VIA FedEx

April 25th, 2019

William F. Durham
Director
WV Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304

RE: Initial Operating Permit Application
Middlebourne III Compressor Station
Tyler County, West Virginia
Plant ID No. 095-00074

Dear Mr. Durham,

Antero Midstream, LLC ("Antero") is submitting one (1) original paper copy and two (2) electronic copies of an Initial Operating Permit Application for the existing Middlebourne III Compressor Station authorized by Permit No. 13-3347. This operating permit application is being submitted within 12 months of the commencement of the operation of the authorized sources, as required in Permit 13-3347.

If you have any questions or require further information, please do not hesitate to contact me Betsy McLaughlin at (303) 357-6839 or emclaughlin@anteroresources.com.

Sincerely,

Robert Krcek
Vice President of Midstream

Enclosures

cc: Luz Slauter, Env & Reg Manager, Antero, lslauter@anteroresources.com
Betsy McLaughlin, Air Quality Specialist, Antero, emclaughlin@anteroresources.com
Nicki Neyrey, Project Manager, Spirit Environmental, nneyrey@spiritenv.com

Initial Operating Permit Application

Middlebourne III Compressor Station

Tyler County, West Virginia

April 2019

PREPARED FOR:

Antero Midstream, LLC

Denver, Colorado

SPIRIT PROJECT: 19223.00A

FOR SPIRIT ENVIRONMENTAL:

Nicole Neyrey

OFFICE: 720-500-3710
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1626 Wazee St, Suite 2A
Denver, CO 80202

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Table of Contents

1.0 Introduction

1.1 Project Overview

Antero Midstream, LLC ("Antero") owns and operates the Middlebourne III Compressor Station ("the Site") in Tyler County, West Virginia, authorized under Permit No. R13-3347. The total site-wide potential to emit ("PTE") for volatile organic compounds ("VOCs") exceeds the 100 ton per year ("tpy") threshold for major sources; therefore, the site is subject to 45 Code of State Rules ("CSR") 30, Operating Permits.

Antero respectfully submits the enclosed Initial Operating Permit Application for the Middlebourne III Compressor Station. This operating permit application is being submitted within 12 months of the commencement of the operation of the authorized sources, as required in Permit 13-3347.

1.2 Site Location

The Middlebourne III Compressor Station is located in Tyler County, less than one (1) mile east of Wick, West Virginia. Latitude / Longitude: 39.41656° / -80.96358°

1.3 Process Description

Gas from surrounding pipelines enters the facility through receivers and associated slug catcher. From there, the gas is metered and routed through a scrubber and filter separator. Any produced liquids from the scrubber or separator are sent to the 500 barrel ("bbl") settling tank (Unit ID: T04). Gas from the filter separator is sent to one (1) of 12 2,500 horsepower ("hp") Caterpillar G3608 lean burn compressor engines (Unit IDs: C-100 through C-1200). The 12 compressor engines are controlled with oxidation catalysts (Control Device IDs: 1C through 12C). Fuel gas for the compressor engines will be treated prior to the engines by a fuel conditioning skid with a 0.5 million British Thermal Units per hour ("MMBtu/hr") heater (Unit ID: FUEL1) to allow more complete combustion. Produced fluids are routed to the settling tank and compressed gas goes to one (1) of the three (3) triethylene glycol ("TEG") dehydrators.

Each TEG dehydrator (Unit IDs: DEHY1, DEHY2, and DEHY3) contains a flash gas tank and 1.5 MMBtu/hr reboiler. Each dehydrator has a design rate of 150 million standard cubic feet per day ("MMscf/day"). Within each dehydrator unit, vent gas from the flash gas

tank (Unit IDs: DFLSH1, DFLSH2, and DFLSH3) is routed to the reboiler (Unit IDs: DREB1, DREB2, and DREB3) and used as fuel. In the case where the flash tank gas cannot be used by the reboiler due to excess gas or the reboiler being offline, the gas will be sent to the Vapor Recovery Units ("VRUs") (Unit IDs: VRU-100 and VRU-200) via the storage tanks (Unit IDs: T01 through T07) and thus controlled by 98%. Emissions from each reboiler are routed to the atmosphere. The dehydrator still vents are controlled by a flare with at least 98% control efficiency (Unit ID: FLARE1).

Produced fluids from the dehydrators are routed to the settling tank (Unit ID: T04). The dry gas from the dehydration process is either routed to a fuel gas scrubber, metered and routed to the compressors as fuel gas or metered and sent to plant discharge.

All produced fluids enter one (1) 500 bbl settling tank (Unit ID: T04) where the fluids settle out as either condensate or produced water. The produced water goes to three (3) 400 bbl produced water tanks (Unit IDs: T05, T06, and T07) and the condensate goes to three (3) 400 bbl condensate tanks (Unit IDs: T01, T02, and T03). Flashing only occurs at the settling tank as the fluids stabilize in the settling tank before going to the other storage tanks. All seven (7) tanks are connected to a VRU (Unit ID: VRU-100) where tank vapors are collected and recycled back into the gas system right before the initial filter scrubber. A second VRU (Unit ID: VRU-200) is also connected to the tanks as a backup unit. The produced fluids are trucked out via tanker trucks as needed (Unit ID: LDOUT1). The anticipated production is 300 bbls per day of condensate and 90 bbls per day of produced water.

One (1) natural gas engine generator rated at 800 kilowatt-electric (''kWe") supplies power to the facility (Unit ID: GEN1). The 800 kWe generator is comprised of four (4) smaller units, each rated at 200 kWe. The generator is permitted at 8,760 hours per year of operation for maximum operational flexibility.

Fugitive emissions from component leaks (Unit ID: FUG) and emissions from pigging venting or blowdown events (Unit ID: VENT1) also occur. There will also be insignificant auxiliary storage tanks located at the facility (Unit IDs: TK-100 through TK-105).

2.0 General Forms

The following attachments are included with this application.

1. Checklist for Administrative completeness
2. Section 1 – General Information
3. Section 2 – Applicable Requirements
4. Section 3 – Facility-Wide Emissions
5. Section 4 – Insignificant Activities
6. Section 5 – Emission Units, Control Devices, and Emission Points
7. Section 6 – Certification of Information

TITLE V PERMIT APPLICATION CHECKLIST
FOR ADMINISTRATIVE COMPLETENESS

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

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
601 57th Street SE
Charleston, WV 25304
Phone: (304) 926-0475
www.dep.wv.gov/daq

INITIAL/RENEWAL TITLE V PERMIT APPLICATION - GENERAL FORMS

Section 1: General Information

1. **Name of Applicant (As registered with the WV Secretary of State's Office):** Antero Midstream, LLC	**2. Facility Name or Location:** Middlebourne III Compressor Station
3. DAQ Plant ID No.: 095-00074	**4. Federal Employer ID No. (FEIN):** 46-5517375

5. **Permit Application Type:**

☒ **Initial Permit** When did operations commence? **05/07/2018**
☐ Permit Renewal What is the expiration date of the existing permit? **N/A**
☐ Update to Initial/Renewal Permit Application

6. Type of Business Entity: ☐ Corporation ☐ Governmental Agency ☒ **LLC** ☐ Partnership ☐ Limited Partnership	**7. Is the Applicant the:** ☐ Owner ☐ Operator ☒ **Both** If the Applicant is not both the owner and operator, please provide the name and address of the other party. _____ _____ _____
8. Number of onsite employees: 0	

9. Governmental Code:

☒ **Privately owned and operated; 0**
☐ Federally owned and operated; 1
☐ State government owned and operated; 2
☐ County government owned and operated; 3
☐ Municipality government owned and operated; 4
☐ District government owned and operated; 5

10. 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.

11. Mailing Address		
Street or P.O. Box: 1615 Wynkoop Street		
City: Denver	**State:** CO	**Zip:** 80202
Telephone Number: (720) 990-5530	**Fax Number:**	

12. Facility Location		
Street: Wick Rd	**City:** Wick	**County:** Tyler
UTM Easting: 503.135 km	**UTM Northing:** 4363.005 km	**Zone:** ☒ **17** or ☐ 18
Directions: From Wick, West Virginia, at the intersection of Hog Run Road and Wick Road, head east on Wick Road for 0.85 miles and turn left into the facility entrance.		
Portable Source? ☐ Yes ☒ **No**		
Is facility located within a nonattainment area? ☐ Yes ☒ **No**		**If yes, for what air pollutants?**
Is facility located within 50 miles of another state? ☒ Yes ☐ No		**If yes, name the affected state(s).** Ohio and Pennsylvania
Is facility located within 100 km of a Class I Area[1]? ☐ Yes ☒ No **If no, do emissions impact a Class I Area[1]?** ☐ Yes ☒ No		**If yes, name the area(s).**

[1] *Class I areas include Dolly Sods and Otter Creek Wilderness Areas in West Virginia, and Shenandoah National Park and James River Face Wilderness Area in Virginia.*

13. Contact Information		
Responsible Official: Robert Krcek		**Title:** VP Midstream
Street or P.O. Box: 1615 Wynkoop Street		
City: Denver	**State:** CO	**Zip:** 80202
Telephone Number: (303) 357-6432	**Fax Number:**	
E-mail address: rkrcek@anteroresources.com		
Environmental Contact: Betsy McLaughlin		**Title:** Air Quality Specialist
Street or P.O. Box: 1615 Wynkoop Street		
City: Denver	**State:** CO	**Zip:** 80202
Telephone Number: (303) 357-6839	**Fax Number:**	
E-mail address: emclaughlin@anteroresources.com		
Application Preparer: Nicole Neyrey		**Title:** Project Manager
Company: Spirit Environmental, LLC		
Street or P.O. Box: 1626 Wazee Street, Suite 2A		
City: Denver	**State:** CO	**Zip:** 80202
Telephone Number: (720) 500-3715	**Fax Number:** (281) 664-2491	
E-mail address: nneyrey@spiritenv.com		

14. Facility Description

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

Process	Products	NAICS	SIC
Natural Gas Distribution	Compressed and Dehydrated Natural Gas	221210	4923

Provide a general description of operations.

The Middlebourne III Compressor Station separates, compresses, and dries gas off the inlet pipeline stream. The station includes twelve (12) compressor engines with oxidation catalysts, one (1) emergency generator, three (3) 150 MMscfd dehydrators with three (3) reboilers, three (3) 400-bbl condensate tanks, three (3) 400-bbl produced water tanks, one (1) 500-bbl settling tank, one (1) 0.5 MMBtu/hr fuel conditioning heater, one (1) flare, two (2) VRU units, liquid loadout operations, fugitive component emissions, and auxiliary tanks.

15. Provide an **Area Map** showing plant location as **ATTACHMENT A**.

16. Provide a **Plot Plan(s)**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is located as **ATTACHMENT B**. For instructions, refer to "Plot Plan – Guidelines."

17. Provide a detailed **Process Flow Diagram(s)** showing each process or emissions unit as **ATTACHMENT C**. Process Flow Diagrams should show all emission units, control equipment, emission points, and their relationships.

Section 2: Applicable Requirements

18. Applicable Requirements Summary	
Instructions: Mark all applicable requirements.	
☒ **SIP**	☐ FIP
☒ **Minor source NSR (45CSR13)**	☐ PSD (45CSR14)
☒ **NESHAP (45CSR34) – HH and ZZZZ**	☐ Nonattainment NSR (45CSR19)
☒ **Section 111 NSPS – JJJJ and OOOOa**	☐ Section 112(d) MACT standards
☐ Section 112(g) Case-by-case MACT	☐ 112(r) RMP
☐ Section 112(i) Early reduction of HAP	☐ Consumer/commercial prod. reqts., section 183(e)
☐ Section 129 Standards/Reqts.	☐ Stratospheric ozone (Title VI)
☐ Tank vessel reqt., section 183(f)	☐ Emissions cap 45CSR§30-2.6.1
☐ NAAQS, increments or visibility (temp. sources)	☐ 45CSR27 State enforceable only rule
☐ 45CSR4 State enforceable only rule - Odors	☐ Acid Rain (Title IV, 45CSR33)
☐ Emissions Trading and Banking (45CSR28)	☐ **C**ompliance **A**ssurance **M**onitoring (40CFR64)
☐ CAIR NO_x Annual Trading Program (45CSR39)	☐ CAIR NO_x Ozone Season Trading Program (45CSR40)
☐ CAIR SO_2 Trading Program (45CSR41)	

19. Non Applicability Determinations
List all requirements which the source has determined not applicable and for which a permit shield is requested. The listing shall also include the rule citation and the reason why the shield applies. **Please reference SUPPLEMENT S1-Regulatory Discussion for details on negative applicability.**
☒ Permit Shield

20. Facility-Wide Applicable Requirements

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

Permit R13-3347 Requirements:

2.11 *Inspection and Entry* – allow any authorized representative of the Secretary to: enter the premises at all reasonable times, have access to and copy records, and perform inspections, sampling and monitoring as needed

2.12 *Emergency* – definition and affirmative defense instructions

3.1.1 *Open burning [45CSR§6-3.l.]* – open burning of refuse is prohibited expect as noted in 45 CSR §6-3.1

3.1.3 *Asbestos [40 CFR §61.145(b) and 45 CSR §34]*– search and removal requirements

3.1.5 *Permanent shutdown [45CSR§13-10.5.]* – definition of permanent shutdown source

3.5.4.1 *Operating Fee[45CSR§30]* – Annual fees are required

3.5.5 *Emission Inventory* – as requested by the Secretary, emissions inventories shall be required

4.1.2 *Minor Source of HAPs* – HAP emissions shall be < 10 tpy of any single HAP or < 25 tpy of any combination of HAPs

4.1.3 *Operation and Maintenance of Air Pollution Control Equipment [45CSR§13-5.11.]* – to the extent practicable, the permittee shall: install, maintain, and operate all pollution control and monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with a more stringent limit.

4.1.5 *Limitation and Standards [45CSR§13]* – emission units and sources at the facility are limited to those identified in Table 1.0 of this permit or any de minimus sources identified under Table 45-13B

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more information.

☒ Permit Shield

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

Permit R13-3347 Requirements:

2.6 *Duty to Provide Information* – upon request by the Secretary, furnish required documentation

2.7 *Duty to Supplement and Correct Information* – promptly submit left out supplemental facts or corrected information to the Secretary

2.12.3 *Emergency* – affirmative defense recordkeeping

2.14 *Suspension of Activities* – notification shall be submitted within two (2) calendar weeks of passing the sixtieth (60) day of the suspension period

2.18 *Startup Notification* – shall be submitted within thirty (30) calendar days after startup

3.1.2 *Open burning exemptions* – notification requirements for exemptions listed in in 45 CSR §6-3.1

3.1.3 *Asbestos [40 CFR §61.145(b) and 45 CSR §34]*– notification shall be submitted ten (10) working days prior to the commencement of any asbestos removal and copies sent to the appropriate agencies

3.1.5 *Permanent shutdown [45CSR§13-10.5.]* – submit information to the Secretary to contradict permanent shutdown status

3.1.6 *Standby Plan for reducing Emissions [45CSR§11-5.2.]* – upon request by the Secretary, prepare standby plans for reducing emissions

3.3.1 *Stack Testing Requirements [WV Code §22-5-4(a)(14-15) and 45CSR§13]* – perform stack tests as required by this section, submit testing protocols to the Secretary at least thirty (30) days prior to any testing, submit notification to the Secretary at least fifteen (15) days prior to any testing, submit stack test results within sixty (60) days of completion

3.4.1 *Recordkeeping* – Records, including monitoring data, support information (calibration and maintenance records), reports, and notifications shall be kept for five (5) years.

3.5.1 *Responsible Official* – Submit a certification by the RO for any application form, report, or compliance certification required by this permit

3.5.4.1 *Operating Fee[45CSR§30]* – Submit certified emissions statement and pay fees in accordance with the submittal requirements of the Division of Air Quality. Maintain receipt records.

3.5.5 *Emission Inventory* – as requested by the Secretary, prepare and submit an emission inventory for the previous year

4.1.1 *Record of Monitoring* – maintain records of monitoring information according to this section

4.1.4 *Record of Malfunctions of Air Pollution Control Equipment* – maintain records of the occurrence and duration of any malfunction or operational shutdown during which excess emissions occurred

7.4.6 Maintain records of PTE HAP calculations for the entire affected facility, including compressor engines and ancillary equipment to demonstrate compliance with section 4.1.2

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more information.

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

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

21. Active Permits/Consent Orders		
Permit or Consent Order Number	Date of Issuance MM/DD/YYYY	List any Permit Determinations that Affect the Permit *(if any)*
R13-3347	**03/20/2017**	**N/A**

22. Inactive Permits/Obsolete Permit Conditions		
Permit Number	Date of Issuance	Permit Condition Number
N/A		

Section 3: Facility-Wide Emissions

23. Facility-Wide Emissions Summary [Tons per Year]	
Criteria Pollutants	Potential Emissions (including fugitives)
Carbon Monoxide (CO)	**81.85**
Nitrogen Oxides (NO_X)	**96.61**
Lead (Pb)	**N/A**
Particulate Matter ($PM_{2.5}$)[1]	**10.06**
Particulate Matter (PM_{10})[1]	**10.06**
Total Particulate Matter (TSP)	**11.86**
Sulfur Dioxide (SO_2)	**0.67**
Volatile Organic Compounds (VOC)	**177.52**
Hazardous Air Pollutants[2]	Potential Emissions (including fugitives)
Benzene	**0.52**
Toluene	**0.98**
Ethylbenzene	**0.079**
Xylenes	**0.32**
n-Hexane	**2.90**
Acetaldehyde	**4.96**
Acrolein	**3.05**
Methanol	**1.48**
Formaldehyde	**5.82**
Total HAPs	**20.99**
Regulated Pollutants other than Criteria and HAP	Potential Emissions (including fugitives)
CO_2e	**168,463**

[1]$PM_{2.5}$ and PM_{10} are components of TSP.
[2]For HAPs that are also considered PM or VOCs, emissions should be included in both the HAPs section and the Criteria Pollutants section.

Section 4: Insignificant Activities

24. Insignificant Activities (Check all that apply)		
☒	1.	Air compressors and pneumatically operated equipment, including hand tools.
☒	2.	Air contaminant detectors or recorders, combustion controllers or shutoffs.
☒	3.	Any consumer product used in the same manner as in normal consumer use, provided the use results in a duration and frequency of exposure which are not greater than those experienced by consumer, and which may include, but not be limited to, personal use items; janitorial cleaning supplies, office supplies and supplies to maintain copying equipment.
☐	4.	Bathroom/toilet vent emissions.
☐	5.	Batteries and battery charging stations, except at battery manufacturing plants.
☐	6.	Bench-scale laboratory equipment used for physical or chemical analysis, but not lab fume hoods or vents. Many lab fume hoods or vents might qualify for treatment as insignificant (depending on the applicable SIP) or be grouped together for purposes of description.
☐	7.	Blacksmith forges.
☐	8.	Boiler water treatment operations, not including cooling towers.
☒	9.	Brazing, soldering or welding equipment used as an auxiliary to the principal equipment at the source.
☐	10.	CO_2 lasers, used only on metals and other materials which do not emit HAP in the process.
☒	11.	Combustion emissions from propulsion of mobile sources, except for vessel emissions from Outer Continental Shelf sources.
☐	12.	Combustion units designed and used exclusively for comfort heating that use liquid petroleum gas or natural gas as fuel.
☐	13.	Comfort air conditioning or ventilation systems not used to remove air contaminants generated by or released from specific units of equipment.
☐	14.	Demineralized water tanks and demineralizer vents.
☐	15.	Drop hammers or hydraulic presses for forging or metalworking.
☐	16.	Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substances being processed in the ovens or autoclaves or the boilers delivering the steam.
☐	17.	Emergency (backup) electrical generators at residential locations.
☐	18.	Emergency road flares.
☒	19.	Emission units which do not have any applicable requirements and which emit criteria pollutants (CO, NO_x, SO_2, VOC and PM) into the atmosphere at a rate of less than 1 pound per hour and less than 10,000 pounds per year aggregate total for each criteria pollutant from all emission units. Please specify all emission units for which this exemption applies along with the quantity of criteria pollutants emitted on an hourly and annual basis: **2,000-gallon Compressor Skid Oily Water Tank** **4,000-gallon Used oil Tank** **1,000-gallon TEG Make-up Tank** **2,000-gallon Compressor Coolant Tank** **2,000-gallon Engine Lube Oil Tank** **2,000-gallon Compressor Lube Oil Tank** **Total criteria pollutant emissions for the sources above are < 1 lb/hr and 10,000 lbs/year**

24. Insignificant Activities (Check all that apply)		
☒	20.	Emission units which do not have any applicable requirements and which emit hazardous air pollutants into the atmosphere at a rate of less than 0.1 pounds per hour and less than 1,000 pounds per year aggregate total for all HAPs from all emission sources. This limitation cannot be used for any source which emits dioxin/furans nor for toxic air pollutants as per 45CSR27. Please specify all emission units for which this exemption applies along with the quantity of hazardous air pollutants emitted on an hourly and annual basis: **2,000-gallon Compressor Skid Oily Water Tank** **4,000-gallon Used oil Tank** **1,000-gallon TEG Make-up Tank** **2,000-gallon Compressor Coolant Tank** **2,000-gallon Engine Lube Oil Tank** **2,000-gallon Compressor Lube Oil Tank** **Total HAP emissions for the sources above are < 0.1 lb/hr and 1,000 lbs/year**
☐	21.	Environmental chambers not using hazardous air pollutant (HAP) gases.
☐	22.	Equipment on the premises of industrial and manufacturing operations used solely for the purpose of preparing food for human consumption.
☐	23.	Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.
☒	24.	Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis.
☐	25.	Equipment used for surface coating, painting, dipping or spray operations, except those that will emit VOC or HAP.
☒	26.	Fire suppression systems.
☐	27.	Firefighting equipment and the equipment used to train firefighters.
☐	28.	Flares used solely to indicate danger to the public.
☐	29.	Fugitive emission related to movement of passenger vehicle provided the emissions are not counted for applicability purposes and any required fugitive dust control plan or its equivalent is submitted.
☐	30.	Hand-held applicator equipment for hot melt adhesives with no VOC in the adhesive formulation.
☒	31.	Hand-held equipment for buffing, polishing, cutting, drilling, sawing, grinding, turning or machining wood, metal or plastic.
☐	32.	Humidity chambers.
☐	33.	Hydraulic and hydrostatic testing equipment.
☐	34.	Indoor or outdoor kerosene heaters.
☒	35.	Internal combustion engines used for landscaping purposes.
☐	36.	Laser trimmers using dust collection to prevent fugitive emissions.
☐	37.	Laundry activities, except for dry-cleaning and steam boilers.
☐	38.	Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.
☐	39.	Oxygen scavenging (de-aeration) of water.
☐	40.	Ozone generators.

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

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

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

Section 6: Certification of Information

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

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

a. Certification of Truth, Accuracy and Completeness

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

b. Compliance Certification

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

Responsible official (type or print)

Name: **Robert Krcek**	Title: **VP Midstream**

Responsible official's signature:

Signature: _____ Signature Date: 04/23/2019

(Must be signed and dated in blue ink)

Note: Please check all applicable attachments included with this permit application:	
☒	ATTACHMENT A: Area Map
☒	ATTACHMENT B: Plot Plan(s)
☒	ATTACHMENT C: Process Flow Diagram(s)
☒	ATTACHMENT D: Equipment Table
☒	ATTACHMENT E: Emission Unit Form(s)
☐	ATTACHMENT F: Schedule of Compliance Form(s)
☒	ATTACHMENT G: Air Pollution Control Device Form(s)
☐	ATTACHMENT H: Compliance Assurance Monitoring (CAM) Form(s)

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

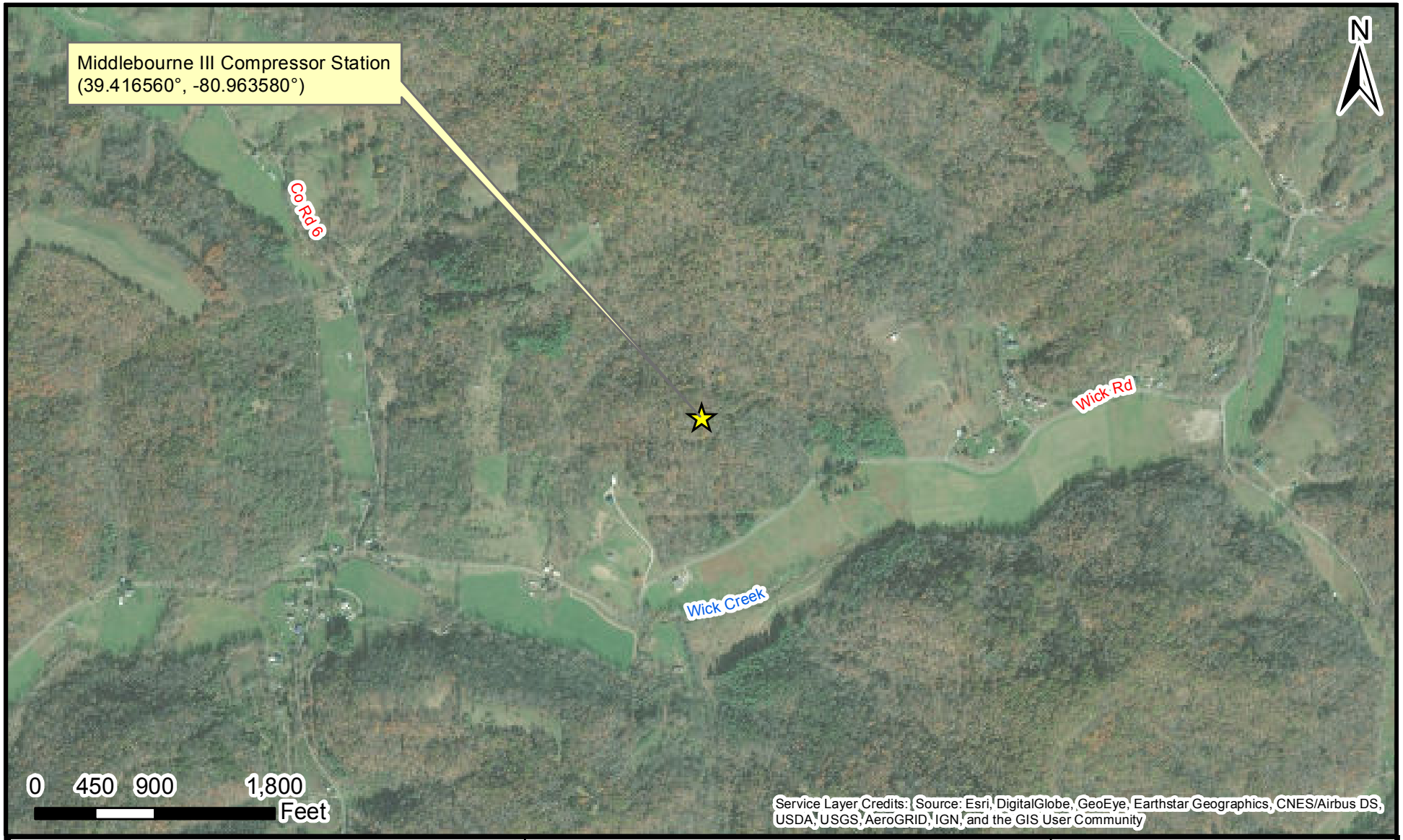
3.0 Attachments

The following attachments are included with this renewal.

1. Attachment A – Area Maps
2. Attachment B – Plot Plan
3. Attachment C – Process Flow Diagram
4. Attachment D – Equipment Table
5. Attachment E – Emission Unit Forms
6. Attachment F – Schedule of Compliance Form (NA)
7. Attachment G – Air Pollution Control Device Forms
8. Attachment H – Compliance Assurance Monitoring Form (NA)

ATTACHMENT A

Area Maps



Legend

★ Middlebourne III Compressor Station

MIDDLEBOURNE III COMPRESSOR STATION
AERIAL MAP
ANTERO MIDSTREAM, LLC
TYLER COUNTY, WEST VIRGINIA

SPIRIT ENVIRONMENTAL

1626 Wazee Street Suite 2A
Denver, CO 80202

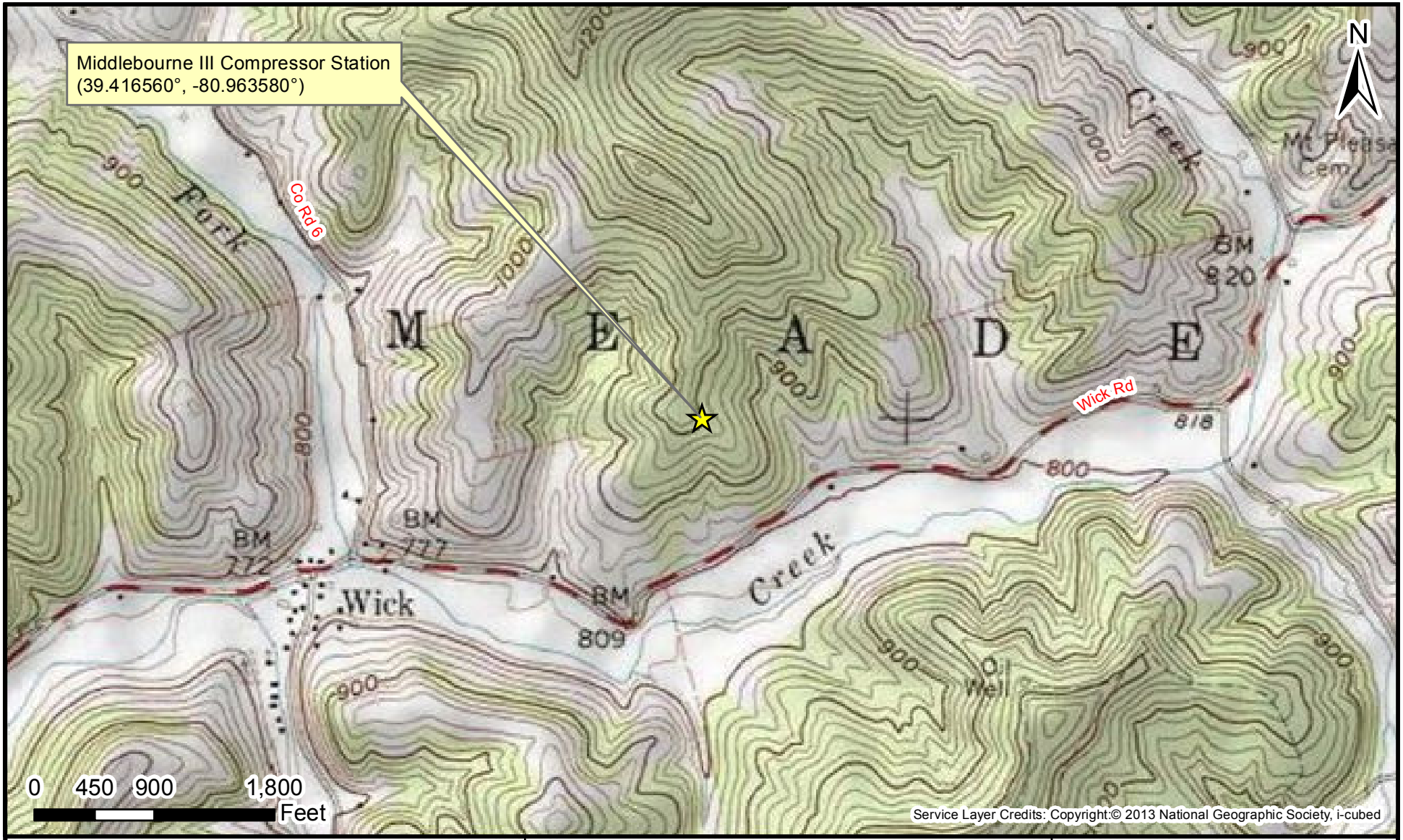
Figure No.: 1

Date: 4/17/2019

Project No.: 19223.00A

Drawn By: MShields

Note: This is not an official land survey.
Coordinate System: NAD 1983 2011State Plane
West Virginia North FIPS 4701



Legend

☆ Middlebourne III Compressor Station

MIDDLEBOURNE III COMPRESSOR STATION
TOPOGRAPHIC MAP
ANTERO MIDSTREAM, LLC
TYLER COUNTY, WEST VIRGINIA

SPIRIT ENVIRONMENTAL

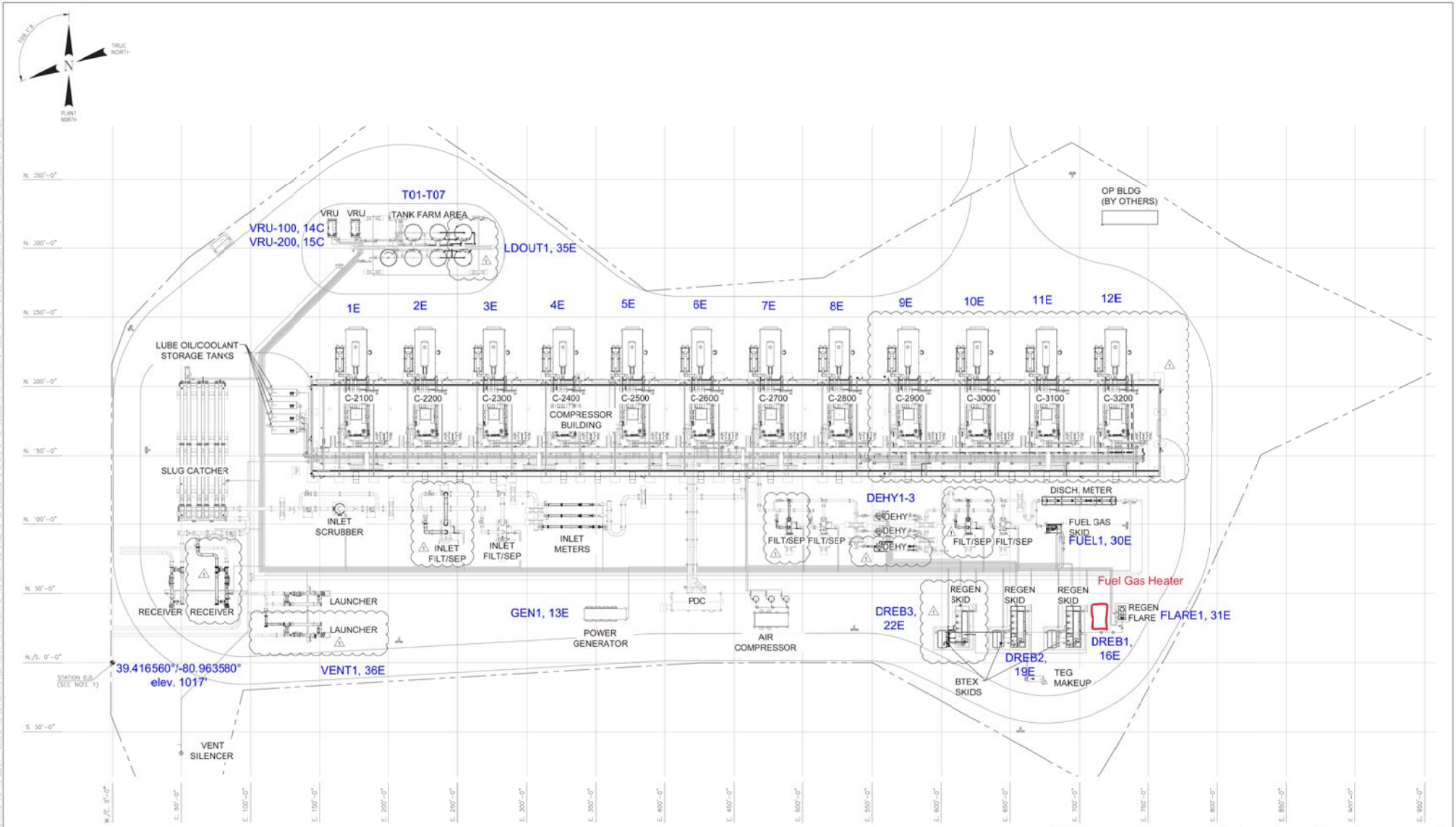
1626 Wazee Street Suite 2A
Denver, CO 80202

Figure No.:	2
Date:	4/17/2019
Project No.:	19223.00A
Drawn By:	MShields

Note: This is not an official land survey.
Coordinate System: NAD 1983 2011State Plane
West Virginia North FIPS 4701

ATTACHMENT B

Plot Plan



ISSUED FOR CONSTRUCTION
BY:STEVE.BJORNSETH DATE:Feb 05, 2018 10:40am

(IN FEET)
1 inch = 30' ft. (For 24"x36" Drawing Only)

THIS DRAWING AND THE DESIGN IT COVERS ARE CONFIDENTIAL AND REMAIN THE PROPERTY OF THE CLIENT AND SHALL NOT BE DISCLOSED TO OTHERS OR REPRODUCED IN ANY MANNER OR USED FOR ANY PURPOSE WHATSOEVER EXCEPT BY WRITTEN PERMISSION BY THE OWNER.

NOTES

1. ALL NORTHINGS AND EASTINGS ARE BASED OFF SITE BENCHMARK 6F: N.337955.9 E. 1554967.6 EQUAL TO PLANT BENCHMARK 6F: N 0+00, E 0+00.
2. CONTRACTOR TO FIELD VERIFY TIE-IN LOCATIONS PRIOR TO FABRICATION.
3. SMALL BORE PIPING 3" & UNDER TO BE FIELD ROUTED BY CONTRACTOR.

REFERENCE DRAWINGS

REV.	REVISION	DATE	DRAWN	CHKD.	APPD.
1	ISSUED FOR CONSTRUCTION, PHASE 2	2/9/18	SJB	DPT	KRS
0	ISSUED FOR CONSTRUCTION	2/3/17	SJB	RCH	KRS

THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY KENNETH R. SKIDMORE, REGISTRATION NUMBER 18571 (WEST VIRGINIA) ON 9-FEB-2018, AND THE ORIGINAL DOCUMENT IS STORED AT WOOD GROUP MUSTANG IN DENVER, CO.

DRAWING APPROVAL

	SIGNATURE	DATE
DRAWN BY	SJB	10/10/16
CHECKED BY	RCH	2/3/17
PL COORD APPR.	KRS	2/3/17
CLIENT APPR.		
OTHER APPR.		
CLIENT PROJECT NUMBER		PROJECT NUMBER 108144

CLIENT: Antero Midstream Partners LP

PROJECT TITLE: WICK COMPRESSOR STATION
TYLER COUNTY, WEST VIRGINIA

WORK NO. 108144-PIP-DPL-1000

WOOD GROUP

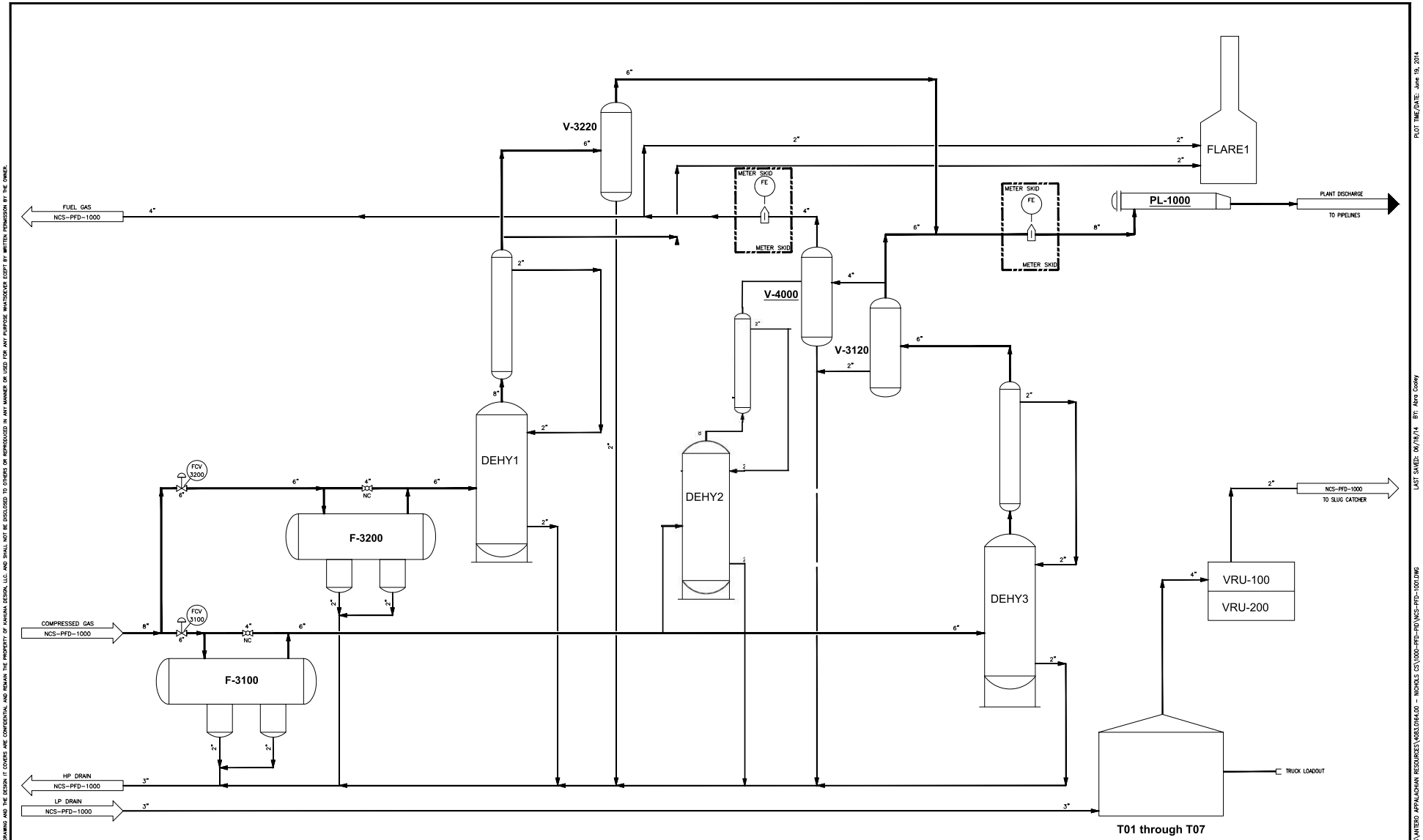
DWG. TITLE: EQUIPMENT GENERAL ARRAIGNMENT
PLOT PLAN

SCALE: 1"=30'-0" | DWG. NO. 108144-PIP-DPL-1000 | REV. 1

FILE PATH: R:\2016 PROJECTS\108144 - ANTERO WICK\04 DELIVERABLES WIP\PIP-PIPING\DRAWINGS\108144-PIP-DPL-1000.DWG BY:STEVE.BJORNSETH DATE:Feb 05, 2018 10:40am

ATTACHMENT C

Process Flow Diagram



THIS DRAWING AND THE DESIGN IT COVERS ARE CONFIDENTIAL AND REMAIN THE PROPERTY OF KAHUNA DESIGN, LLC. AND SHALL NOT BE DISCLOSED TO OTHERS OR REPRODUCED IN ANY MANNER OR USED FOR ANY PURPOSE WHATSOEVER (EXCEPT BY WRITTEN PERMISSION BY THE OWNER.

PLOT TIME/DATE: June 19, 2014

LAST SAVED: 06/18/14 BY: Alva Cooley

FILE LOCATION: N:\PROJECTS\WATERO APPALACHIAN RESOURCES\4083.0164.00 - NICHOLS CS\100-PFD-PID\NCS-PFD-1001.DWG

NOTES:

REFERENCE DRAWINGS	
DWG. NO.	TITLE

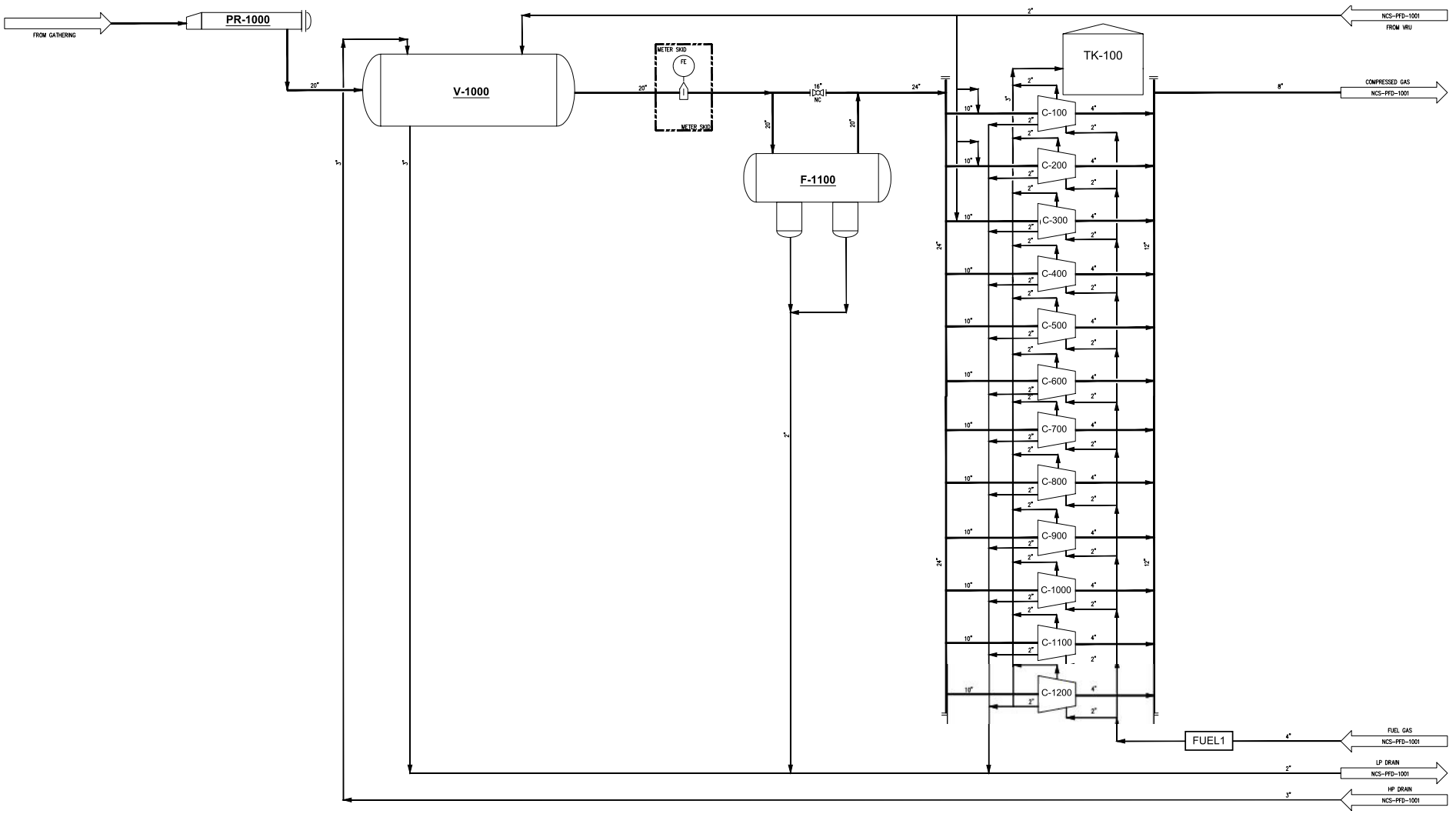
REVISIONS							
NO.	DESCRIPTION	BY	DATE	CHK.	DATE	APPR.	DATE
B	ISSUED FOR AIR PERMIT	AC	06/19/14	LW	06/19/14	PS	06/19/14
A	ISSUED FOR REVIEW	AC	05/06/14	JW	05/06/14	PS	05/06/14

Antero Resources

KAHUNA VENTURES LLC
WESTMINSTER, CO 80021
303-451-7574
BY: KAHUNA DESIGN LLC.

PROCESS FLOW DIAGRAM

DRAWN BY: A. COOLEY	CHECKED: J. WARMAN	APPROVED: P. STOCKEBRAND
CREATION DATE: 05/05/14	CHECK DATE: 05/05/14	APPR. DATE: 05/06/14
Proj. No.: 4083.0164.00	DWG. No.: TCS-PFD-1001	SHEET No.: 2 OF 2
SCALE: NONE		B



NOTES:

REFERENCE DRAWINGS

DWG. NO.	TITLE

NO.	DESCRIPTION	BY	DATE	CHK.	DATE	APPR.	DATE
B	ISSUED FOR AIR PERMIT	AC	06/19/14	LW	06/19/14	PS	06/19/14
A	ISSUED FOR REVIEW	AC	05/06/14	JW	05/06/14	PS	05/06/14

KAHUNA VENTURES LLC
WESTMINSTER, COLORADO
303-451-7574
BY: KAHUNA DESIGN LLC.

PROCESS FLOW DIAGRAM

DRAWN BY: A. COOLEY	CHECKED: J. WARMAN	APPROVED: P. STOCKEBRAND
CREATION DATE: 05/05/14	CHECK DATE: 05/05/14	APPR. DATE: 05/05/14
Proj. No.: 4083.0164.00	DWG. No.: TCS-PFD-1000	SHEET No.: 1 OF 2
SCALE: NONE		B

FILE LOCATION: N:\PROJECTS\ANTERO APPALACHIAN RESOURCES\4083.0164.00 - NICHOLS CS\100-PFD-PID\NCS-PFD-1000.DWG
LAST SAVED: 06/19/14 BY: Alva Cooley
PLOT TIME/DATE: June 19, 2014

ATTACHMENT D

Equipment Table

ATTACHMENT D - Title V Equipment Table

(includes all emission units at the facility except those designated as insignificant activities in Section 4, Item 24 of the General Forms)

Emission Point ID[1]	Control Device[1]	Emission Unit ID[1]	Emission Unit Description	Design Capacity	Year Installed/ Modified
1E	Ox Cat (1C)	C-100	Caterpillar G3608 LB Compressor Engine	2,500 hp	2017
2E	Ox Cat (2C)	C-200	Caterpillar G3608 LB Compressor Engine	2,500 hp	2017
3E	Ox Cat (3C)	C-300	Caterpillar G3608 LB Compressor Engine	2,500 hp	2017
4E	Ox Cat (4C)	C-400	Caterpillar G3608 LB Compressor Engine	2,500 hp	2017
5E	Ox Cat (5C)	C-500	Caterpillar G3608 LB Compressor Engine	2,500 hp	2017
6E	Ox Cat (6C)	C-600	Caterpillar G3608 LB Compressor Engine	2,500 hp	2017
7E	Ox Cat (7C)	C-700	Caterpillar G3608 LB Compressor Engine	2,500 hp	2017
8E	Ox Cat (8C)	C-800	Caterpillar G3608 LB Compressor Engine	2,500 hp	2017
9E	Ox Cat (9C)	C-900	Caterpillar G3608 LB Compressor Engine	2,500 hp	2017
10E	Ox Cat (10C)	C-1000	Caterpillar G3608 LB Compressor Engine	2,500 hp	2017
11E	Ox Cat (11C)	C-1100	Caterpillar G3608 LB Compressor Engine	2,500 hp	2017
12E	Ox Cat (12C)	C-1200	Caterpillar G3608 LB Compressor Engine	2,500 hp	2017
13E	None	GEN1	Capstone C800 800 kWe Microturbine	800 kWe	2017
14E	Flare (13C)	DEHY1	Dehydrator Still Vent #1	150 MMscfd	2017
15E	DREB1 (16E)	DFLSH1	Dehydrator Flash Tank #1	150 MMscfd	2017
16E	None	DREB1	Dehydration Reboiler #1	1.5 MMBtu/hr	2017
17E	Flare (13C)	DEHY2	Dehydrator Still Vent #2	150 MMscfd	2017
18E	DREB2 (19E)	DFLSH2	Dehydrator Flash Tank #2	150 MMscfd	2017
19E	None	DREB2	Dehydration Reboiler #2	1.5 MMBtu/hr	2017
20E	Flare (13C)	DEHY3	Dehydrator Still Vent #3	150 MMscfd	2017
21E	DREB3 (22E)	DFLSH3	Dehydrator Flash Tank #3	150 MMscfd	2017
22E	None	DREB3	Dehydration Reboiler #3	1.5 MMBtu/hr	2017

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

ATTACHMENT D - Title V Equipment Table

(includes all emission units at the facility except those designated as insignificant activities in Section 4, Item 24 of the General Forms)

Emission Point ID[1]	Control Device[1]	Emission Unit ID[1]	Emission Unit Description	Design Capacity	Year Installed/ Modified
23E	VRU-100 (14C) [a] VRU-200 (15C) [a]	T01	Condensate Storage Tank #1	400 bbl (16,800 gal)	2017
24E	VRU-100 (14C) [a] VRU-200 (15C) [a]	T02	Condensate Storage Tank #2	400 bbl (16,800 gal)	2017
25E	VRU-100 (14C) [a] VRU-200 (15C) [a]	T03	Condensate Storage Tank #3	400 bbl (16,800 gal)	2017
26E	VRU-100 (14C) [a] VRU-200 (15C) [a]	T04	Condensate/Produced Water Settling Tank	500 bbl (21,000 gal)	2017
27E	VRU-100 (14C) [a] VRU-200 (15C) [a]	T05	Produced Water Storage Tank #1	400 bbl (16,800 gal)	2017
28E	VRU-100 (14C) [a] VRU-200 (15C) [a]	T06	Produced Water Storage Tank #2	400 bbl (16,800 gal)	2017
29E	VRU-100 (14C) [a] VRU-200 (15C) [a]	T07	Produced Water Storage Tank #3	400 bbl (16,800 gal)	2017
30E	None	FUEL1	Fuel Conditioning Heater	0.5 MMBtu/hr	2017
32E	None	LDOUT1	Production Liquids Truck Load Out	390[b] bbl/day	2017
31E	NA	FLARE1	Flare Control Device	4.8 MMBtu/hr	2017
N/A	None	VENT1	Compressor Blowdowns/Startups/Plant Shutdowns/Pigging Operations	Variable	2017
N/A	None	FUG	Fugitives	Variable	2017
TK-100	None	TK-100	Compressor Skid Oily Water Tank	2,000 gal	2017
TK-101	None	TK-101	Used oil Tank	4,000 gal	2017
TK-102	None	TK-102	TEG Make-up Tank	1,000 gal	2017
TK-103	None	TK-103	Compressor Coolant Tank	2,000 gal	2017
TK-104	None	TK-104	Engine Lube Oil Tank	2,000 gal	2017
TK-105	None	TK-105	Compressor Lube Oil Tank	2,000 gal	2017

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

[a] Working, breathing, and flashing losses are routed to Vapor Recovery Units for recirculation back into the process.
[b] 300 bbl/day Condensate and 90 bbl/day Produced Water

ATTACHMENT E

Emission Unit Forms

- 2,500 hp Caterpillar G3608 LB Compressor Engines (C-100 through C-1200)
- 800 kWe Capstone C800 Standard (GEN1)
- Dehydrator Still Vents (DEHY1, DEHY2, DEHY3)
- Dehydrator Flash Tanks (DFLSH1, DFLSH2, DFLSH3)
- Dehydrator Reboiler (DREB1, DREB2, DREB3)
- Condensate Storage Tanks (T01, T02, T03)
- Condensate/Produced Water Settling Tank (T04)
- Produced Water Storage Tanks (T05, T06, T07)
- Fuel Conditioning Heater (FUEL1)
- Liquid Loadout (LDOUT1)
- Venting Episodes (VENT1)
- Fugitives (FUG)

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		**Compressor Engines C-100 through C-1200 (each)**
Emission unit ID number: C-100 through C-1200 (each)	**Emission unit name:** Compressor Engine #1 through #12 (each)	**List any control devices associated with this emission unit:** Oxidation Catalyst (1C through 12C, each)
Provide a description of the emission unit (type, method of operation, design parameters, etc.): Four Stroke, Lean Burn Natural Gas-Fired Compressor Engine with Oxidation Catalyst		
Manufacturer: Caterpillar	**Model number:** G3608 LB	**Serial number:** N/A
Construction date: After 7/1/2007	**Installation date:** Phase 1* - 3/2017 Phase 2* - 2/2018	**Modification date(s):** N/A
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 2,500 hp @ 1,000 rpm		
Maximum Hourly Throughput: N/A	**Maximum Annual Throughput:** N/A	**Maximum Operating Schedule:** 8,760 hr/yr
Fuel Usage Data **(fill out all applicable fields)**		
Does this emission unit combust fuel? X Yes ___ No		**If yes, is it?** ___ Indirect Fired X Direct Fired
Maximum design heat input and/or maximum horsepower rating: 2,500 hp		**Type and Btu/hr rating of burners:** N/A
List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each. Raw Natural Gas 16,500 scf/hr 144.54 MMscf/yr		

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	<0.01%	negligible	1,242 Btu/scf

*Phase 1 installation date includes Compressor Engines #1 through #8.
*Phase 2 installation date includes Compressor Engines #9 through #12.

Emissions Data	**C-100 through C-1200 (each)**	
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)[1]	0.88	3.86
Nitrogen Oxides (NO_X)[1]	1.65	7.24
Lead (Pb)	N/A	N/A
Particulate Matter ($PM_{2.5}/PM_{10}$)[2]	0.17	0.75
Total Particulate Matter (TSP)[2]	0.17	0.75
Sulfur Dioxide (SO_2)[2]	0.010	0.044
Volatile Organic Compounds (VOC)[1]	1.49	6.52
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
1,3-Butadiene[2]	< 0.01	0.013
2-Methylnaphthalene[2]	< 0.01	< 0.01
2,2,4-Trimethylpentane[2]	< 0.01	0.012
Acenaphthene[2]	< 0.01	< 0.01
Acenaphthylene[2]	< 0.01	< 0.01
Acetaldehyde[2]	0.094	0.41
Acrolein[2]	0.058	0.25
Benzene[2]	< 0.01	0.022
Benzo(b)fluoranthene[2]	< 0.01	< 0.01
Benzo(e)pyrene[2]	< 0.01	< 0.01
Benzo(g,h,i)perylene[2]	< 0.01	< 0.01
Biphenyl[2]	< 0.01	0.010
Chrysene[2]	< 0.01	< 0.01
Ethylbenzene[2]	< 0.01	< 0.01
Fluoranthene[2]	< 0.01	< 0.01
Fluorene[2]	< 0.01	< 0.01
Formaldehyde[1]	0.11	0.48
Methanol[2]	0.028	0.12
Methylene Chloride[2]	< 0.01	< 0.01
n-Hexane[2]	0.013	0.055
Naphthalene[2]	< 0.01	< 0.01
PAH[2]	< 0.01	< 0.01
Phenanthrene[2]	< 0.01	< 0.01

Phenol[2]	< 0.01	< 0.01
Pyrene[2]	< 0.01	< 0.01
Tetrachloroethane[2]	< 0.01	< 0.01
Toluene[2]	< 0.01	0.020
Vinyl Chloride[2]	< 0.01	< 0.01
Xylenes[2]	< 0.01	< 0.01
Other HAPs[2]	< 0.01	0.020
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO_2[1]	2,364	10,356
CH_4[1]	17.8	77.97
N_2O[3]	<0.01	0.017
CO_2e[4]	2,811	12,311

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

1. Values from Manufacturer specification sheet
2. AP-42, Chapter 3.2, Table 3.2-2
3. 40 CFR Part 98, Subpart C, Table C-2
4. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014

Applicable Requirements **C-100 through C-1200 (each)**

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

Permit R13-3347 Requirements:

5.1.1 Maximum hourly and annual emission limits. Please reference Emissions Data above for exact limits.

5.1.2.a-b The compressor engines shall be equipped with oxidation catalysts and fitted with a closed-loop automatic air/fuel ratio feedback controller to ensure that the engine ignition system will cease operation in the case a situation which results in performance degradation or failure of the catalyst element.

5.1.2.c No person shall knowingly: remove, bypass, defeat or render inoperative any air pollution control device subject to the requirements of this permit

5.1.2.d A written operation and maintenance ("O&M") plan is required

11.1 The units must meet requirements in NSPS JJJJ

11.2 Maximum emission standards for NSPS JJJJ

11.4.2 Propane fuel can be used in emergency operations up to 100 hours per year

12.1 The units must meet requirements in NSPS Subpart OOOOa for reciprocating compressors

14.1 The units must meet the requirements of MACT ZZZZ by meeting the requirements of NSPS JJJJ

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

__X__ Permit Shield

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

Permit R13-3347 Requirements:

5.1.2.d Conduct periodic and annual maintenance according to the written O&M Plan

5.2.1 Maintain proper operation of the automatic air/fuel ratio controller or automatic feedback controller and follow O&M recommendation of the catalyst element manufacturer

5.3.1 Follow testing requirements as outlined in Section 3.3, 11.5, and 12.3 of the permit.

5.4.1. Maintain records of hours of operation of each engine in accordance with 3.4.1.

5.4.2. Maintain maintenance records for the catalytic reduction device to demonstrate compliance with 5.1.2 of the permit.

5.5.1 Follow reporting requirements as outlined in Section 3.5, 11.6, and 12.4 of this permit.

Section 11: NSPS JJJJ

11.4.1.b.2. Keep a maintenance plan and records of conducted maintenance, conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first.

11.4.2 Maintain records of propane fuel use. If > 100 hours per year conduct a performance test to demonstrate compliance

11.4.3 Maintain and operate the AFR controller appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.

11.5.1 Performance tests must be conducted in accordance with 40 CFR §60.4244

11.6.1.a. Maintain records of: notifications, maintenance, and documentation the engine meets the emission standards

11.6.1.c. Submit initial notification in accordance with 40 CFR §60.4245(a)

11.6.1.d. Submit performance tests within sixty (60) days per 40 CFR §60.4245(d)

Section 12: NSPS OOOOa

12.1.1.a Replace rod packing on or before the compressor has operated for 26,000 hours or 36 months

12.1.1.b Demonstrate initial compliance with standards that apply to reciprocating compressor affected facilities as required by §60.5410a(c)

12.1.1.c Demonstrate continuous compliance with standards that apply to reciprocating compressor affected facilities as required by §60.5410a(c)

12.1.1.d Perform reporting as required by §60.5420a(b)(1) and 4 and the recordkeeping as required by §60.5420a(c)(3), (6) through (9), and (17), as applicable.

12.1, 12.2 & 12.3 Continuously monitor the hours of operation or number of months since last rod packing replacement

12.1, 12.2, 12.3, & 12.4 Submit Initial and Annual Reports in accordance with 40 CFR §60.5420a(b)(l), (4), and (9)

12.1, 12.2, 12.3, & 12.4 Maintain records of hours of operation or number of months since last rod packing replacement, date and time of rod packing replacement, and any deviations

12.4.1 Notification requirements according to 40 CFR §60.5420a(a)(1)

12.4.2 Submit performance test reports as specified in paragraph (b)(9) of 40 CFR §60.5420a

12.4.3 Maintain reporting and recordkeeping as required by 40 CFR §60.5420a(c)(3), (6)-(9), and (17), as applicable, to demonstrate compliance with 12.1.1.d

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		**Generator GEN1**
Emission unit ID number: GEN1	**Emission unit name:** Capstone Microturbine Generator	**List any control devices associated with this emission unit:** None
Provide a description of the emission unit (type, method of operation, design parameters, etc.): Natural Gas-Fired Generator Engine		
Manufacturer: Capstone	**Model number:** C800 Standard	**Serial number:** N/A
Construction date: TBD	**Installation date:** 03/2017	**Modification date(s):** N/A
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 800 kWe		
Maximum Hourly Throughput: N/A	**Maximum Annual Throughput:** N/A	**Maximum Operating Schedule:** 8,760 hr/yr
Fuel Usage Data **(fill out all applicable fields)**		
Does this emission unit combust fuel? X Yes ___ No		**If yes, is it?** ___ Indirect Fired X Direct Fired
Maximum design heat input and/or maximum horsepower rating: 800 kWe		**Type and Btu/hr rating of burners:** N/A
List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each. Raw Natural Gas 6,636 scf/hr 58.13 MMscf/yr		

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	<0.01%	negligible	10,300 BTU/kWe

Emissions Data		**GEN1**
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO) [1]	0.88	3.85
Nitrogen Oxides (NO_X) [1]	0.32	1.40
Lead (Pb)	N/A	N/A
Particulate Matter ($PM_{2.5}/PM_{10}$)[2]	0.05	0.24
Total Particulate Matter (TSP)[2]	0.05	0.24
Sulfur Dioxide (SO_2)[2]	0.03	0.12
Volatile Organic Compounds (VOC)[1]	0.08	0.35
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
1,3-Butadiene[3]	< 0.01	< 0.01
Acetaldehyde[3]	< 0.01	< 0.01
Acrolein[3]	< 0.01	< 0.01
Benzene[3]	< 0.01	< 0.01
Ethylbenzene[3]	< 0.01	< 0.01
Formaldehyde[3]	< 0.01	0.03
Naphthalene[3]	< 0.01	< 0.01
Propylene Oxide[3]	< 0.01	< 0.01
PAH[3]	< 0.01	< 0.01
Toluene[3]	< 0.01	< 0.01
Xylenes[3]	< 0.01	< 0.01
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO_2[1]	1,064	4,660
CH_4[4]	0.018	0.080
N_2O[4]	< 0.01	< 0.01
CO_2e[5]	1,065	4,665

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

1. Manufacturer Specifications
2. AP-42, Chapter 3.1, Table 3.1-2a
3. AP-42, Chapter 3.1, Table 3.1-3
4. 40 CFR Part 98, Subpart C, Table C-2
5. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014

Applicable Requirements **GEN1**

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

Permit R13-3347 Requirements:

6.1.2 Maximum hourly and annual emission limits. Please reference Emissions Data above for exact limits.

6.1.4 Maintenance of the microturbine shall be performed in accordance with manufacturer recommendations or in accordance with a site-specific maintenance plan.

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

__X__ Permit Shield

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

Permit R13-3347 Requirements:

6.2 Follow testing requirements as outlined in Section 3.3

6.3 Follow recordkeeping requirements as outlined in Section 3.4.1 and 6.1.4.

6.4 Follow reporting requirements as outlined in Section 3.5

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		*TEG Dehydrator Still Vents DEHY1, DEHY2, DEHY 3 (each)*
Emission unit ID number: DEHY1, DEHY2, DEHY3 (each)	**Emission unit name:** Dehydrator Still Vents (each)	**List any control devices associated with this emission unit:** Flare 1 (13C)
Provide a description of the emission unit (type, method of operation, design parameters, etc.): For each TEG Dehydrator Unit: The dehydrator still vents are controlled by a flare with at least 98% control efficiency.		
Manufacturer: TBD	**Model number:** TBD	**Serial number:** N/A
Construction date: TBD	**Installation date:** 03/2017	**Modification date(s):** N/A
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 150 MMscfd, each		
Maximum Hourly Throughput: N/A	**Maximum Annual Throughput:** 54,750 MMscf, each	**Maximum Operating Schedule:** 8,760 hr/yr
Fuel Usage Data **(fill out all applicable fields)**		
Does this emission unit combust fuel? ___ Yes **_X_ No**		**If yes, is it?** ___ Indirect Fired ___ Direct Fired
Maximum design heat input and/or maximum horsepower rating: N/A		**Type and Btu/hr rating of burners:** N/A
List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each. N/A		

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
N/A			

Emissions Data	***DEHY1, DEHY2, DEHY 3 (each)***
Criteria Pollutants	Potential Emissions
	PPH / TPY
Carbon Monoxide (CO)	N/A / N/A
Nitrogen Oxides (NO_X)	N/A / N/A
Lead (Pb)	N/A / N/A
Particulate Matter ($PM_{2.5}/PM_{10}$)	N/A / N/A
Total Particulate Matter (TSP)	N/A / N/A
Sulfur Dioxide (SO_2)	N/A / N/A
Volatile Organic Compounds (VOC)[1]	0.34 / 1.48
Hazardous Air Pollutants	Potential Emissions
	PPH / TPY
Benzene[1]	0.016 / 0.068
Ethylbenzene[1]	< 0.01 / 0.014
n-Hexane[1]	< 0.01 / 0.040
Toluene[1]	0.048 / 0.21
Xylenes[1]	0.013 / 0.058
Regulated Pollutants other than Criteria and HAP	Potential Emissions
	PPH / TPY
CO_2[1]	0.23 / 1.02
CH_4[1]	0.36 / 1.58
CO_2e[2]	9.24 / 40.48

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

1. GRI-GLYCalc Output
2. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014

Applicable Requirements	*DEHY1, DEHY2, DEHY3 (each)*

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

Permit R13-3347 Requirements:

7.1.1 Dehydrator maximum daily throughput limit. Please reference data above for exact limits.

7.1.2 The TEG dehydration unit/still column shall be controlled by the flare control device at all times.

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

__X__ Permit Shield

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

Permit R13-3347 Requirements:

7.2.2 Monitor the throughput of dry natural gas to the dehydration system on a monthly basis for each unit

7.3.3 At the Director's request, demonstrate compliance with the HAP emission thresholds using GLYCalc

7.3.4 & 7.4.8 Determine actual average benzene emissions to demonstrate compliance with the one (1) tpy emission limit. Maintain records.

7.4.3 Maintain records of testing conducted in accordance with 7.3.3 to demonstrate compliance with section 7.1.3 and 7.3.3

7.4.4 Document and maintain records required by sections 7.2 (monitoring) and 7.3 (testing)

7.4.6 Maintain records of PTE HAP calculations for the entire affected facility, including compressor engines and ancillary equipment to demonstrate compliance with section 4.1.2

7.4.7 Maintain records of dry natural gas throughput through the dehydration system to demonstrate compliance with section 7.1.1

7.4.9 Maintain all records required by section 7.4 in accordance with permit condition 3.4.1

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-	*TEG Dehydrator Flash Tanks DFLSH1, DFLSH2, DFLSH3 (each)*	
Emission unit ID number: DFLSH1, DFLSH2, DFLSH3 (each)	**Emission unit name:** TEG Dehydrator Flash Tanks (each)	**List any control devices associated with this emission unit:** Reboiler (16E, 19E, 22E) or VRU (14C/15C) as backup

Provide a description of the emission unit (type, method of operation, design parameters, etc.):
For each TEG Dehydrator Unit: Vent gas from the flash gas tank is routed to the reboiler and used as fuel. As an alternate, flash gas is routed to the storage tanks via the VRU compressors onsite which are controlled at 98%.

Manufacturer:	**Model number:**	**Serial number:**
TBD	TBD	N/A
Construction date:	**Installation date:**	**Modification date(s):**
TBD	03/2017	N/A

Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
150 MMscfd, each

Maximum Hourly Throughput:	**Maximum Annual Throughput:**	**Maximum Operating Schedule:**
N/A	54,750 MMscf, each	8,760 hr/yr

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

Does this emission unit combust fuel? ___ Yes __X__ **No**	**If yes, is it?** ___ Indirect Fired ___ Direct Fired
Maximum design heat input and/or maximum horsepower rating: N/A	**Type and Btu/hr rating of burners:** N/A

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

N/A

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
N/A			

Emissions Data	***DFLSH1, DFLSH2, DFLSH3 (each)***	
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	N/A	N/A
Nitrogen Oxides (NO_X)	N/A	N/A
Lead (Pb)	N/A	N/A
Particulate Matter ($PM_{2.5}/PM_{10}$)	N/A	N/A
Total Particulate Matter (TSP)	N/A	N/A
Sulfur Dioxide (SO_2)	N/A	N/A
Volatile Organic Compounds (VOC)[1]	1.13	4.93
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Benzene[1]	< 0.01	< 0.01
Ethylbenzene[1]	< 0.01	< 0.01
n-Hexane[1]	0.024	0.11
Toluene[1]	< 0.01	0.010
Xylenes[1]	< 0.01	< 0.01
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO_2[1]	2.02	8.85
CH_4[1]	2.29	10.03
CO_2e[2]	59.26	259.5

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

1. GRI-GLYCalc Output
2. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014

Applicable Requirements	*DFLSH1, DFLSH2, DFLSH3 (each)*

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

Permit R13-3347 Requirements:

7.1.1 Dehydrator maximum daily throughput limit. Please reference data above for exact limits.

7.1.2 The TEG dehydration unit/still column shall be controlled by the flare control device at all times.

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

__X__ Permit Shield

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

Permit R13-3347 Requirements:

7.2.2 Monitor the throughput of dry natural gas to the dehydration system on a monthly basis for each unit

7.3.3 At the Director's request, demonstrate compliance with the HAP emission thresholds using GLYCalc

7.3.4 & 7.4.8 Determine actual average benzene emissions to demonstrate compliance with the one (1) tpy emission limit. Maintain records.

7.4.3 Maintain records of testing conducted in accordance with permit condition 7.3.3.

7.4.4 Document and maintain records required by sections 7.2 (monitoring) and 7.3 (testing)

7.4.6 Maintain records of PTE HAP calculations for the entire affected facility, including compressor engines and ancillary equipment to demonstrate compliance with section 4.1.2

7.4.7 Maintain records of dry natural gas throughput through the dehydration system to demonstrate compliance with section 7.1.1

7.4.9 Maintain all records required by section 7.4 in accordance with permit condition 3.4.1

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		*TEG Dehydrator Reboilers DREB1, DREB2, DREB3 (each)*
Emission unit ID number: DREB1, DREB2, DREB3 (each)	**Emission unit name:** TEG Dehydrator Reboilers (each)	**List any control devices associated with this emission unit:** None
Provide a description of the emission unit (type, method of operation, design parameters, etc.): For each Natural Gas-Fired Dehydrator Reboiler: Vent gas from the flash gas tank is routed to the reboiler and used as fuel. As an alternate, flash gas is routed to the storage tanks via the VRU compressors onsite.		
Manufacturer: TBD	**Model number:** TBD	**Serial number:** N/A
Construction date: TBD	**Installation date:** 03/2017	**Modification date(s):** N/A
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 1.5 MMBtu/hr, each		
Maximum Hourly Throughput: N/A	**Maximum Annual Throughput:** 12.9 MMscf/yr (each)	**Maximum Operating Schedule:** 8,760 hr/yr
Fuel Usage Data **(fill out all applicable fields)**		
Does this emission unit combust fuel? X Yes ___ No		**If yes, is it?** ___ Indirect Fired X Direct Fired
Maximum design heat input and/or maximum horsepower rating: 1.5 MMBtu/hr, each		**Type and Btu/hr rating of burners:** 1.5 MMBtu/hr, each
List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each. Natural Gas 12.9 MMscf/yr		

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	<0.01%	negligible	1,020 Btu/scf

Emissions Data		***DREB1, DREB2, DREB3 (each)***
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO) [1]	0.12	0.54
Nitrogen Oxides (NO_X) [1]	0.15	0.64
Lead (Pb)	N/A	N/A
Particulate Matter ($PM_{2.5}/PM_{10}$)[2]	0.011	0.049
Total Particulate Matter (TSP) [2]	0.011	0.049
Sulfur Dioxide (SO_2) [2]	< 0.01	< 0.01
Volatile Organic Compounds (VOC)[2]	< 0.01	0.035
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde[3]	< 0.01	< 0.01
Total HAPs (including HCHO) [3]	< 0.01	0.012
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO_2[4]	175.9	770.4
CH_4[5]	< 0.01	0.015
N_2O[5]	< 0.01	< 0.01
CO_2e[6]	176.1	771.2

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

1. AP-42, Chapter 1.4, Table 1.4-1
2. AP-42, Chapter 1.4, Table 1.4-2
3. AP-42, Chapter 1.4, Table 1.4-3
4. 40 CFR Part 98, Subpart C, Table C-1
5. 40 CFR Part 98, Subpart C, Table C-2
6. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014

Applicable Requirements	*DREB1, DREB2, DREB3 (each)*

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

Permit R13-3347 Requirements:
8.1.1 Maximum design heat input of reboilers. Please reference data above for exact limits.
8.1.2 No person shall cause, suffer, allow, or permit emission of smoke/PM greater than ten (10) percent opacity passed on a six minute block average *[45CSR§2-3.1.]*

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

__X__ Permit Shield

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

Permit R13-3347 Requirements:
8.2.1 At such reasonable times as the Secretary may designate, conduct Method 9 emission observations to demonstrate compliance with section 8.1.2
8.3.1 Conduct Method 9 tests or utilize measurements from continuous opacity monitoring systems approved by the Director to demonstrate compliance with section 8.1.2 *[45CSR§2-3.2.]*
8.4.1 Maintain all records required under section 9.3 shall be kept in accordance with permit condition 3.4.1
8.4.2 Maintain all monitoring data in accordance with permit condition 8.2.1

8.5.1 If deviations from the allowable visible emission requirements are discovered during observations using Method 9 or 22, report to the Director within ten (10) calendar days of the occurrence

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		*Condensate Tanks T01, T02, T03 (each)*
Emission unit ID number: T01, T02, T03 (each)	**Emission unit name:** Condensate Tanks (each)	**List any control devices associated with this emission unit:** VRU (14C/15C)
Provide a description of the emission unit (type, method of operation, design parameters, etc.): Atmospheric Condensate Storage Tanks that are controlled with a VRU and recycled back into the process		
Manufacturer: TBD	**Model number:** TBD	**Serial number:** N/A
Construction date: TBD	**Installation date:** 2017	**Modification date(s):** N/A
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 400 barrels, each		
Maximum Hourly Throughput: N/A	**Maximum Annual Throughput:** 1,533,000 gal/yr (each)	**Maximum Operating Schedule:** 8,760 hr/yr
Fuel Usage Data **(fill out all applicable fields)**		
Does this emission unit combust fuel? ___ Yes **_X_ No**		**If yes, is it?** ___ Indirect Fired ___ Direct Fired
Maximum design heat input and/or maximum horsepower rating: N/A		**Type and Btu/hr rating of burners:** N/A
List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each. N/A		

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
N/A			

Emissions Data		***T01, T02, T03 (each)***
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	N/A	N/A
Nitrogen Oxides (NO_X)	N/A	N/A
Lead (Pb)	N/A	N/A
Particulate Matter ($PM_{2.5}/PM_{10}$)	N/A	N/A
Total Particulate Matter (TSP)	N/A	N/A
Sulfur Dioxide (SO_2)	N/A	N/A
Volatile Organic Compounds (VOC) [1]	0.035	0.15
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Benzene[1]	< 0.01	< 0.01
Toluene[1]	< 0.01	< 0.01
Ethylbenzene[1]	< 0.01	< 0.01
Xylene[1]	< 0.01	< 0.01
n-Hexane[1]	< 0.01	<0.01
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CH_4[1]	N/A	< 0.01
CO_2e[2]	N/A	0.261

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

1. Promax 4.0 Software Model Output
2. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014

Applicable Requirements *T01, T02, T03 (each)*

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

Permit R13-3347 Requirements:

9.1.1 Route all VOC and HAP emissions from the tanks (Unit IDs: T01-T03) to a VRU System with at least 98% efficiency

9.1.2 Install, maintain, and operate the VRUs and associated monitoring equipment in a manner consistent with safety and good air pollution control practices or more stringent limits *[45CSR§13-5.11.]*

9.1.3 Maximum annual throughput limits from the tanks (Unit IDs: T01-T03). Please reference data above for exact limits.

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

__X__ Permit Shield

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

Permit R13-3347 Requirements:
9.2.1 Monitor throughput to the storage vessels (Unit IDs: T01-T03) on a monthly basis
9.2.2 Monitor the VRUs in accordance with the plans and specifications and manufacturer's recommendations to demonstrate compliance with section 9.1.1
9.3.1. Maintain all records required by section 9.3.
9.3.2 Maintain records of VRU equipment inspections and/or preventative maintenance procedures.
9.3.3 Maintain records according to this section of any malfunction or operational shutdown of the VRU during which excess emissions occur.
9.3.4 Maintain records of the aggregate throughput for the storage tanks on a monthly and 12-month rolling total to demonstrate compliance with 9.1.4.
9.3.5 Maintain a copy of all design records of the process, maintenance records of equipment and any downtime hours associated with the VRUs. *[45CSR§13-5.11]*
9.4.1 At the Director's request, report deviations when the control device was operated outside of the parameters defined in the monitoring plan
9.4.2 Notify the director if VRU downtime in excess of 2% based on the 12-month rolling total within ten (10) calendar days.

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		*Condensate/Produced Water Settling Tank T04*
Emission unit ID number: T04	**Emission unit name:** Condensate/Produced Water Settling Tank	**List any control devices associated with this emission unit:** VRU (14C/15C)
Provide a description of the emission unit (type, method of operation, design parameters, etc.): All produced fluids enter the settling tank where the fluids settle out as either condensate or produced water. The tank is controlled with a VRU and recycled back into the process. Flash emissions occur in this tank and condensate and produced water are separated and routed to their respective storage tanks.		
Manufacturer: TBD	**Model number:** TBD	**Serial number:** N/A
Construction date: TBD	**Installation date:** 2017	**Modification date(s):** N/A
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 500 barrels		
Maximum Hourly Throughput: N/A	**Maximum Annual Throughput:** 5,978,700 gal/yr	**Maximum Operating Schedule:** 8,760 hr/yr
Fuel Usage Data **(fill out all applicable fields)**		
Does this emission unit combust fuel? ___ Yes **_X_ No**		**If yes, is it?** ___ Indirect Fired ___ Direct Fired
Maximum design heat input and/or maximum horsepower rating: N/A		**Type and Btu/hr rating of burners:** N/A
List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each. N/A		

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
N/A			

Emissions Data		***T04***
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	N/A	N/A
Nitrogen Oxides (NO_X)	N/A	N/A
Lead (Pb)	N/A	N/A
Particulate Matter ($PM_{2.5}/PM_{10}$)	N/A	N/A
Total Particulate Matter (TSP)	N/A	N/A
Sulfur Dioxide (SO_2)	N/A	N/A
Volatile Organic Compounds (VOC) [1]	6.34	27.76
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Benzene[1]	< 0.01	0.01
Toluene[1]	< 0.01	0.02
Ethylbenzene[1]	< 0.01	< 0.01
Xylene[1]	< 0.01	0.02
n-Hexane[1]	0.16	0.71
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO_2e[2]	N/A	114

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

1. Promax 4.0 Software Model Output
2. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014

Applicable Requirements ***T04***

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

Permit R13-3347 Requirements:

9.1.1 Route all VOC and HAP emissions from the tank (Unit IDs: T04) to a VRU System with at least 98% efficiency

9.1.2 Install, maintain, and operate the VRUs and associated monitoring equipment in a manner consistent with safety and good air pollution control practices or more stringent limits *[45CSR§13-5.11.]*

9.1.3 Maximum annual throughput limits from the tank (Unit IDs: T04). Please reference data above for exact limits.

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

__X__ Permit Shield

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

Permit R13-3347 Requirements:

9.2.1 Monitor throughput to the storage vessels (Unit IDs: T04) on a monthly basis
9.2.2 Monitor the VRUs in accordance with the plans and specifications and manufacturer's recommendations to demonstrate compliance with section 9.1.1
9.3.1. Maintain all records required by section 9.3 in accordance with permit condition 3.4.1.
9.3.2 Maintain records of VRU equipment inspections and/or preventative maintenance procedures.
9.3.3 Maintain records according to this section of any malfunction or operational shutdown of the VRU during which excess emissions occur.
9.3.4 Maintain records of the aggregate throughput for the storage tanks on a monthly and 12-month rolling total to demonstrate compliance with 9.1.3.
9.3.5 Maintain a copy of all design records of the process, maintenance records of equipment and any downtime hours associated with the VRUs. *[45CSR§13-5.11]*
9.4.1 At the Director's request, report deviations when the control device was operated outside of the parameters defined in the monitoring plan
9.4.2 Notify the director if VRU downtime in excess of 2% based on the 12-month rolling total within ten (10) calendar days.

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		***Produced Water Tanks T05, T06, T07 (each)***
Emission unit ID number: T05, T06, T07 (each)	**Emission unit name:** Produced Water Tanks (each)	**List any control devices associated with this emission unit:** VRU (14C/15C)
Provide a description of the emission unit (type, method of operation, design parameters, etc.): Atmospheric Produced Water Storage Tanks that are controlled with a VRU and recycled back into the process		
Manufacturer: TBD	**Model number:** TBD	**Serial number:** N/A
Construction date: TBD	**Installation date:** 2017	**Modification date(s):** N/A
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 400 barrels, each		
Maximum Hourly Throughput: N/A	**Maximum Annual Throughput:** 459,000 gal/yr (each)	**Maximum Operating Schedule:** 8,760 hr/yr
Fuel Usage Data **(fill out all applicable fields)**		
Does this emission unit combust fuel? ___ Yes **_X_ No**		**If yes, is it?** ___ Indirect Fired ___ Direct Fired
Maximum design heat input and/or maximum horsepower rating: N/A		**Type and Btu/hr rating of burners:** N/A
List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each. N/A		

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
N/A			

Emissions Data		***T05, T06, T07 (each)***
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	N/A	N/A
Nitrogen Oxides (NO_X)	N/A	N/A
Lead (Pb)	N/A	N/A
Particulate Matter ($PM_{2.5}/PM_{10}$)	N/A	N/A
Total Particulate Matter (TSP)	N/A	N/A
Sulfur Dioxide (SO_2)	N/A	N/A
Volatile Organic Compounds (VOC) [1]	< 0.01	< 0.01
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Benzene[1]	< 0.01	< 0.01
Toluene[1]	< 0.01	< 0.01
Ethylbenzene[1]	< 0.01	< 0.01
Xylene[1]	< 0.01	< 0.01
n-Hexane[1]	< 0.01	< 0.01
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CH_4[1]	N/A	< 0.01
CO_2e[2]	N/A	< 0.01

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

1. Promax 4.0 Software Model Output
2. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014

Applicable Requirements	*T05, T06, T07 (each)*

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

Permit R13-3347 Requirements:

9.1.1 Route all VOC and HAP emissions from the tanks (Unit IDs: T05-T07) to a VRU System with at least 98% efficiency

9.1.2 Install, maintain, and operate the VRUs and associated monitoring equipment in a manner consistent with safety and good air pollution control practices or more stringent limits *[45CSR§13-5.11.]*

9.1.3 Maximum annual throughput limits from the tanks (Unit IDs: T05-T07). Please reference data above for exact limits.

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

__X__ Permit Shield

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

Permit R13-3347 Requirements:

9.2.1 Monitor throughput to the storage vessels (Unit IDs: T05-T07) on a monthly basis

9.2.2 Monitor the VRUs in accordance with the plans and specifications and manufacturer's recommendations to demonstrate compliance with section 9.1.1

9.3.1. Maintain all records required by section 9.3.

9.3.2 Maintain records of VRU equipment inspections and/or preventative maintenance procedures.

9.3.3 Maintain records according to this section of any malfunction or operational shutdown of the VRU during which excess emissions occur.

9.3.4 Maintain records of the aggregate throughput for the storage tanks on a monthly and 12-month rolling total to demonstrate compliance with 9.1.4

9.3.5 Maintain a copy of all design records of the process, maintenance records of equipment and any downtime hours associated with the VRUs. *[45CSR§13-5.11]*

9.4.1 At the Director's request, report deviations when the control device was operated outside of the parameters defined in the monitoring plan

9.4.2 Notify the director if VRU downtime in excess of 2% based on the 12-month rolling total within ten (10) calendar days.

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		***Fuel Conditioning Heater FUEL1***
Emission unit ID number: FUEL1	**Emission unit name:** Fuel Conditioning Heater	**List any control devices associated with this emission unit:** None
Provide a description of the emission unit (type, method of operation, design parameters, etc.): Fuel conditioning skid with a 0.5 MMBtu/hr heater to allow for more complete combustion of fuel at the compressor engines		
Manufacturer: TBD	**Model number:** TBD	**Serial number:** N/A
Construction date: TBD	**Installation date:** 2017	**Modification date(s):** N/A
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 0.5 MMBtu/hr		
Maximum Hourly Throughput: N/A	**Maximum Annual Throughput:** 4.29 MMscf/yr	**Maximum Operating Schedule:** 8,760 hr/yr
Fuel Usage Data **(fill out all applicable fields)**		
Does this emission unit combust fuel? X Yes ___ No		**If yes, is it?** ___ Indirect Fired X Direct Fired
Maximum design heat input and/or maximum horsepower rating: 0.5 MMBtu/hr		**Type and Btu/hr rating of burners:** 0.5 MMBtu/hr
List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each. Natural Gas 4.29 MMscf/yr		

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
Natural Gas	<0.01%	negligible	1,020 Btu/scf

Emissions Data		***FUEL1***
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO) [1]	0.041	0.18
Nitrogen Oxides (NO_X) [1]	0.049	0.21
Lead (Pb)	N/A	N/A
Particulate Matter ($PM_{2.5}/PM_{10}$)[2]	< 0.01	0.016
Total Particulate Matter (TSP) [2]	< 0.01	0.016
Sulfur Dioxide (SO_2) [2]	< 0.01	< 0.01
Volatile Organic Compounds (VOC)[2]	< 0.01	0.012
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Formaldehyde[3]	< 0.01	< 0.01
Total HAPs (including HCHO) [3]	< 0.01	< 0.01
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO_2[4]	58.63	256.8
CH_4[5]	< 0.01	< 0.01
N_2O[5]	< 0.01	< 0.01
CO_2e[6]	58.69	257.1

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

1. AP-42, Chapter 1.4, Table 1.4-1
2. AP-42, Chapter 1.4, Table 1.4-2
3. AP-42, Chapter 1.4, Table 1.4-3
4. 40 CFR Part 98, Subpart C, Table C-1
5. 40 CFR Part 98, Subpart C, Table C-2
6. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014

Applicable Requirements	***FUEL1***

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

Permit R13-3347 Requirements:
8.1.1 Maximum design heat input
8.1.2 No person shall cause, suffer, allow, or permit emission of smoke/PM greater than ten (10) percent opacity passed on a six-minute block average *[45CSR§2-3.1.]*

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

__X__ Permit Shield

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

Permit R13-3347 Requirements:
8.2.1 At such reasonable times as the Secretary may designate, conduct Method 9 emission observations to demonstrate compliance with section 8.1.2
8.3.1 Conduct Method 9 tests or utilize measurements from continuous opacity monitoring systems approved by the director to demonstrate compliance with section 8.1.2 *[45CSR§2-3.2.]*
8.4.1 Maintain all records required under section 9.3 shall be kept in accordance with permit condition 3.4.1
8.4.2 Maintain records of all monitoring data required by permit condition 8.2.1.
8.5.1 If deviations from the allowable visible emission requirements are discovered during observations using Method 9 or 22, report to the Director within ten (10) calendar days of the occurrence

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		*Liquid Loadout LDOUT1*
Emission unit ID number: LDOUT1	**Emission unit name:** Production Liquids Truck Loadout	**List any control devices associated with this emission unit:** None
Provide a description of the emission unit (type, method of operation, design parameters, etc.): Loadout of condensate and produced water from storage tanks		
Manufacturer: N/A	**Model number:** N/A	**Serial number:** N/A
Construction date: TBD	**Installation date:** 2017	**Modification date(s):** N/A
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 109,500 bbl/yr of condensate and 32,850 bbl/yr of produced water		
Maximum Hourly Throughput: 260 bbl/hour	**Maximum Annual Throughput:** 142,350 bbl/yr	**Maximum Operating Schedule:** 8,760 hr/yr
Fuel Usage Data **(fill out all applicable fields)**		
Does this emission unit combust fuel? ___ Yes **_X_ No**		**If yes, is it?** ___ Indirect Fired ___ Direct Fired
Maximum design heat input and/or maximum horsepower rating: N/A		**Type and Btu/hr rating of burners:** N/A
List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each. N/A		

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
N/A			

Emissions Data		***LDOUT1***
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO) [1]	N/A	N/A
Nitrogen Oxides (NO_X) [1]	N/A	N/A
Lead (Pb)	N/A	N/A
Particulate Matter ($PM_{2.5}/PM_{10}$) [1]	N/A	N/A
Total Particulate Matter (TSP) [1]	N/A	N/A
Sulfur Dioxide (SO_2) [1]	N/A	N/A
Volatile Organic Compounds (VOC) [1]	72.94	15.24
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Benzene[1]	0.031	< 0.01
Toluene[1]	0.062	0.013
Ethylbenzene[1]	0.018	< 0.01
Xylene[1]	0.040	< 0.01
n-Hexane[1]	1.87	0.39
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO_2e[2]	295.4	61.74

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

1. Promax 4.0 Software Model Output
2. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014

Applicable Requirements ***LDOUT1***

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

Permit R13-3347 Requirements:

10.1.2 Maximum annual throughput limit for produced water liquid loadout. Please reference data above for exact limits.

10.1.3 Maximum annual throughput limit for condensate liquid loadout. Please reference data above for exact limits.

10.1.4 The produced water and condensate truck loading shall be operated using submerged filling.

Please Reference WCDEP-DAQ Permit R13-3347
and SUPPLEMENT S1-Regulatory Discussion for more details.

__X__ Permit Shield

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

Permit R13-3347 Requirements:

10.2.1 Follow monitoring requirements as outlined in Section 10.3

10.3.1 Maintain records required by section 10.3 in accordance with permit condition 3.4.1.

10.3.2 Maintain a record of the aggregate throughput for the truck loading on a monthly and 12-month rolling total

10.4.1 Follow reporting requirements as outlined in Section 3.5 of the permit

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		***Venting Episodes VENT1***
Emission unit ID number: VENT1	**Emission unit name:** Venting Episodes	**List any control devices associated with this emission unit:** None
Provide a description of the emission unit (type, method of operation, design parameters, etc.): Emissions account for compressor blowdowns, compressor startups, plant shutdowns, and high and low pressure pigging events.		
Manufacturer: N/A	**Model number:** N/A	**Serial number:** N/A
Construction date: TBD	**Installation date:** 2017	**Modification date(s):** N/A
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): Compressor Blowdowns – 936 events/year Compressor Startups – 936 events/year Plant Shutdown – 2 events/year Low Pressure Pigging – 593 events/year High Pressure Pigging – 520 events/year		
Maximum Hourly Throughput: N/A	**Maximum Annual Throughput:** N/A	**Maximum Operating Schedule:** 8,760 hr/yr
Fuel Usage Data **(fill out all applicable fields)**		
Does this emission unit combust fuel? ___ Yes **_X_ No**		**If yes, is it?** ___ Indirect Fired ___ Direct Fired
Maximum design heat input and/or maximum horsepower rating: N/A		**Type and Btu/hr rating of burners:** N/A
List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each. N/A		

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
N/A			

Emissions Data		***VENT1***
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	N/A	N/A
Nitrogen Oxides (NO_X)	N/A	N/A
Lead (Pb)	N/A	N/A
Particulate Matter ($PM_{2.5}/PM_{10}$)	N/A	N/A
Total Particulate Matter (TSP)	N/A	N/A
Sulfur Dioxide (SO_2)	N/A	N/A
Volatile Organic Compounds (VOC) [1]	N/A	25.8
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Benzene[1]	N/A	<0.01
Toluene[1]	N/A	0.02
Ethylbenzene[1]	N/A	<0.01
Xylenes[1]	N/A	<0.01
n-Hexane[1]	N/A	0.48
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO_2e[2]	N/A	2,034.6

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

1. Engineering Estimates
2. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014

Applicable Requirements ***VENT1***

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

Permit R13-3347 Requirements:

15.1.1 Annual compressor blowdown event limits. Please reference data above for exact limits.

15.1.2 Annual compressor startup event limits. Please reference data above for exact limits.

15.1.3 Annual high and low pressure pigging event limits. Please reference data above for exact limits.

15.1.4 Annual plant shutdown event limits. Please reference data above for exact limits.

Please Reference WCDEP-DAQ Permit R13-3347
and SUPPLEMENT S1-Regulatory Discussion for more details.

__X__ Permit Shield

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

Permit R13-3347 Requirements:
15.2.1 Maintain records required by this section in accordance with permit condition 3.4.1.
15.2.2 Maintain records of compressor blowdown event counts and estimated volume on a monthly and 12-month rolling total to demonstrate compliance with section 15.1.1 of this permit
15.2.3 Maintain records of compressor start-up event counts and estimated volume on a monthly and 12-month rolling total to demonstrate compliance with sections 15.1.2 of this permit
15.2.4 Maintain records of high and low pressure pigging event counts and estimated volume on a monthly and 12-month rolling total to demonstrate compliance with sections 15.1.3 of this permit
15.2.5 Maintain records of plant shutdown event counts and estimated volume on a monthly and 12-month rolling total to demonstrate compliance with sections 15.1.4 of this permit

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		***Fugitives FUG***
Emission unit ID number: FUG	**Emission unit name:** Fugitives	**List any control devices associated with this emission unit:** None
Provide a description of the emission unit (type, method of operation, design parameters, etc.): Emissions account for component fugitive leaks (flanges, valves, and compressor seals) and haul roads.		
Manufacturer: N/A	**Model number:** N/A	**Serial number:** N/A
Construction date: N/A	**Installation date:** 2017	**Modification date(s):** N/A
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): Haul Roads: Condensate Tank Trucks – 730 trips/year Haul Roads: Produced Water Tank Trucks – 365 trips/year Haul Roads: Passenger Trucks – 1,460 trips/year		
Maximum Hourly Throughput: N/A	**Maximum Annual Throughput:** N/A	**Maximum Operating Schedule:** 8,760 hr/yr
Fuel Usage Data **(fill out all applicable fields)**		
Does this emission unit combust fuel? ___ Yes **X** **No**		**If yes, is it?** ___ Indirect Fired ___ Direct Fired
Maximum design heat input and/or maximum horsepower rating: N/A		**Type and Btu/hr rating of burners:** N/A
List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each. N/A		

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

Fuel Type	Max. Sulfur Content	Max. Ash Content	BTU Value
N/A			

Emissions Data		***FUG***
Criteria Pollutants	Potential Emissions	
	PPH	TPY
Carbon Monoxide (CO)	N/A	N/A
Nitrogen Oxides (NO_X)	N/A	N/A
Lead (Pb)	N/A	N/A
Particulate Matter ($PM_{2.5}/PM_{10}$) [1]	0.14	0.61
Total Particulate Matter (TSP) [1]	0.55	2.41
Sulfur Dioxide (SO_2)	N/A	N/A
Volatile Organic Compounds (VOC) [1]	2.35	10.31
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Benzene[1]	<0.01	<0.01
Toluene[1]	<0.01	<0.01
Ethylbenzene[1]	<0.01	<0.01
Xylenes[1]	<0.01	<0.01
n-Hexane[1]	0.05	0.21
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO_2e[2]	N/A	177

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

1. Engineering Estimates
2. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014

Applicable Requirements ***FUG***

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

Permit R13-3347 Requirements:

13.1.1 *NSPS OOOOa standards* – a leak is any visible emission from a fugitive component observed using an optical gas imaging or an instrument reading of 500 ppm or greater using Method 21.

Please Reference WCDEP-DAQ Permit R13-3347
and SUPPLEMENT S1-Regulatory Discussion for more details.

__X__ Permit Shield

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

Permit R13-3347 Requirements:

13.1.1 LDAR Requirements

(a) Monitor all fugitive emission components in accordance with paragraphs (b)-(g) of this section. Keep records in accordance with paragraph (i) and report in accordance with paragraph (j)

(b)-(d) Develop written emissions monitoring plan in accordance with paragraph (c) and (d) of this section

(e)-(g) Each monitoring survey shall observe each fugitive component as defined in 40 CFR §60.5430a. The initial survey shall be conducted with sixty (60) days of startup of production then quarterly moving forward. Difficult or unsafe to inspect and winter requirements are also outlined.

(h) Repair timelines – as soon as practicable but no later than 30 calendar days after detection, resurvey of repairs as soon as practicable but no later than 30 calendar days after repair, delay of repair instructions, leak tagging instructions

(i) Maintain records of surveys shall as specified in 40 CFR §60.5420a(c)(15)

(j) Submit annual reports in accordance with 40 CFR §60.5420a(b)(7)

13.2.2 *Initial Compliance Demonstration* - develop fugitive monitoring plan, conduct initial monitoring, maintain records, repair leaks, and submit initial annual report

13.3.1 *Continuous Compliance Demonstration* - conduct periodic monitoring, repair leaks, maintain records, and submit annual reports

13.4.1 *Notification Requirements* – No requirements according to 40 CFR §60. 5420a(a)(1)

13.4.2 Submit annual reports and performance tests as outlined in this section

13.4.3 Maintain records identified in 40 CFR §60.7(f) and as outlined in this section for five (5) years

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

Are you in compliance with all applicable requirements for this emission unit? _X_Yes ___No

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

ATTACHMENT F

Schedule of Compliance Form

ATTACHMENT F - Schedule of Compliance Form

Complete this section if you indicated noncompliance with any of the applicable requirements identified in the permit application. For each emission unit which is not in compliance, identify the applicable requirement, the reason(s) for noncompliance, a description of how the source will achieve compliance, and a detailed schedule of compliance. If there is a consent order that applies to this requirement, attach a copy to this form.

1. Applicable Requirement

Unit(s):	**Applicable Requirement:**

2. Reason for Noncompliance:

3. How will Compliance be Achieved?

4. Consent Order Number (if applicable):

5. Schedule of Compliance. Provide a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance, including a date for final compliance.

Remedial Measure or Action	Date to be Achieved

6. Submittal of Progress Reports.

Content of Progress Report:	**Report starting date:** MM/DD/YYYY **Submittal frequency:**

ATTACHMENT G

Air Pollution Control Device Forms

- Oxidation Catalysts for Caterpillar Engines (1C through 12C)
- BTEX Condensers for Dehydrators (N/A)
- Facility Flare (13C)
- Dehydrator Reboilers (16E, 19E, 22E)
- VRUs (14C, 15C)

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: Oxidation Catalysts: 1C through 12C	**List all emission units associated with this control device.** Compressor Engine #1 through #12: C-100 though C-1200 (1E through 12E)	
Manufacturer: TBD	**Model number:** RT-3615-H	**Installation date:** 03/2017

Type of Air Pollution Control Device:

___ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	_X_ **Other: Oxidation Catalyst**
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

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

Pollutant	Capture Efficiency	Control Efficiency
CO	N/A	94%
VOC	N/A	34%
HCHO	N/A	88%

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

Permit R13-3347 Requirements:

5.1.2.a-b The compressor engines shall be equipped with oxidation catalysts and fitted with a closed-loop automatic air/fuel ratio feedback controller to ensure a that the engine ignition system will cease operation in the case a situation which results in performance degradation or failure of the catalyst element..

5.1.2.c No person shall knowingly: remove, bypass, defeat or render inoperative any air pollution control device subject to the requirements of this permit

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

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

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Unit does not meet the definition of a large Pollutant-Specific Emissions Unit (PSEU): a PSEU with potential post-control device emissions of an applicable regulated air pollutant that are equal to or greater than Major Source Threshold Levels. Therefore, CAM does not need to be addressed in the CAM Plan Submittal according to the initial application Basis of CAM Submittal instructions in Attachment H.

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

Permit R13-3347 Requirements:

5.1.2.d A written operation and maintenance ("O&M") plan is required

5.2.1 Maintain proper operation of the automatic air/fuel ratio controller or automatic feedback controller and follow O&M recommendation of the catalyst element manufacturer

5.4.2 Maintain maintenance records for the catalytic reduction device to demonstrate compliance with 5.1.2 of the permit.

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: BTEX Condenser	**List all emission units associated with this control device.** TEG Dehydrator Still Vents: DEHY1, DEHY2, DEHY3	
Manufacturer: TBD	**Model number:** TBD	**Installation date:** 03/2017

Type of Air Pollution Control Device:

___ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	**_X_ Condenser**	___ Settling Chamber
___ Thermal Incinerator	____ Flare	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

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

Pollutant	Capture Efficiency	Control Efficiency
VOC	N/A	98%
HAPs	N/A	98%

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

Vapors from the dehydrator's still column is routed to the BTEX condenser and Flare for 98% DRE.

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

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

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Unit does not meet the definition of a large Pollutant-Specific Emissions Unit (PSEU): a PSEU with potential post-control device emissions of an applicable regulated air pollutant that are equal to or greater than Major Source Threshold Levels. Therefore, CAM does not need to be addressed in the CAM Plan Submittal according to the initial application Basis of CAM Submittal instructions in Attachment H.

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

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: Facility Flare: FLARE1 (13C)	**List all emission units associated with this control device.** TEG Dehydrator Still Vents: DEHY1, DEHY2, DEHY3	
Manufacturer: TBD	**Model number:** TBD	**Installation date:** 2017

Type of Air Pollution Control Device:

___ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	**_X_ Flare**	___ Other (describe) _____
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

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

Pollutant	Capture Efficiency	Control Efficiency
VOC	N/A	98%
HAPs	N/A	98%

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

Permit R13-3347 Requirements:

7.1.2 Flare maximum hourly and annual emission limits.

7.1.3 The flare shall be designed and operated in accordance with this section - air-assisted, no visible emissions (except for periods not to exceed 5 minutes during any 2 consecutive hours), flame shall be present at all times whenever emissions may be vented (except during MSS), net heating value and velocity requirements

7.1.4 Conduct a flare design evaluation in accordance with section 7.4.2 of the permit. At the Director's request, conduct a flare compliance assessment for concentration of sample and tip velocity in accordance with section 7.3.2 of the permit.

7.1.4 Conduct a flare design evaluation in accordance with section 7.4.2.

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

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

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Unit does not meet the definition of a large Pollutant-Specific Emissions Unit (PSEU): a PSEU with potential post-control device emissions of an applicable regulated air pollutant that are equal to or greater than Major Source Threshold Levels. Therefore, CAM does not need to be addressed in the CAM Plan Submittal according to the initial application Basis of CAM Submittal instructions in Attachment H.

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

Permit R13-3347 Requirements:

7.2.1 Monitor the presence or absence of the pilot flame, using a thermocouple or equivalent device, to show compliance with section 7.1.3.c

7.3.1 & 7.4.5 Conduct Method 22 test for at least two hours within one (1) year of initial startup to demonstrate compliance with section 7.1.3b. Maintain records of opacity tests.

7.3.2 At the Director's request, conduct a flare compliance assessment to demonstrate compliance with section 7.1.3

7.4.1 Maintain records of the times and duration of all periods which the pilot flame was absent to demonstrate compliance with section 7.1.3c and 7.2.1

7.4.2 Maintain record of the flare design evaluation to demonstrate compliance with section 7.1.4 and 7.3.2

7.4.3 Maintain records of testing conducted in accordance with 7.3.3 to demonstrate compliance with section 7.1.3 and 7.3.3

7.4.4 Document and maintain records required by sections 7.2 (monitoring) and 7.3 (testing)

7.4.9 Maintain all records required by section 7.4 in accordance with 3.4.1

7.5.1 If required by the Director to comply with section 7.3.2, submit a testing protocol at least thirty (30) days prior to any testing, submit notification at least fifteen (15) days prior to any testing, submit test results within sixty (60) days of completion, including supporting calculations and testing data

7.5.2 If deviations from the allowable visible emission requirements are discovered during observations using Method 9 or 22, report to the Director within ten (10) calendar days of the occurrence

7.5.3 If deviations from the flare design and operation criteria in section 7.1.3 occur, report to the Director within ten (10) calendar days of such deviation

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: TEG Dehydrator Unit Reboilers: DREB1 (16E), DREB2 (19E), DREB3(22E)	**List all emission units associated with this control device.** TEG Dehydrator Flash Tanks: DFLSH1, DFLSH2, DFLSH3	
Manufacturer: TBD	**Model number:** TBD	**Installation date:** 2017

Type of Air Pollution Control Device:

___ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	**_X_ Other: Reboiler w/ VRU backup**
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

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

Pollutant	Capture Efficiency	Control Efficiency
VOC	N/A	98%
HAPs	N/A	98%

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

Permit R13-3347 Requirements:
8.1.1 Maximum design heat input of reboilers
8.1.2 No person shall cause, suffer, allow, or permit emission of smoke/PM greater than ten (10) percent opacity passed on a six minute block average *[45CSR§2-3.1.]*

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

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

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Unit does not meet the definition of a large Pollutant-Specific Emissions Unit (PSEU): a PSEU with potential post-control device emissions of an applicable regulated air pollutant that are equal to or greater than Major Source Threshold Levels. Therefore, CAM does not need to be addressed in the CAM Plan Submittal according to the initial application Basis of CAM Submittal instructions in Attachment H.

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

Permit R13-3347 Requirements:

8.2.1 At such reasonable times as the Secretary may designate, conduct Method 9 emission observations to demonstrate compliance with section 8.1.2

8.3.1 Conduct Method 9 tests or utilize measurements from continuous opacity monitoring systems approved by the director to demonstrate compliance with section 8.1.2 *[45CSR§2-3.2.]*

8.4.1 Maintain records of all monitoring data required by section 8.2.1 in accordance with 3.4.1

8.5.1 If deviations from the allowable visible emission requirements are discovered during observations using Method 9 or 22, report to the Director within ten (10) calendar days of the occurrence

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: Vapor Recovery Units: VRU-100 (14C), VRU-200 (15C)	**List all emission units associated with this control device.** Hydrocarbon/Produced Water Tanks (T01 through T07)	
Manufacturer: TBD	**Model number:** TBD	**Installation date:** 03/2017

Type of Air Pollution Control Device:

___ Baghouse/Fabric Filter	___ Venturi Scrubber	___ Multiclone
___ Carbon Bed Adsorber	___ Packed Tower Scrubber	___ Single Cyclone
___ Carbon Drum(s)	___ Other Wet Scrubber	___ Cyclone Bank
___ Catalytic Incinerator	___ Condenser	___ Settling Chamber
___ Thermal Incinerator	___ Flare	**_X_ Other: Vapor Recovery (VRU)**
___ Wet Plate Electrostatic Precipitator		___ Dry Plate Electrostatic Precipitator

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

Pollutant	Capture Efficiency	Control Efficiency
VOC	98%	N/A
HAPs	98%	N/A

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

VRU-100 is the primary VRU to collect storage tank vapors and VRU-200 is the backup VRU in times when the primary VRU is undergoing maintenance or shutdown. In the unlikely event that both VRU-100 and VRU-200 are under maintenance or are shutdown, a bypass system is in place to route tank vapors to the facility inlet. A 98% capture efficiency was permitted.

Permit R13-3347 Requirements:

9.1.1 Route all VOC and HAP emissions from the tanks (Unit IDs: T05-T07) to a VRU System with at least 98% efficiency

9.1.2 Install, maintain, and operate the VRUs and associated monitoring equipment in a manner consistent with safety and good air pollution control practices or more stringent limits *[45CSR§13-5.11.]*

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details

Is this device subject to the CAM requirements of 40 C.F.R. 64? ___ Yes **_X_ No closed loop system, however claiming 98% efficiency.**

If Yes, **Complete ATTACHMENT H**

If No**, Provide justification.**

Unit does not meet the definition of a large Pollutant-Specific Emissions Unit (PSEU): a PSEU with potential post-control device emissions of an applicable regulated air pollutant that are equal to or greater than Major Source Threshold Levels. Therefore, CAM does not need to be addressed in the CAM Plan Submittal according to the initial application Basis of CAM Submittal instructions in Attachment H.

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

Permit R13-3347 Requirements:
9.2.2 Monitor the VRUs in accordance with the plans and specifications and manufacturer's recommendations to demonstrate compliance with section 9.1.1
9.3.1. Maintain all records required by section 9.3 in accordance with permit condition 3.4.1
9.3.2 Maintain records of VRU equipment inspections and/or preventative maintenance procedures
9.3.3 Maintain records according to this section of any malfunction or operational shutdown of the VRU during which excess emissions occur.
9.3.5 Maintain a copy of all design records of the process, maintenance records of equipment and any downtime hours associated with the VRUs.
9.4.1 At the Director's request, report deviations when the control device was operated outside of the parameters defined in the monitoring plan
9.4.2 Notify the director if VRU downtime in excess of 2% based on the 12-month rolling total within ten (10) calendar days

Please Reference WCDEP-DAQ Permit R13-3347

and SUPPLEMENT S1-Regulatory Discussion for more details

ATTACHMENT H

Compliance Assurance Monitoring Form

ATTACHMENT H - Compliance Assurance Monitoring (CAM) Plan Form

For definitions and information about the CAM rule, please refer to 40 CFR Part 64. Additional information (including guidance documents) may also be found at http://www.epa.gov/ttn/emc/cam.html

CAM APPLICABILITY DETERMINATION

1) Does the facility have a PSEU (Pollutant-Specific Emissions Unit considered separately with respect to **EACH** regulated air pollutant) that is subject to CAM (40 CFR Part 64), which must be addressed in this CAM plan submittal? To determine applicability, a PSEU must meet **all** of the following criteria (*If No, then the remainder of this form need not be completed*): ☐ YES ☐ NO

a. The PSEU is located at a major source that is required to obtain a Title V permit;

b. The PSEU is subject to an emission limitation or standard for the applicable regulated air pollutant that is NOT exempt;

LIST OF EXEMPT EMISSION LIMITATIONS OR STANDARDS:

- NSPS (40 CFR Part 60) or NESHAP (40 CFR Parts 61 and 63) proposed after 11/15/1990.
- Stratospheric Ozone Protection Requirements.
- Acid Rain Program Requirements.
- Emission Limitations or Standards for which a WVDEP Division of Air Quality Title V permit specifies a continuous compliance determination method, as defined in 40 CFR §64.1.
- An emission cap that meets the requirements specified in 40 CFR §70.4(b)(12).

c. The PSEU uses an add-on control device (as defined in 40 CFR §64.1) to achieve compliance with an emission limitation or standard;

d. The PSEU has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than the Title V Major Source Threshold Levels; AND

e. The PSEU is NOT an exempt backup utility power emissions unit that is municipally-owned.

BASIS OF CAM SUBMITTAL

2) Mark the appropriate box below as to why this CAM plan is being submitted as part of an application for a Title V permit:

☐ RENEWAL APPLICATION. **ALL** PSEUs for which a CAM plan has NOT yet been approved need to be addressed in this CAM plan submittal.

☐ INITIAL APPLICATION (submitted after 4/20/98). **ONLY** large PSEUs (i. e., PSEUs with potential post-control device emissions of an applicable regulated air pollutant that are equal to or greater than Major Source Threshold Levels) need to be addressed in this CAM plan submittal.

☐ SIGNIFICANT MODIFICATION TO LARGE PSEUs. **ONLY** large PSEUs being modified after 4/20/98 need to be addressed in this cam plan submittal. For large PSEUs with an approved CAM plan, Only address the appropriate monitoring requirements affected by the significant modification.

4.0 Supplements

The following supplemental documents are included with this renewal.

1. Supplement S1 – Regulatory Discussion
2. Supplement S2 – Facility-wide Emissions Summary

SUPPLEMENT S1

Regulatory Discussion

Federal Regulations and Applicability Discussion

This section presents a review of the potentially applicable federal regulations:

- Title 40 CFR Part 60 – New Source Performance Standards ("NSPS")
- Title 40 CFR Part 61 – National Emission Standards for Hazardous Air Pollutants ("NESHAP")
- Title 40 CFR Part 63 – NESHAPs for Source Categories (aka "MACT")

Sub-part	Title 40 CFR Part 60, Standards of Performance for:	Rule Applicability Review	
A	General Provisions:	Y	This site is subject to a NSPS and is, therefore, subject to the general provisions of this subpart.
Db	Industrial-Commercial-Institutional Steam Generating Units	N	This site does not operate a steam generating unit > 100 MMBtu/hr; therefore, this subpart does not apply.
Dc	Small Industrial-Commercial-Institutional Steam Generating Units	N	This site does not operate a steam generating unit > 10 MMBtu/hr but < 100 MMBtu/hr; therefore, this subpart does not apply.
K	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After 6/11/1973, and Prior to 5/19/1978	N	The storage tank(s) at the site did not commence construction, reconstruction, or modification after June 11, 1973 and prior to May 19, 1978; therefore, this subpart does not apply.
Ka	Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After 5/18/1978 and Prior to 7/23/1984	N	The storage tank(s) at the site did not commence construction, reconstruction, or modification after May 18, 1978 and prior to July 23, 1984; therefore, this subpart does not apply.
Kb	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After 7/23/1984	N	The storage tank(s) at the site commenced construction after July 23, 1984; however, each tank has a storage capacity less than 1,589.874 m^3 and is used for petroleum or condensate stored prior to custody transfer; therefore, per §60.110b(d)(4) this subpart does not apply.
GG	Stationary Gas Turbines	N	Since the microturbine generator at the site will have a heat input rating less than 10 million Btu per hour, Subpart GG does not apply.
KKK	Equipment Leaks of VOC From Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After 1/20/1984, and on or Before 8/23/2011	N	This site does not meet the definition of natural gas processing plant as defined in 40 CFR §60.631; therefore, this subpart does not apply.
LLL	SO_2 Emissions From Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced after 1/20/1984, and on or before 8/23/2011	N	This site does not meet the definition of natural gas processing plant as defined in 40 CFR §60.631 and did not commence construction, reconstruction, or modification after January 20, 1984 and prior to August 23, 2011; therefore, this subpart does not apply.
IIII	Stationary Compression Ignition Internal Combustion Engine.	N	This site does not operate an affected facility under this subpart; therefore, this subpart does not apply.

Federal Regulations and Applicability Discussion

Sub-part	Title 40 CFR Part 60, Standards of Performance for:	Rule Applicability Review	
JJJJ	Stationary Compression Ignition Internal Combustion Engine.	Y	The stationary spark-ignited internal combustion engines at the site (Unit IDs: C-100 through C-1200) are non-emergency, ≥ 500 hp and were manufactured on or after July 1, 2007; therefore, are subject to this subpart per 60.4230(a)(4)(i). Antero will maintain compliance with the applicable testing, reporting, monitoring, and recordkeeping requirements of this subpart.
KKKK	Stationary Combustion Turbines	N	Since the microturbine generator at the site will have a heat input rating less than 10 million Btu per hour, this subpart does not apply.
OOOO	Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification, or Reconstruction Commenced after August 23, 2011, and on or before September 18, 2015	N	This site was constructed after September 18, 2015 and does not operate an affected facility under this subpart; therefore, this subpart does not apply.
OOOOa	Crude Oil and Natural Gas Facilities for which Construction, Modification, or Reconstruction Commenced after September 18, 2015	Y	The site will potentially operate affected facilities, commencing construction, modification, or reconstruction after September 18, 2015; therefore, there are potential requirements under this subpart (per §60.5365a) for the following facilities covered by this subpart: • *Well affected facility*: A well affected facility is a single well that is hydraulically fractured or refractured. This site does not include any well affected facilities. There are no further requirements. • *Reciprocating compressors*: The on-site reciprocating compressors are not located at a well site (as defined in this rule) and, therefore, are an affected facility in compliance with the applicable requirements of this subpart. • *Pneumatic controller*: All on-site pneumatic controllers are elctric or powered by compressed air, not natural gas-driven powered by pressurized natural gas; therefore, they are not affected facilities. • *Storage vessel with PTE > 6 tpy VOC*: Each storage tank at this site has PTE VOC emissions < 6 tpy as determined in accordance with this rule; therefore, there are no further requirements. • *Pneumatic pump*: A pneumatic pump affected facility is a single natural gas-driven diaphragm pump. This site does not include any pneumatic pump affected facilities. • *The collection of fugitive emissions components at a compressor station is an affected facility*: This site is a compressor station (as defined in this rule); therefore, are an affected facility in compliance with the applicable requirements of this subpart.

Federal Regulations and Applicability Discussion

Sub-part	Title 40 CFR Part 61, NESHAP	Rule Applicability Review	
A	General Provisions	N	The site handles oil/condensate that may contain benzene, which is a regulated HAP under Part 61. Based on the evaluation of the potentially applicable subparts, there are no applicable requirements under 40 CFR Part 61.
V	National Emission Standards for Equipment Leaks (Fugitive Emission Sources)	N	No sources at this site are intended to operate in volatile hazardous air pollutant service as defined in §61.241 of this subpart; therefore, this subpart does not apply.
Sub-part	**Title 40 CFR Part 63, NESHAP for Source Categories**	**Rule Applicability Review**	
A	General Provisions	Y	This site is subject to a MACT standard and is, therefore, subject to the general provisions of this subpart.
H	National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks	N	There are no facilities in organic HAP service (with at least 5% HAPs) at this site; therefore, this subpart does not apply.
HH	National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities	Y	This site is an area source of HAPs and operates a TEG dehydration unit, which is an affected source. The unit is exempt from the requirements of §63.764(d) for area source of HAPs per: • §63.764(e)(ii) – Actual annual average emissions of benzene from the glycol dehydration process vent to atmosphere are < 1.0 tpy
VV	National Emission Standards for Oil-Water Separators and Organic-Water Separators	N	This site does not operate an affected facility under this subpart; therefore, this subpart does not apply.
HHH	National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities	N	This site is not a major source of HAPs and is not part of the natural gas transmission and storage phase; therefore, this subpart does not apply.
YYYY	National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines	N	The site is not a major source of HAP emissions, therefore, this subpart does not apply.
EEEE	National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)	N	This site is not a major source of HAPs; therefore, this subpart does not apply.
ZZZZ	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	Y	The engines (Unit IDs: C-100 through C-1200) are new stationary RICE located at an area source of HAPs and are an affected source. Per §63.6590(c)(1), the engines meet the requirements of this part by meeting the requirements of NSPS JJJJ.
DDDDD	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters	N	This site is not a major source of HAPs; therefore, this subpart does not apply.

State Regulations and Applicability and Discussion

Series	Title 45 Code of State Federal Rules for:	Rule Applicability Review	
2	To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers	Y	**§45-2-3.1 & 3.2** 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 darker in shade or appearance than ten (10) percent opacity based on a six minute block average. Compliance shall be determined using Method 9. **§45-2-11.1 Exemption** All fuel burning units having a heat input under ten (10) MMBTU/hr 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.
6	Control of Air Pollution from Combustion of Refuse	N/A	**§45-6-3.1** The open burning of refuse will not occur.
10	Prevent and Control Air Pollution from the Emission of Sulfur Oxides	N	**§45-10-10.1 Exemption** Any fuel burning units having a design heat input under ten (10) MMBtu/hr 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.
11	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After 7/23/1984	Y	**§45-11-5.2** Any person responsible for the operation of a source of air pollutants not set forth under Section 5.1. of this Regulation shall, when requested by the Commission, prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Table I, II, and III of this Regulation.
13	Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, Permission to Commence Construction, and Procedures for Evaluation	Y	The site has obtained a construction permit and will meet the requirements in this section.
14	Permits for Construction and Major Modification of Major Stationary Sources for the Prevention of Significant Deterioration (PSD) of Air Quality	N	**§45-14** establishes a preconstruction permit program for the PSD Program under the Clean Air Act. According to Section 2.43 of this rule, a Major Stationary Source is defined as any of the twenty six named sources listed in 2.43a which emits or has the potential to emit 100 tons per year or more of any regulated pollutant. Although the Middlebourne III Compressor Station will have the potential to emit over 100 tons per year of VOCs, it is not one of the twenty six named stationary sources and thus not defined a Major Stationary Source under the PSD Program by Section 2.43a. Additionally, Section 2.43b of this rule defines a Major Stationary Source as any stationary source which emits or has the potential to emit, 250 tons per year or more of any regulated pollutant. The Middlebourne III Compressor Station does not have the potential to emit 250 tons per year or more of any regulated pollutant, thus is not a Major Stationary Source under the PSD Program and 45CSR14 does not apply.
16	Standards of Performance for New Stationary Sources Pursuant to 40 CFR, Part 60	Y	The site will meet the applicable NSPS requirements as adopted by West Virgina Department of Environmental Protection.
19	Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution Which Cause or Contribute to Nonattainment	N	The site is not a major source or modification for the purposes of 45 CSR 19.

State Regulations and Applicability and Discussion

Series	Title 45 Code of State Federal Rules for:	Rule Applicability Review	
20	Good Engineering Practice as Applicable to Stack Heights	Y	Antero will not seek credit greater than GEP in any future required dispersion modeling.
21	Regulation of Volatile Organic Compounds (VOC)	N	This rule does not apply because the subject facility is not located in Putnam County, Kanawha County, Cabell County, Wayne County, or Wood County.
22	Air Quality Management Fee Program	Y	Antero paid the appropriate fee with the initial construction permit application.
27	To Prevent and Control the Emissions of Toxic Air Pollutants	N	**§45-27-2.4 Exemption** The definition of Chemical Processing Unit states : it does not include equipment used in the production and distributino of petroleum products providing that such equipment does not produce or contact materials containing more than 5% benzene by weight.
28	Air Pollution Emissions Banking and Trading	N	Since the microturbine generator at the site will have a heat input rating less than 10 million Btu per hour, this subpart does not apply.
29	Emission Statements for VOC and NO_X	N	**§45-29-1 Exemption** This rule does not apply because subject facility is not located in Putnam, Kanawha, Cabell, Wayne, Wood, or Greenbrier Counties
30	Requirements for Operating Permits	Y	This rule establishes an air permitting program that is consistent with Title V of the Clean Air Act. According to Section 3.1.a.1, any major source as defined by the rule, shall not operate except in compliance with a permit issued under this rule on or after the effective date of the operating permit program. Section 2.26.b defines a major source as any stationary source that directly emits or has the potential to emit 100 tons per year or more of any pollutant subject to regulation. However, because a compressor station is not one of the 44 named sources under 2.26.b, fugitives do not need to be included when determining the 100 ton per year threshold. Potential emissions of VOCs from the Middlebourne III Compressor Station will be over 100 tons per year not including fugitive emissions, so the Middlebourne III Compressor Station is a major source as defined by this rule and applicable to 45CSR30. The Middlebourne III Compressor Station is applying for a permit under this rule within 12 months of the commencement of operation.
34	Emission Standards for Hazardous Air Pollutants for Source Categories Pursuant to 40 CFR, Part 63	Y	The site will meet the applicable MACT requirements as adopted by West Virgina Department of Environmental Protection.
38	Provisions for Determination of Compliance with Air Quality Management Rules	N	**§45-38-3 Exemption** There are no rules enforceable by the Director that have undefinitive compliance determination procedures or such compliance determination procedures have not been authorized and adopted by West Virginia Department of Environmental Protection.

SUPPLEMENT S2

Facility-wide Emissions Summary

Emissions Summary Total

Company:	**Antero Midstream LLC**
Facility Name:	**Middlebourne III Compressor Station**
Facility Location:	**Tyler County, West Virginia**

UNCONTROLLED POTENTIAL EMISSION SUMMARY

Source	NOx		CO		VOC		SO_2		PM-10		HAPs		Formaldehyde		CO_2e
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	tpy
Engines															
Compressor Engine 1	1.65	7.24	14.44	63.25	2.26	9.90	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 2	1.65	7.24	14.44	63.25	2.26	9.90	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 3	1.65	7.24	14.44	63.25	2.26	9.90	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 4	1.65	7.24	14.44	63.25	2.26	9.90	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 5	1.65	7.24	14.44	63.25	2.26	9.90	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 6	1.65	7.24	14.44	63.25	2.26	9.90	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 7	1.65	7.24	14.44	63.25	2.26	9.90	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 8	1.65	7.24	14.44	63.25	2.26	9.90	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 9	1.65	7.24	14.44	63.25	2.26	9.90	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 10	1.65	7.24	14.44	63.25	2.26	9.90	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 11	1.65	7.24	14.44	63.25	2.26	9.90	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 12	1.65	7.24	14.44	63.25	2.26	9.90	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Fuel Conditioning Heater	0.049	0.21	0.041	0.18	0.0027	0.012	0.00029	0.0013	0.0037	0.016	0.00092	0.0040	0.000037	0.00016	257
Turbines															
Microturbine Generator	0.32	1.40	0.88	3.85	0.080	0.35	0.028	0.12	0.054	0.24	0.0085	0.037	0.0059	0.026	4,665
Dehydrator															
TEG Dehydrator 1	---	---	---	---	73.15	320.40	---	---	---	---	5.87	25.71	---	---	14,518
TEG Dehydrator 2	---	---	---	---	73.15	320.40	---	---	---	---	5.87	25.71	---	---	14,518
TEG Dehydrator 3	---	---	---	---	73.15	320.40	---	---	---	---	5.87	25.71	---	---	14,518
Reboiler 1	0.15	0.64	0.12	0.54	0.0081	0.035	0.00088	0.0039	0.011	0.049	0.0028	0.012	0.00011	0.00048	771
Reboiler 2	0.15	0.64	0.12	0.54	0.0081	0.035	0.00088	0.0039	0.011	0.049	0.0028	0.012	0.00011	0.00048	771
Reboiler 3	0.15	0.64	0.12	0.54	0.0081	0.035	0.00088	0.0039	0.011	0.049	0.0028	0.012	0.00011	0.00048	771
Thermal Oxidizers															
Thermal Oxidizer 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Thermal Oxidizer 2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Thermal Oxidizer 3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hydrocarbon Loading															
Truck Loadout	---	---	---	---	72.94	15.24	---	---	---	---	2.02	0.42	---	---	62
Venting Emissions															
Compressor Blowdown Emissions	---	---	---	---	---	10.57	---	---	---	---	---	0.21	---	---	834
Startup and Shutdown Emissions	---	---	---	---	---	6.12	---	---	---	---	---	0.12	---	---	482
Pigging Emissions	---	---	---	---	---	9.11	---	---	---	---	---	0.18	---	---	719
Fugitive Emissions															
Component Leak Emissions	---	---	---	---	2.35	10.31	---	---	---	---	0.052	0.23	---	---	177
Haul Road Dust Emissions	---	---	---	---	---	---	---	---	0.14	0.61	---	---	---	---	---
Storage Tanks															
Produced Water Tanks	---	---	---	---	0.00023	0.0010	---	---	---	---	7.53E-07	3.30E-06	---	---	0.04
Settler Tank	---	---	---	---	316.90	1,388.0	---	---	---	---	8.80	38.55	---	---	5,579
Condensate Tanks	---	---	---	---	5.19	22.74	---	---	---	---	0.16	0.68	---	---	7
Total Facility PTE =	**20.65**	**90.45**	**174.57**	**764.63**	**644.06**	**2,542.56**	**0.15**	**0.66**	**2.28**	**10.00**	**43.23**	**181.41**	**10.59**	**46.38**	**206,376**

Emissions Summary Total

Company:	**Antero Midstream LLC**
Facility Name:	**Middlebourne III Compressor Station**
Facility Location:	**Tyler County, West Virginia**

CONTROLLED POTENTIAL EMISSION SUMMARY

Source	NOx		CO		VOC		SO_2		PM-10		HAPs		Formaldehyde		CO_2e
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	tpy
Engines															
Compressor Engine 1	1.65	7.24	0.88	3.86	1.49	6.52	0.010	0.044	0.17	0.75	0.33	1.45	0.11	0.48	12,311
Compressor Engine 2	1.65	7.24	0.88	3.86	1.49	6.52	0.010	0.044	0.17	0.75	0.33	1.45	0.11	0.48	12,311
Compressor Engine 3	1.65	7.24	0.88	3.86	1.49	6.52	0.010	0.044	0.17	0.75	0.33	1.45	0.11	0.48	12,311
Compressor Engine 4	1.65	7.24	0.88	3.86	1.49	6.52	0.010	0.044	0.17	0.75	0.33	1.45	0.11	0.48	12,311
Compressor Engine 5	1.65	7.24	0.88	3.86	1.49	6.52	0.010	0.044	0.17	0.75	0.33	1.45	0.11	0.48	12,311
Compressor Engine 6	1.65	7.24	0.88	3.86	1.49	6.52	0.010	0.044	0.17	0.75	0.33	1.45	0.11	0.48	12,311
Compressor Engine 7	1.65	7.24	0.88	3.86	1.49	6.52	0.010	0.044	0.17	0.75	0.33	1.45	0.11	0.48	12,311
Compressor Engine 8	1.65	7.24	0.88	3.86	1.49	6.52	0.010	0.044	0.17	0.75	0.33	1.45	0.11	0.48	12,311
Compressor Engine 9	1.65	7.24	0.88	3.86	1.49	6.52	0.010	0.044	0.17	0.75	0.33	1.45	0.11	0.48	12,311
Compressor Engine 10	1.65	7.24	0.88	3.86	1.49	6.52	0.010	0.044	0.17	0.75	0.33	1.45	0.11	0.48	12,311
Compressor Engine 11	1.65	7.24	0.88	3.86	1.49	6.52	0.010	0.044	0.17	0.75	0.33	1.45	0.11	0.48	12,311
Compressor Engine 12	1.65	7.24	0.88	3.86	1.49	6.52	0.010	0.044	0.17	0.75	0.33	1.45	0.11	0.48	12,311
Fuel Conditioning Heater	0.049	0.21	0.041	0.18	0.0027	0.012	0.00029	0.0013	0.0037	0.016	0.00092	0.0040	0.000037	0.00016	257
Turbines															
Microturbine Generator	0.32	1.40	0.88	3.85	0.080	0.35	0.028	0.12	0.054	0.24	0.0085	0.037	0.0059	0.026	4,665
Dehydrator															
TEG Dehydrator 1	---	---	---	---	1.46	6.41	---	---	---	---	0.12	0.51	---	---	300
TEG Dehydrator 2	---	---	---	---	1.46	6.41	---	---	---	---	0.12	0.51	---	---	300
TEG Dehydrator 3	---	---	---	---	1.46	6.41	---	---	---	---	0.12	0.51	---	---	300
Reboiler 1	0.15	0.64	0.12	0.54	0.0081	0.035	0.00088	0.0039	0.011	0.049	0.0028	0.012	0.00011	0.00048	771
Reboiler 2	0.15	0.64	0.12	0.54	0.0081	0.035	0.00088	0.0039	0.011	0.049	0.0028	0.012	0.00011	0.00048	771
Reboiler 3	0.15	0.64	0.12	0.54	0.0081	0.035	0.00088	0.0039	0.011	0.049	0.0028	0.012	0.00011	0.00048	771
Thermal Oxidizers															
Thermal Oxidizer 1	0.47	2.05	2.27	9.95	0.0033	0.015	0.00037	0.0016	0.0046	0.020	0.0011	0.0050	---	---	3,404
Thermal Oxidizer 2	0.47	2.05	2.27	9.95	0.0033	0.015	0.00037	0.0016	0.0046	0.020	0.0011	0.0050	---	---	3,404
Thermal Oxidizer 3	0.47	2.05	2.27	9.95	0.0033	0.015	0.00037	0.0016	0.0046	0.020	0.0011	0.0050	---	---	3,404
Hydrocarbon Loading															
Truck Loadout	---	---	---	---	72.94	15.24	---	---	---	---	2.02	0.42	---	---	62
Venting Emissions															
Compressor Blowdown Emissions	---	---	---	---	---	10.57	---	---	---	---	---	0.21	---	---	834
Startup and Shutdown Emissions	---	---	---	---	---	6.12	---	---	---	---	---	0.12	---	---	482
Pigging Emissions	---	---	---	---	---	9.11	---	---	---	---	---	0.18	---	---	719
Fugitive Emissions															
Component Leak Emissions	---	---	---	---	2.35	10.31	---	---	---	---	0.052	0.23	---	---	177
Haul Road Dust Emissions	---	---	---	---	---	---	---	---	0.14	0.61	---	---	---	---	---
Storage Tanks															
Produced Water Tanks	---	---	---	---	4.65E-06	2.03E-05	---	---	---	---	1.51E-08	6.60E-08	---	---	0.0009
Settler Tank	---	---	---	---	6.34	27.76	---	---	---	---	0.18	0.77	---	---	114
Condensate Tanks	---	---	---	---	0.10	0.45	---	---	---	---	0.0031	0.014	---	---	1
Total Facility PTE =	**22.06**	**96.61**	**18.69**	**81.85**	**104.10**	**177.52**	**0.15**	**0.67**	**2.30**	**10.06**	**6.60**	**20.99**	**1.33**	**5.82**	**168,463**

HAP Emissions Summary Total

Company:	**Antero Midstream LLC**
Facility Name:	**Middlebourne III Compressor Station**
Facility Location:	**Tyler County, West Virginia**

CONTROLLED POTENTIAL EMISSION SUMMARY

Source	Benzene		Toluene		Ethylbenzene		Xylenes		n-Hexane		Acetaldehyde		Formaldehyde		Acrolein		Methanol	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Engines																		
Compressor Engine 1	0.0050	0.022	0.0046	0.020	0.00045	0.0020	0.0021	0.0091	0.013	0.055	0.094	0.41	0.11	0.48	0.058	0.25	0.028	0.12
Compressor Engine 2	0.0050	0.022	0.0046	0.020	0.00045	0.0020	0.0021	0.0091	0.013	0.055	0.094	0.41	0.11	0.48	0.058	0.25	0.028	0.12
Compressor Engine 3	0.0050	0.022	0.0046	0.020	0.00045	0.0020	0.0021	0.0091	0.013	0.055	0.094	0.41	0.11	0.48	0.058	0.25	0.028	0.12
Compressor Engine 4	0.0050	0.022	0.0046	0.020	0.00045	0.0020	0.0021	0.0091	0.013	0.055	0.094	0.41	0.11	0.48	0.058	0.25	0.028	0.12
Compressor Engine 5	0.0050	0.022	0.0046	0.020	0.00045	0.0020	0.0021	0.0091	0.013	0.055	0.094	0.41	0.11	0.48	0.058	0.25	0.028	0.12
Compressor Engine 6	0.0050	0.022	0.0046	0.020	0.00045	0.0020	0.0021	0.0091	0.013	0.055	0.094	0.41	0.11	0.48	0.058	0.25	0.028	0.12
Compressor Engine 7	0.0050	0.022	0.0046	0.020	0.00045	0.0020	0.0021	0.0091	0.013	0.055	0.094	0.41	0.11	0.48	0.058	0.25	0.028	0.12
Compressor Engine 8	0.0050	0.022	0.0046	0.020	0.00045	0.0020	0.0021	0.0091	0.013	0.055	0.094	0.41	0.11	0.48	0.058	0.25	0.028	0.12
Compressor Engine 9	0.0050	0.022	0.0046	0.020	0.00045	0.0020	0.0021	0.0091	0.013	0.055	0.094	0.41	0.11	0.48	0.058	0.25	0.028	0.12
Compressor Engine 10	0.0050	0.022	0.0046	0.020	0.00045	0.0020	0.0021	0.0091	0.013	0.055	0.094	0.41	0.11	0.48	0.058	0.25	0.028	0.12
Compressor Engine 11	0.0050	0.022	0.0046	0.020	0.00045	0.0020	0.0021	0.0091	0.013	0.055	0.094	0.41	0.11	0.48	0.058	0.25	0.028	0.12
Compressor Engine 12	0.0050	0.022	0.0046	0.020	0.00045	0.0020	0.0021	0.0091	0.013	0.055	0.094	0.41	0.11	0.48	0.058	0.25	0.028	0.12
Fuel Conditioning Heater	---	---	---	---	---	---	---	---	---	---	---	---	0.00	0.00	---	---	---	---
Turbines																		
Microturbine Generator	0.000099	0.00043	0.0011	0.0047	0.00026	0.0012	0.00053	0.0023	---	---	0.00033	0.0014	0.0059	0.0256	0.000053	0.00023	---	---
Dehydrator																		
TEG Dehydrator 1	0.017	0.074	0.051	0.22	0.0032	0.014	0.013	0.058	0.033	0.15	---	---	---	---	---	---	---	---
TEG Dehydrator 2	0.017	0.074	0.051	0.22	0.0032	0.014	0.013	0.058	0.033	0.15	---	---	---	---	---	---	---	---
TEG Dehydrator 3	0.017	0.074	0.051	0.22	0.0032	0.014	0.013	0.058	0.033	0.15	---	---	---	---	---	---	---	---
Reboiler 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Reboiler 2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Reboiler 3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Thermal Oxidizers																		
Thermal Oxidizer 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Thermal Oxidizer 2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Thermal Oxidizer 3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hydrocarbon Loading																		
Truck Loadout	0.031	0.0064	0.062	0.0129	0.018	0.0037	0.040	0.0084	1.87	0.39	---	---	---	---	---	---	---	---
Venting Emissions																		
Compressor Blowdown Emissions	---	0.0040	---	0.0099	---	0.00057	---	0.0017	---	0.20	---	---	---	---	---	---	---	---
Startup and Shutdown Emissions	---	0.0023	---	0.0057	---	0.00033	---	0.0010	---	0.11	---	---	---	---	---	---	---	---
Pigging Emissions	---	0.0034	---	0.0086	---	0.00049	---	0.0015	---	0.17	---	---	---	---	---	---	---	---
Fugitive Emissions																		
Component Leak Emissions	0.00092	0.0040	0.0021	0.0094	0.00026	0.0011	0.00064	0.0028	0.048	0.21	---	---	---	---	---	---	---	---
Haul Road Dust Emissions	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Storage Tanks																		
Produced Water Tanks	9.51E-09	4.16E-08	4.00E-09	1.75E-08	3.78E-10	1.66E-09	8.15E-10	3.57E-09	3.60E-10	1.58E-09	---	---	---	---	---	---	---	---
Settler Tank	2.67E-03	1.17E-02	5.34E-03	2.34E-02	1.55E-03	6.81E-03	3.50E-03	1.53E-02	1.63E-01	7.14E-01	---	---	---	---	---	---	---	---
Condensate Tanks	3.08E-05	1.35E-04	6.78E-05	2.97E-04	2.21E-05	9.68E-05	4.15E-05	1.82E-04	2.95E-03	1.29E-02	---	---	---	---	---	---	---	---
Total Facility PTE =	**0.14**	**0.52**	**0.28**	**0.98**	**0.035**	**0.079**	**0.11**	**0.32**	**2.34**	**2.90**	**1.13**	**4.96**	**1.33**	**5.82**	**0.70**	**3.05**	**0.34**	**1.48**