propane	15.021	4.152	20.972
Isobutane	3.068	1.007	5.646
n-Butane	5.893	1.864	10.845
2,2 Dimethylpropane	0.060	0.023	0.137
Isopentane	1.920	0.705	4.386
n-Pentane	1.570	0.571	3.587
2,2 Dimethylbutane	0.074	0.031	0.202
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.106	0.044	0.289
2 Methylpentane	0.477	0.199	1.302
3 Methylpentane	0.282	0.116	0.769
n-Hexane	0.499	0.206	1.362
Methylcyclopentane	0.056	0.019	0.149
Benzene	0.016	0.004	0.040
Cyclohexane	0.070	0.024	0.186
2-Methylhexane	0.120	0.056	0.381
3-Methylhexane	0.115	0.053	0.365
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.130	0.057	0.408
n-Heptane	0.141	0.065	0.447
Methylcyclohexane	0.123	0.050	0.382
Toluene	0.030	0.010	0.088
Other C8's	0.152	0.071	0.530
n-Octane	0.042	0.022	0.152
Ethylbenzene	0.001	0.000	0.003
M & P Xylenes	0.014	0.005	0.047
O-Xylene	0.002	0.001	0.007
Other C9's	0.050	0.025	0.200
n-Nonane	0.012	0.007	0.049
Other C10's	0.021	0.012	0.094
n-Decane	0.004	0.002	0.018
Undecanes (11)	0.008	0.005	0.038
Totals	100.000	16.034	100.000

Computed Real Characteristics of Total Sample

Specific Gravity	1.100	(Air=1)
Compressibility (Z)	0.9910	
Molecular Weight	31.58	

Gross Heating Value

Dry Basis	1836	BTU/CF
Saturated Basis	1805	BTU/CF

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

Sample: Oxford Pad II
Low Pressure Separator Gas
Sampled @ 45 psig & 107 °F

Date Sampled: 06/10/2016 Job Number: 62456.001

GLYCALC FORMAT

COMPONENT	MOL%	GPM	Wt %
Carbon Dioxide	0.199		0.277
Hydrogen Sulfide	----		----
Nitrogen	0.670		0.594
Methane	44.353		22.531
Ethane	24.701	6.628	23.517
Propane	15.021	4.152	20.972
Isobutane	3.068	1.007	5.646
n-Butane	5.953	1.887	10.982
Isopentane	1.920	0.705	4.386
n-Pentane	1.570	0.571	3.587
Cyclopentane	0.000	0.000	0.000
n-Hexane	0.499	0.206	1.362
Cyclohexane	0.070	0.024	0.186
Other C6's	0.939	0.389	2.562
Heptanes	0.562	0.250	1.750
Methylcyclohexane	0.123	0.050	0.382
2,2,4 Trimethylpentane	0.000	0.000	0.000
Benzene	0.016	0.004	0.040
Toluene	0.030	0.010	0.088
Ethylbenzene	0.001	0.000	0.003
Xylenes	0.016	0.006	0.054
Octanes Plus	0.289	0.144	1.081
Totals	100.000	16.034	100.000

Real Characteristics Of Octanes Plus:

Specific Gravity	4.118	(Air=1)
Molecular Weight	118.19	
Gross Heating Value	6075	BTU/CF

Real Characteristics Of Total Sample:

Specific Gravity	1.100	(Air=1)
Compressibility (Z)	0.9910	
Molecular Weight	31.58	
Gross Heating Value		
Dry Basis	1836	BTU/CF
Saturated Basis	1805	BTU/CF

June 15, 2016

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

For: CONSOL Energy Inc.
CNX Center
1000 CONSOL Energy Drive
Canonsburg, Pennsylvania 15317

Sample: Oxford Pad II
Tank Vent Gas Header
Gas Sampled @ <1 psig & 90 °F

Date Sampled: 06/10/2016 Job Number: 62456.011

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286

COMPONENT	MOL%	GPM
Nitrogen	0.603	
Carbon Dioxide	0.652	
Methane	50.135	
Ethane	14.984	4.023
Propane	14.708	4.068
Isobutane	3.739	1.228
n-Butane	7.450	2.358
2-2 Dimethylpropane	0.089	0.034
Isopentane	2.320	0.852
n-Pentane	1.819	0.662
Hexanes	1.738	0.719
Heptanes Plus	1.763	0.786
Totals	100.000	14.730

Computed Real Characteristics Of Heptanes Plus:

Specific Gravity	3.600	(Air=1)
Molecular Weight	103.27	
Gross Heating Value	5435	BTU/CF

Computed Real Characteristics Of Total Sample:

Specific Gravity	1.128	(Air=1)
Compressibility (Z)	0.9905	
Molecular Weight	32.36	
Gross Heating Value		
Dry Basis	1866	BTU/CF
Saturated Basis	1834	BTU/CF

Base Conditions: 14.650 PSI & 60 Deg F

Sampled By: (20) Cucinotta
Analyst: MR
Processor: NG
Cylinder ID: T-1434

Certified: FESCO, Ltd. - Alice, Texas

David Dannhaus 361-661-7015

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2286
TOTAL REPORT

COMPONENT	MOL %	GPM	WT %
Nitrogen	0.603		0.522
Carbon Dioxide	0.652		0.887
Methane	50.135		24.853
Ethane	14.984	4.023	13.922
Propane	14.708	4.068	20.041
Isobutane	3.739	1.228	6.715
n-Butane	7.450	2.358	13.380
2,2 Dimethylpropane	0.089	0.034	0.198
Isopentane	2.320	0.852	5.172
n-Pentane	1.819	0.662	4.055
2,2 Dimethylbutane	0.086	0.036	0.229
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.124	0.051	0.330
2 Methylpentane	0.565	0.235	1.505
3 Methylpentane	0.339	0.139	0.903
n-Hexane	0.624	0.258	1.662
Methylcyclopentane	0.069	0.024	0.179
Benzene	0.022	0.006	0.053
Cyclohexane	0.095	0.032	0.247
2-Methylhexane	0.181	0.084	0.560
3-Methylhexane	0.176	0.080	0.545
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C7's	0.186	0.081	0.570
n-Heptane	0.231	0.107	0.715
Methylcyclohexane	0.196	0.079	0.595
Toluene	0.048	0.016	0.137
Other C8's	0.278	0.130	0.947
n-Octane	0.077	0.040	0.272
Ethylbenzene	0.003	0.001	0.010
M & P Xylenes	0.026	0.010	0.085
O-Xylene	0.004	0.002	0.013
Other C9's	0.096	0.049	0.374
n-Nonane	0.021	0.012	0.083
Other C10's	0.032	0.019	0.140
n-Decane	0.007	0.004	0.031
Undecanes (11)	0.015	0.009	0.070
Totals	100.000	14.730	100.000

Computed Real Characteristics of Total Sample

Specific Gravity	1.128	(Air=1)
Compressibility (Z)	0.9905	
Molecular Weight	32.36	

Gross Heating Value

Dry Basis	1866	BTU/CF
Saturated Basis	1834	BTU/CF

FESCO, Ltd.
1100 Fesco Ave. - Alice, Texas 78332

Sample: Oxford Pad II
Tank Vent Gas Header
Gas Sampled @ <1 psig & 90 °F

Date Sampled: 06/10/2016 Job Number: 62456.011

GLYCALC FORMAT

COMPONENT	MOL%	GPM	Wt %
Carbon Dioxide	0.652		0.887
Hydrogen Sulfide	----		----
Nitrogen	0.603		0.522
Methane	50.135		24.853
Ethane	14.984	4.023	13.922
Propane	14.708	4.068	20.041
Isobutane	3.739	1.228	6.715
n-Butane	7.539	2.392	13.578
Isopentane	2.320	0.852	5.172
n-Pentane	1.819	0.662	4.055
Cyclopentane	0.000	0.000	0.000
n-Hexane	0.624	0.258	1.662
Cyclohexane	0.095	0.032	0.247
Other C6's	1.114	0.461	2.967
Heptanes	0.843	0.377	2.569
Methylcyclohexane	0.196	0.079	0.595
2,2,4 Trimethylpentane	0.000	0.000	0.000
Benzene	0.022	0.006	0.053
Toluene	0.048	0.016	0.137
Ethylbenzene	0.003	0.001	0.010
Xylenes	0.030	0.012	0.098
Octanes Plus	0.526	0.262	1.917
Totals	100.000	14.730	100.000

Real Characteristics Of Octanes Plus:

Specific Gravity	4.110	(Air=1)
Molecular Weight	117.89	
Gross Heating Value	6062	BTU/CF

Real Characteristics Of Total Sample:

Specific Gravity	1.128	(Air=1)
Compressibility (Z)	0.9905	
Molecular Weight	32.36	
Gross Heating Value		
Dry Basis	1866	BTU/CF
Saturated Basis	1834	BTU/CF

ATTACHMENT O

MONITORING/RECORDKEEPING/REPORTING/ TESTING PLANS

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017

Monitoring

Since the compressor at this station will commence construction after September 18, 2015, the fugitive components will become subject to the equipment leak standards of §60.5397a. As a result, the source will be required to develop and implement a fugitive monitoring plan and conduct quarterly OGI surveys. The initial survey will be required within 60 days of startup or by June 3, 2017, whichever is later in accordance with §60.5397a(f)(2).

In addition to that mentioned above, CONE will at a minimum monitor hours of operation, site production throughputs, malfunctions of equipment, as well as planned and unplanned maintenance of permitted equipment comprising the facility.

Recordkeeping

CONE will retain records of the following for five (5) years, two (2) years on site, certified by a company official at such time that the DAQ may request said records

Records of maintenance conducted on the engine shall be kept in accordance with §60.4243(b)(2)(ii)).

The reciprocating compressor itself will also be subject to the rod packing standards of §60.5385a that require them to be replaced/rebuilt every 26,000 hrs or 3 years. Records shall be maintained based on months or hours of operations since initial startup and each subsequent rebuild or replacement of the compressor's rod packing.

In addition to those mentioned above, the company will keep records of the items monitored, such as station throughput, hours of operation, planned maintenance activities, unplanned maintenance activities, and complaints regarding the facility.

Reporting

CONE, at a minimum, will submit results of initial performance test and subsequent performance testing to the EPA Regional Office within sixty (60) days of completion of such tests. In addition, the company will report any control equipment malfunctions or emission limit deviations.

Testing

CONE will demonstrate initial compliance by conducting a performance test as specified in §60.4244 showing the emission limitations in Table 1 to Subpart JJJJ of Part 60 are being met. Subsequent performance testing shall be conducted every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

ATTACHMENT P

PUBLIC NOTICE

45CSR13 Construction Permit Application

Cain Run (Laverne) Compressor Station
New Milton, West Virginia

CONE Midstream Partners LP
1000 Consol Energy Drive
Canonsburg, PA 15317

February 2017

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that CONE Midstream Partners LP has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Construction Permit, for a natural gas compressor and dehydration station located off S. Fork of Hughes River. near New Milton, in Doddridge County, West Virginia. The latitude and longitude coordinates are 39.17070 and -80.76350.

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

Pollutant	Tons/yr
PM/PM_{10}/$PM_{2.5}$	0.46
SO_2	0.06
NO_X	14.17
CO	29.75
VOCs	14.88
Formaldehyde	5.20
Total HAPs	6.15

Startup of operation is planned to begin in the 4th quarter of 2017. 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 xx day of February, 2017.

By: CONE Midstream Partners LP
Joseph Fink
Chief Operating Officer
1000 Consol Energy Drive
Canonsburg, PA 15317