



Tipane, Frederick <frederick.tipane@wv.gov>

Re: Antero Midstream's Middlebourne V Compressor Station - Pre-Draft Title V Initial Permit # R30-09500087-2021

1 message

Tipane, Frederick <frederick.tipane@wv.gov>

Mon, Nov 29, 2021 at 4:09 PM

To: Kaitlin Meszaros <kmeszaros@anteroresources.com>

Cc: Max Knop <mknop@anteroresources.com>, Jena Resnick <jresnick@anteroresources.com>

Hi Kaitlin,

Thank you for the 2020 emissions data and for your input regarding the pre-Draft/Proposed Title V permit. The 2020 actual emissions have been added/updated in the fact sheet. Also, GEN2 and GEN3 have been added to the 40 CFR 63 Subpart ZZZZ discussion in Item 9 as requested in your comments. In the permit, I corrected the design capacity in the "Emission Units" table for DEHY3 and DFLSH3 as requested. Please note that the "Emission Units" table in Permit R13-3394H has the incorrect values.

In regards to the compressor engines, the request to revise the language that identifies which engines have the reflash chip installed cannot be made. The requirements of conditions 4.1.1. are taken from permit R13-3394H. Therefore, language in condition 5.1.1. of R13-3394H would need to be revised before the language in the Title V permit can be revised.

If you have any questions feel free to contact me. The "Draft/Proposed" period will most likely begin next week.

Regards
Fred

Frederick Tipane
WVDEP/Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Office: (304) 414-1910
Fax: (304) 926-0479
E-mail: frederick.tipane@wv.gov

On Thu, Nov 18, 2021 at 4:13 PM Kaitlin Meszaros <kmeszaros@anteroresources.com> wrote:

Hi Fred,

Thank you for the opportunity to review and comment on the draft Title V permit and fact sheet. We had a few minor edits that are in red-line in the attached documents. One comment we have is to provide some flexibility on which compressor engine units have the reflash chip installed increasing the effective horsepower to 2,675. Our comments suggest stating that no more than 7 engines have the reflash chip installed and no less than 11 engines remain without the reflash chip rather than assigning the reflash chip installation to emission unit IDs. Let us know your thoughts on the change or if you'd like to discuss.

Thank you,

Kaitlin Meszaros

631-245-0308

From: Tipane, Frederick <frederick.tipane@wv.gov>

Sent: Monday, November 8, 2021 12:49 PM

To: Jena Resnick <jresnick@anteroresources.com>

Subject: Antero Midstream's Middlebourne V Compressor Station - Pre-Draft Title V Initial Permit # R30-09500087-2021

This email came from outside of Antero. Do not click any link or open any attachment unless you know it is not malicious. Forward it to the helpdesk if you are not sure.

Good afternoon Jena,

Attached for your review is the Pre-Draft/Proposed Initial Title V Permit (R30-09500087-2021) and Fact Sheet for Antero Midstream LLC's Middlebourne V Compressor Station. Please verify the 2020 actual emissions for the pollutants listed in the "Emissions Summary" table in the fact sheet and provide the missing 2020 HAP actual emissions. Please forward any comments or issues with the permit or fact sheet and the requested information to me as soon as possible but no later than next Thursday November 18, 2021.

Feel free to contact me if you wish to discuss or have any questions.

Regards,

Fred

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Tipane, Frederick <frederick.tipane@wv.gov>

RE: Antero Midstream's Middlebourne V Compressor Station - Pre-Draft Title V Initial Permit # R30-09500087-2021

1 message

Kaitlin Meszaros <kmeszaros@anteroresources.com>

Thu, Nov 18, 2021 at 4:12 PM

To: "Frederick.Tipane@wv.gov" <Frederick.Tipane@wv.gov>

Cc: Max Knop <mknop@anteroresources.com>, Jena Resnick <jresnick@anteroresources.com>

Hi Fred,

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Thank you,

Kaitlin Meszaros

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Feel free to contact me if you wish to discuss or have any questions.


Regards,


Fred

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E-mail: frederick.tipane@wv.gov

2 attachments

 **Pre-DPPermit R30-09500087-2021_Antero comments.docx**
353K

 **Pre-DPFactSheet R30-9500087-2021_Antero comments.doc**
156K

West Virginia Department of Environmental Protection

*Harold D. Ward
Cabinet Secretary*

Permit to Operate



Pursuant to
Title V
of the Clean Air Act

Issued to:

Antero Midstream LLC
Middlebourne V Compressor Station/Middlebourne WV
R30-09500087-2021

Laura M. Crowder
Director, Division of Air Quality

*Issued: [Date of issuance] • Effective: [Equals issue date plus two weeks]
Expiration: [5 years after issuance date] • Renewal Application Due: [6 months prior
to expiration]*

Permit Number: **R30-09500087-2021**
Permittee: **Antero Midstream LLC**
Facility Name: **Middlebourne V Compressor Station**
Permittee Mailing Address: **1615 Wynkoop Street, Denver, CO 80202**

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§ 22-5-1 et seq.) and 45CSR30 C Requirements for Operating Permits. The permittee identified at the above-referenced facility is authorized to operate the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Facility Location:	Middlebourne, Tyler County, West Virginia
Facility Mailing Address:	Same as above
Telephone Number:	(303) 357-7310
Type of Business Entity:	LLC
Facility Description:	Natural gas compressor station
SIC Codes:	Primary 4922; Secondary NA; Tertiary NA
UTM Coordinates:	513.603 km Easting \$ 4374.245 km Northing \$ Zone 17

Permit Writer: Frederick Tipane

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§ 22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §22-5-14.

Issuance of this Title V Operating Permit does not supersede or invalidate any existing permits under 45CSR13, 14 or 19, although all applicable requirements from such permits governing the facility's operation and compliance have been incorporated into the Title V Operating Permit.

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1.0 Emission Units and Active R13, R14, and R19 Permits

1.1 Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
C-100	1E	Caterpillar G3608 Compressor Engine #1	2019	2,500 hp	Ox Cat (1C)
C-200	2E	Caterpillar G3608 Compressor Engine #2	2019	2,500 hp	Ox Cat (2C)
C-300	3E	Caterpillar G3608 Compressor Engine #3	2019	2,500 hp	Ox Cat (3C)
C-400	4E	Caterpillar G3608 Compressor Engine #4	2019	2,500 hp	Ox Cat (4C)
C-500	5E	Caterpillar G3608 Compressor Engine #5	2019	2,500 hp	Ox Cat (5C)
C-600	6E	Caterpillar G3608 Compressor Engine #6	2019	2,500 hp	Ox Cat (6C)
C-700	7E	Caterpillar G3608 Compressor Engine #7	2019	2,500 hp	Ox Cat (7C)
C-800	8E	Caterpillar G3608 Compressor Engine #8	2019	2,500 hp	Ox Cat (8C)
C-900	9E	Caterpillar G3608 Compressor Engine #9	2019	2,500 hp	Ox Cat (9C)
C-1000	10E	Caterpillar G3608 Compressor Engine #10	2019	2,500 hp	Ox Cat (10C)
C-1100	11E	Caterpillar G3608 Compressor Engine #11	2019	2,500 hp	Ox Cat (11C)
C-1200	12E	Caterpillar G3608 Compressor Engine #12	2019	2,675 hp	Ox Cat (12C)
C-1300	33E	Caterpillar G3608 Compressor Engine #13	2019	2,675 hp	Ox Cat (18C)
C-1400	34E	Caterpillar G3608 Compressor Engine #14	2019	2,675 hp	Ox Cat (19C)
C-1500	35E	Caterpillar G3608 Compressor Engine #15	2019	2,675 hp	Ox Cat (20C)
C-1600	36E	Caterpillar G3608 Compressor Engine #16	2019	2,675 hp	Ox Cat (21C)
C-1700	37E	Caterpillar G3608 Compressor Engine #17	2019	2,675 hp	Ox Cat (22C)
C-1800	38E	Caterpillar G3608 Compressor Engine #18	2019	2,675 hp	Ox Cat (23C)
GEN2	32E	NG PSI Generator #2	2020	649 hp	None
GEN3	40E	NG PSI Generator #3	2020	649 hp	None
DEHY1	28E	TEG Dehydration Unit Still Vent #1	2020	260 mmscfd	TO-1 (15C)
DFLSH1	16E/28E	Dehydrator Flash Tank #1	2020	260 mmscfd	DREB1 (16E) or TO-1 (15C)
DREB1	16E	TEG Dehydration Unit Reboiler #1	2019	1.5 MMBtu/hr	None
DEHY2	29E	TEG Dehydration Unit Still Vent #2	2020	260 mmscfd	TO-2 (16C)
DFLSH2	19E/29E	Dehydrator Flash Tank #2	2020	260 mmscfd	DREB2 (19E) or TO-2 (16C)
DREB2	19E	TEG Dehydration Unit Reboiler #2	2019	1.5 MMBtu/hr	None
DEHY3	44E	TEG Dehydration Unit Still Vent #3	2020	1,530 mmscfd	TO-3 (24C)

DFLSH3	43E/44E	Dehydrator Flash Tank #3	2020	130-150 mmscfd	DREB3(43E) or TO-3 (24C)
DREB3	43E	TEG Dehydration Unit Reboiler #3	2019	1.5 MMBtu/hr	None
T01	13C/14C/26C or 28E/29E/44E	Condensate Storage Tank #1	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T02	13C/14C/26C or 28E/29E/44E	Condensate Storage Tank #2	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T03	13C/14C/26C or 28E/29E/44E	Condensate Storage Tank #3	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T04	13C/14C/26C or 28E/29E/44E	Condensate/Produced Water Settling Tank	2019	500 bbl (21,000 gal)	VRU-100 ¹ - VRU-300 ¹
T05	13C/14C/26C or 28E/29E/44E	Produced Water Storage Tank #1	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T06	13C/14C/26C or 28E/29E/44E	Produced Water Storage Tank #2	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T07	13C/14C/26C or 28E/29E/44E	Produced Water Storage Tank #3	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T08	13C/14C/26C or 28E/29E/44E	Condensate Storage Tank #4	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T09	13C/14C/26C or 28E/29E/44E	Condensate Storage Tank #5	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T10	13C/14C/26C or 28E/29E/44E	Produced Water Storage Tank #4	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T11	13C/14C/26C or 28E/29E/44E	Produced Water Storage Tank #5	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
FUEL1	27E	Fuel Conditioning Heater	2019	0.5 MMBTU/hr	None
FUEL2	39E	Fuel Conditioning Heater	2019	0.75 MMBTU/hr	None
LDOUT1	28E/29E/44E	Production Liquids Truck Load Out	2019	585 ² bbl/day	15C, 16C, 24C, 16E, 19E, 43E
TO-1	28E (15C)	Thermal Oxidizer Control Device #1	2020	6.0 MMBTU/hr	NA

TO-2	29E (16C)	Thermal Oxidizer Control Device #2	2020	6.0 MMBTU/hr	NA
TO-3	44E (24C)	Thermal Oxidizer Control Device #3	2019	6.0 MMBTU/hr	NA
TK-100	TK-100	Compressor Skid Oily Water Tank	2019	3,000 gal	None
TK-102	TK-102	TEG Make-Up Tank	2019	3,000 gal	None
TK-103	TK-103	Compressor Coolant Tank	2019	1,000 gal	None
TK-104	TK-104	Engine Lube Oil Tank	2019	3,000 gal	None
TK-105	TK-105	Compressor Lube Oil Tank	2019	3,000 gal	None
TK-106	TK-106	Compressor Skid Oily Water Tank	2019	3,000 gal	None
TK-108	TK-108	TEG Make-Up Tank	2019	3,000 gal	None
TK-109	TK-109	Compressor Coolant Tank	2019	1,000 gal	None
TK-110	TK-110	Engine Lube Oil Tank	2019	3,000 gal	None
TK-111	TK-111	Compressor Lube Oil Tank	2019	3,000 gal	None
VENT1	31E	Venting Episodes	Variable	NA	None

1 – Working, Breathing, and Flashing losses routed to Vapor Recovery Unit for recirculation back into the process.

2 – 450 bbl/day Condensate and 135 bbl/day Produced Water

Control Devices

Emission Unit	Pollutant	Control Device	Control Efficiency
2,500 hp Caterpillar G3608 RICE w/ Ox Cat (C-100 – C-1100)	Carbon Monoxide	Oxidation Catalyst	0.16 g/bhp-hr
	Volatile Organic Compounds		0.32 g/bhp-hr
	Formaldehyde		0.02 g/bhp-hr
2,675 hp Caterpillar G3608 RICE w/ Ox Cat (C-1200 – C-1800)	Carbon Monoxide	Oxidation Catalyst	0.16 g/bhp-hr
	Volatile Organic Compounds		0.32 g/bhp-hr
	Formaldehyde		0.02 g/bhp-hr
TEG Dehydrator Still Vents (DEHY1 – DEHY3)	Volatile Organic Compounds	Thermal Oxidizers (TO-1 – TO-3)	98 %
	Hazardous Air Pollutants		98 %
TEG Dehydrator Flash Tanks (DFLSH1 – DFLSH3)	Volatile Organic Compounds	Recycled Reboiler or Thermal Oxidizers (TO-1 – TO-3)	98 %
	Hazardous Air Pollutants		98 %
Product Tanks (T01 – T11)	Volatile Organic Compounds	Vapor Recovery Units	98 %
	Hazardous Air Pollutants		98 %
Production Liquids Truck Loadout (LDOUT1)	Volatile Organic Compounds	Recycled Reboiler w TO backup	93.1 %
	Hazardous Air Pollutants		93.1 %

1.2. Active R13, R14, and R19 Permits

The underlying authority for any conditions from R13, R14, and/or R19 permits contained in this operating permit is cited using the original permit number (e.g. R13-1234). The current applicable version of such permit(s) is listed below.

Permit Number	Date of Issuance
R13-3394H	August 20, 2021

2.0 General Conditions

2.1. Definitions

- 2.1.1. All references to the "West Virginia Air Pollution Control Act" or the "Air Pollution Control Act" mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.
- 2.1.2. The "Clean Air Act" means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.
- 2.1.3. "Secretary" means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary's designated representative for the purposes of this permit.
- 2.1.4. Unless otherwise specified in a permit condition or underlying rule or regulation, all references to a "rolling yearly total" shall mean the sum of the monthly data, values or parameters being measured, monitored, or recorded, at any given time for the previous twelve (12) consecutive calendar months.

2.2. Acronyms

CAAA	Clean Air Act Amendments	NSPS	New Source Performance Standards
CBI	Confidential Business Information	PM	Particulate Matter
CEM	Continuous Emission Monitor	PM₁₀	Particulate Matter less than 10µm in diameter
CES	Certified Emission Statement	pph	Pounds per Hour
C.F.R. or CFR	Code of Federal Regulations	ppm	Parts per Million
CO	Carbon Monoxide	PSD	Prevention of Significant Deterioration
C.S.R. or CSR	Codes of State Rules	psi	Pounds per Square Inch
DAQ	Division of Air Quality	SIC	Standard Industrial Classification
DEP	Department of Environmental Protection	SIP	State Implementation Plan
FOIA	Freedom of Information Act	SO₂	Sulfur Dioxide
HAP	Hazardous Air Pollutant	TAP	Toxic Air Pollutant
HON	Hazardous Organic NESHAP	TPY	Tons per Year
HP	Horsepower	TRS	Total Reduced Sulfur
lbs/hr or lb/hr	Pounds per Hour	TSP	Total Suspended Particulate
LDAR	Leak Detection and Repair	USEPA	United States Environmental Protection Agency
m	Thousand	UTM	Universal Transverse Mercator
MACT	Maximum Achievable Control Technology	VEE	Visual Emissions Evaluation
mm	Million	VOC	Volatile Organic Compounds
mmBtu/hr	Million British Thermal Units per Hour		
mmft³/hr or mmcf/hr	Million Cubic Feet Burned per Hour		
NA or N/A	Not Applicable		
NAAQS	National Ambient Air Quality Standards		
NESHAPS	National Emissions Standards for Hazardous Air Pollutants		
NO_x	Nitrogen Oxides		

2.3. Permit Expiration and Renewal

- 2.3.1. Permit duration. This permit is issued for a fixed term of five (5) years and shall expire on the date specified on the cover of this permit, except as provided in 45CSR§30-6.3.b. and 45CSR§30-6.3.c.
[45CSR§30-5.1.b.]
- 2.3.2. A permit renewal application is timely if it is submitted at least six (6) months prior to the date of permit expiration.
[45CSR§30-4.1.a.3.]
- 2.3.3. Permit expiration terminates the source's right to operate unless a timely and complete renewal application has been submitted consistent with 45CSR§30-6.2. and 45CSR§30-4.1.a.3.
[45CSR§30-6.3.b.]
- 2.3.4. If the Secretary fails to take final action to deny or approve a timely and complete permit application before the end of the term of the previous permit, the permit shall not expire until the renewal permit has been issued or denied, and any permit shield granted for the permit shall continue in effect during that time.
[45CSR§30-6.3.c.]

2.4. Permit Actions

- 2.4.1. This permit may be modified, revoked, reopened and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.
[45CSR§30-5.1.f.3.]

2.5. Reopening for Cause

- 2.5.1. This permit shall be reopened and revised under any of the following circumstances:
- a. Additional applicable requirements under the Clean Air Act or the Secretary's legislative rules become applicable to a major source with a remaining permit term of three (3) or more years. Such a reopening shall be completed not later than eighteen (18) months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to 45CSR§§30-6.6.a.1.A. or B.
 - b. Additional requirements (including excess emissions requirements) become applicable to an affected source under Title IV of the Clean Air Act (Acid Deposition Control) or other legislative rules of the Secretary. Upon approval by U.S. EPA, excess emissions offset plans shall be incorporated into the permit.
 - c. The Secretary or U.S. EPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
 - d. The Secretary or U.S. EPA determines that the permit must be revised or revoked and reissued to assure compliance with the applicable requirements.

[45CSR§30-6.6.a.]

2.6. Administrative Permit Amendments

2.6.1. The permittee may request an administrative permit amendment as defined in and according to the procedures specified in 45CSR§30-6.4.

[45CSR§30-6.4.]

2.7. Minor Permit Modifications

2.7.1. The permittee may request a minor permit modification as defined in and according to the procedures specified in 45CSR§30-6.5.a.

[45CSR§30-6.5.a.]

2.8. Significant Permit Modification

2.8.1. The permittee may request a significant permit modification, in accordance with 45CSR§30-6.5.b., for permit modifications that do not qualify for minor permit modifications or as administrative amendments.

[45CSR§30-6.5.b.]

2.9. Emissions Trading

2.9.1. No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in the permit and that are in accordance with all applicable requirements.

[45CSR§30-5.1.h.]

2.10. Off-Permit Changes

2.10.1. Except as provided below, a facility may make any change in its operations or emissions that is not addressed nor prohibited in its permit and which is not considered to be construction nor modification under any rule promulgated by the Secretary without obtaining an amendment or modification of its permit. Such changes shall be subject to the following requirements and restrictions:

- a. The change must meet all applicable requirements and may not violate any existing permit term or condition.
- b. The permittee must provide a written notice of the change to the Secretary and to U.S. EPA within two (2) business days following the date of the change. Such written notice shall describe each such change, including the date, any change in emissions, pollutants emitted, and any applicable requirement that would apply as a result of the change.
- c. The change shall not qualify for the permit shield.
- d. The permittee shall keep records describing all changes made at the source that result in emissions of regulated air pollutants, but not otherwise regulated under the permit, and the emissions resulting from those changes.
- e. No permittee may make any change subject to any requirement under Title IV of the Clean Air Act (Acid Deposition Control) pursuant to the provisions of 45CSR§30-5.9.

- f. No permittee may make any changes which would require preconstruction review under any provision of Title I of the Clean Air Act (including 45CSR14 and 45CSR19) pursuant to the provisions of 45CSR§30-5.9.

[45CSR§30-5.9.]

2.11. Operational Flexibility

- 2.11.1. The permittee may make changes within the facility as provided by § 502(b)(10) of the Clean Air Act. Such operational flexibility shall be provided in the permit in conformance with the permit application and applicable requirements. No such changes shall be a modification under any rule or any provision of Title I of the Clean Air Act (including 45CSR14 and 45CSR19) promulgated by the Secretary in accordance with Title I of the Clean Air Act and the change shall not result in a level of emissions exceeding the emissions allowable under the permit.

[45CSR§30-5.8]

- 2.11.2. Before making a change under 45CSR§30-5.8., the permittee shall provide advance written notice to the Secretary and to U.S. EPA, describing the change to be made, the date on which the change will occur, any changes in emissions, and any permit terms and conditions that are affected. The permittee shall thereafter maintain a copy of the notice with the permit, and the Secretary shall place a copy with the permit in the public file. The written notice shall be provided to the Secretary and U.S. EPA at least seven (7) days prior to the date that the change is to be made, except that this period may be shortened or eliminated as necessary for a change that must be implemented more quickly to address unanticipated conditions posing a significant health, safety, or environmental hazard. If less than seven (7) days notice is provided because of a need to respond more quickly to such unanticipated conditions, the permittee shall provide notice to the Secretary and U.S. EPA as soon as possible after learning of the need to make the change.

[45CSR§30-5.8.a.]

- 2.11.3. The permit shield shall not apply to changes made under 45CSR§30-5.8., except those provided for in 45CSR§30-5.8.d. However, the protection of the permit shield will continue to apply to operations and emissions that are not affected by the change, provided that the permittee complies with the terms and conditions of the permit applicable to such operations and emissions. The permit shield may be reinstated for emissions and operations affected by the change:

- a. If subsequent changes cause the facility's operations and emissions to revert to those authorized in the permit and the permittee resumes compliance with the terms and conditions of the permit, or
- b. If the permittee obtains final approval of a significant modification to the permit to incorporate the change in the permit.

[45CSR§30-5.8.c.]

- 2.11.4. "Section 502(b)(10) changes" are changes that contravene an express permit term. Such changes do not include changes that would violate applicable requirements or contravene enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements.

[45CSR§30-2.39]

2.12. Reasonably Anticipated Operating Scenarios

- 2.12.1. The following are terms and conditions for reasonably anticipated operating scenarios identified in this permit.
- a. Contemporaneously with making a change from one operating scenario to another, the permittee shall record in a log at the permitted facility a record of the scenario under which it is operating and to document the change in reports submitted pursuant to the terms of this permit and 45CSR30.
 - b. The permit shield shall extend to all terms and conditions under each such operating scenario; and
 - c. The terms and conditions of each such alternative scenario shall meet all applicable requirements and the requirements of 45CSR30.

[45CSR§30-5.1.i.]

2.13. Duty to Comply

- 2.13.1. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

[45CSR§30-5.1.f.1.]

2.14. Inspection and Entry

- 2.14.1. The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:
- a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;
 - d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

[45CSR§30-5.3.b.]

2.15. Schedule of Compliance

2.15.1. For sources subject to a compliance schedule, certified progress reports shall be submitted consistent with the applicable schedule of compliance set forth in this permit and 45CSR§30-4.3.h., but at least every six (6) months, and no greater than once a month, and shall include the following:

- a. Dates for achieving the activities, milestones, or compliance required in the schedule of compliance, and dates when such activities, milestones or compliance were achieved; and
- b. An explanation of why any dates in the schedule of compliance were not or will not be met, and any preventative or corrective measure adopted.

[45CSR§30-5.3.d.]

2.16. Need to Halt or Reduce Activity not a Defense

2.16.1. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

[45CSR§30-5.1.f.2.]

2.17. Emergency

2.17.1. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

[45CSR§30-5.7.a.]

2.17.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of 45CSR§30-5.7.c. are met.

[45CSR§30-5.7.b.]

2.17.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

- a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;
- b. The permitted facility was at the time being properly operated;
- c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and

- d. Subject to the requirements of 45CSR§30-5.1.c.3.C.1, the permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice, report, and variance request fulfills the requirement of 45CSR§30-5.1.c.3.B. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

[45CSR§30-5.7.c.]

- 2.17.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

[45CSR§30-5.7.d.]

- 2.17.5. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

[45CSR§305.7.e.]

2.18. Federally-Enforceable Requirements

- 2.18.1. All terms and conditions in this permit, including any provisions designed to limit a source's potential to emit and excepting those provisions that are specifically designated in the permit as "State-enforceable only", are enforceable by the Secretary, USEPA, and citizens under the Clean Air Act.

[45CSR§30-5.2.a.]

- 2.18.2. Those provisions specifically designated in the permit as "State-enforceable only" shall become "Federally-enforceable" requirements upon SIP approval by the USEPA.

2.19. Duty to Provide Information

- 2.19.1. The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records required to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 CFR Part 2.

[45CSR§30-5.1.f.5.]

2.20. Duty to Supplement and Correct Information

- 2.20.1. Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

[45CSR§30-4.2.]

2.21. Permit Shield

2.21.1. Compliance with the conditions of this permit shall be deemed compliance with any applicable requirements as of the date of permit issuance provided that such applicable requirements are included and are specifically identified in this permit or the Secretary has determined that other requirements specifically identified are not applicable to the source and this permit includes such a determination or a concise summary thereof.

[45CSR§30-5.6.a.]

2.21.2. Nothing in this permit shall alter or affect the following:

- a. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance; or
- b. The applicable requirements of the Code of West Virginia and Title IV of the Clean Air Act (Acid Deposition Control), consistent with § 408 (a) of the Clean Air Act.
- c. The authority of the Administrator of U.S. EPA to require information under § 114 of the Clean Air Act or to issue emergency orders under § 303 of the Clean Air Act.

[45CSR§305.6.c.]

2.22. Credible Evidence

2.22.1. Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defenses otherwise available to the permittee including but not limited to any challenge to the credible evidence rule in the context of any future proceeding.

[45CSR§30-5.3.e.3.B. and 45CSR38]

2.23. Severability

2.23.1. The provisions of this permit are severable. If any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid by a court of competent jurisdiction, the remaining permit terms and conditions or their application to other circumstances shall remain in full force and effect.

[45CSR§305.1.e.]

2.24. Property Rights

2.24.1. This permit does not convey any property rights of any sort or any exclusive privilege.

[45CSR§30-5.1.f.4]

2.25. Acid Deposition Control

- 2.25.1. Emissions shall not exceed any allowances that the source lawfully holds under Title IV of the Clean Air Act (Acid Deposition Control) or rules of the Secretary promulgated thereunder.
- a. No permit revision shall be required for increases in emissions that are authorized by allowances acquired pursuant to the acid deposition control program, provided that such increases do not require a permit revision under any other applicable requirement.
 - b. No limit shall be placed on the number of allowances held by the source. The source may not, however, use allowances as a defense to noncompliance with any other applicable requirement.
 - c. Any such allowance shall be accounted for according to the procedures established in rules promulgated under Title IV of the Clean Air Act.

[45CSR§30-5.1.d.]

- 2.25.2. Where applicable requirements of the Clean Air Act are more stringent than any applicable requirement of regulations promulgated under Title IV of the Clean Air Act (Acid Deposition Control), both provisions shall be incorporated into the permit and shall be enforceable by the Secretary and U. S. EPA.

[45CSR§30-5.1.a.2.]

3.0 Facility-Wide Requirements

3.1 Limitations and Standards

- 3.1.1. **Open burning.** The open burning of refuse by any person is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]
- 3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause or allow any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]
- 3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 CFR §61.145, 40 CFR §61.148, and 40 CFR §61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 CFR §61.145(b)(3)(i). The USEPA, the Division of Waste Management and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40 CFR §61.145(b) and 45CSR34]
- 3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1 State-Enforceable only.]
- 3.1.5. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
[45CSR§11-5.2]
- 3.1.6. **Emission inventory.** The permittee is responsible for submitting, on an annual basis, an emission inventory in accordance with the submittal requirements of the Division of Air Quality.
[W.Va. Code §22-5-4(a)(14)]
- 3.1.7. **Ozone-depleting substances.** For those facilities performing maintenance, service, repair or disposal of appliances, the permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B:
- a. Persons opening appliances for maintenance, service, repair, or disposal must comply with the prohibitions and required practices pursuant to 40 CFR §§82.154 and 82.156.
 - b. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR §82.158.
 - c. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR §82.161.

[40 CFR 82, Subpart F]

- 3.1.8. **Risk Management Plan.** This stationary source, as defined in 40 CFR §68.3, is subject to Part 68. This stationary source shall submit a risk management plan (RMP) by the date specified in 40 CFR Part 68.10. This stationary source shall certify compliance with the requirements of Part 68 as part of the annual compliance certification as required by 40 CFR Part 70 or 71.
[40 CFR 68]
- 3.1.9. **Minor Source of Hazardous Air Pollutants (HAP).** HAP emissions from the facility shall be less than 10 tons/year of any single HAP or 25 tons/year of any combination of HAPs. Compliance with this Section shall ensure that the facility is a minor HAP source.
[45CSR13, R13-3394, §4.1.2.]
- 3.1.10. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0. and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR13, R13-3394, §4.1.3.]
- 3.1.11. Only those emission units/sources as identified in Table 1.0, with the exception of any *de minimis* sources as identified under Table 45-13B of 45CSR13, are authorized at the permitted facility.
[45CSR13, R13-3394, §4.1.5.]
- 3.1.12. No person shall cause, suffer, allow or permit fugitive particulate matter to be discharged beyond the boundary lines of the property on which the discharge originates or at any public or residential location, which causes or contributes to statutory air pollution.
[45CSR§17-3.1 State-Enforceable Only]

3.2. Monitoring Requirements

- 3.2.1. Reserved.

3.3. Testing Requirements

- 3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:
- a. The Secretary may on a sourcespecific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 CFR Parts 60, 61, and 63, if applicable, in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable.

- b. The Secretary may on a sourcespecific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit.
- c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.
- d. The permittee shall submit a report of the results of the stack test within 60 days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:
 1. The permit or rule evaluated, with the citation number and language.
 2. The result of the test for each permit or rule condition.
 3. A statement of compliance or non-compliance with each permit or rule condition.

[WV Code §§2254(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

- 3.4.1. **Monitoring information.** The permittee shall keep records of monitoring information that include the following:
 - a. The date, place as defined in this permit and time of sampling or measurements;
 - b. The date(s) analyses were performed;
 - c. The company or entity that performed the analyses;
 - d. The analytical techniques or methods used;
 - e. The results of the analyses; and
 - f. The operating conditions existing at the time of sampling or measurement.

[45CSR§30-5.1.c.2.A.; R13-3394, §4.1.1.]

- 3.4.2. **Retention of records.** The permittee shall retain records of all required monitoring data and support information for a period of at least five (5) years from the date of monitoring sample, measurement, report, application, or record creation date. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Where appropriate, records may be maintained in computerized form in lieu of the above records.

[45CSR§30-5.1.c.2.B.; R13-3394, §3.4.1.]

- 3.4.3. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.

[45CSR§30-5.1.c. State-Enforceable only.]

- 3.4.4. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0., the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

- a. The equipment involved.
- b. Steps taken to minimize emissions during the event.
- c. The duration of the event.
- d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

- e. The cause of the malfunction.
- f. Steps taken to correct the malfunction.
- g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

[45CSR13, R13-3394, §4.1.4.]

3.5. Reporting Requirements

- 3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

[45CSR§§30-4.4. and 5.1.c.3.D.]

- 3.5.2. A permittee may request confidential treatment for the submission of reporting required under 45CSR§30-5.1.c.3. pursuant to the limitations and procedures of W.Va. Code §22-5-10 and 45CSR31.

[45CSR§30-5.1.c.3.E.]

- 3.5.3. Except for the electronic submittal of the annual compliance certification and semi-annual monitoring reports to the DAQ and USEPA as required in 3.5.5 and 3.5.6 below, all notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class or by private carrier with postage prepaid to the address(es), or submitted in electronic format by e-mail as set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

DAQ:

US EPA:

Director
WVDEP
Division of Air Quality
601 57th Street SE
Charleston, WV
25304

Section Chief
U. S. Environmental Protection Agency, Region III
Enforcement and Compliance Assurance Division
Air Section (3ED21)
1650 Arch Street
Philadelphia, PA 19103-2029

DAQ Compliance and Enforcement¹:

DEPAirQualityReports@wv.gov

¹For all self-monitoring reports (MACT, GACT, NSPS, etc.), stack tests and protocols, Notice of Compliance Status reports, Initial Notifications, etc.

- 3.5.4. **Certified emissions statement.** The permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality.
[45CSR§30-8.]
- 3.5.5. **Compliance certification.** The permittee shall certify compliance with the conditions of this permit on the forms provided by the DAQ. In addition to the annual compliance certification, the permittee may be required to submit certifications more frequently under an applicable requirement of this permit. The annual certification shall be submitted to the DAQ and USEPA on or before March 15 of each year, and shall certify compliance for the period ending December 31. The permittee shall maintain a copy of the certification on site for five (5) years from submittal of the certification. The annual certification shall be submitted in electronic format by e-mail to the following addresses:

DAQ:
DEPAirQualityReports@wv.gov

US EPA:
R3_APD_Permits@epa.gov

[45CSR§30-5.3.e.]

- 3.5.6. **Semi-annual monitoring reports.** The permittee shall submit reports of any required monitoring on or before September 15 for the reporting period January 1 to June 30 and on or before March 15 for the reporting period July 1 to December 31. All instances of deviation from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official consistent

with 45CSR§30-4.4. The semi-annual monitoring reports shall be submitted in electronic format by e-mail to the following address:

DAQ:
DEPAirQualityReports@wv.gov

[45CSR§30-5.1.c.3.A.]

3.5.7. **Emergencies.** For reporting emergency situations, refer to Section 2.17 of this permit.

3.5.8. **Deviations.**

a. In addition to monitoring reports required by this permit, the permittee shall promptly submit supplemental reports and notices in accordance with the following:

1. Any deviation resulting from an emergency or upset condition, as defined in 45CSR§30-5.7., shall be reported by telephone or telefax within one (1) working day of the date on which the permittee becomes aware of the deviation, if the permittee desires to assert the affirmative defense in accordance with 45CSR§30-5.7. A written report of such deviation, which shall include the probable cause of such deviations, and any corrective actions or preventative measures taken, shall be submitted and certified by a responsible official within ten (10) days of the deviation.
2. Any deviation that poses an imminent and substantial danger to public health, safety, or the environment shall be reported to the Secretary immediately by telephone or telefax. A written report of such deviation, which shall include the probable cause of such deviation, and any corrective actions or preventative measures taken, shall be submitted by the responsible official within ten (10) days of the deviation.
3. Deviations for which more frequent reporting is required under this permit shall be reported on the more frequent basis.
4. All reports of deviations shall identify the probable cause of the deviation and any corrective actions or preventative measures taken.

[45CSR§30-5.1.c.3.C.]

b. The permittee shall, in the reporting of deviations from permit requirements, including those attributable to upset conditions as defined in this permit, report the probable cause of such deviations and any corrective actions or preventive measures taken in accordance with any rules of the Secretary.

[45CSR§30-5.1.c.3.B.]

3.5.9. **New applicable requirements.** If any applicable requirement is promulgated during the term of this permit, the permittee will meet such requirements on a timely basis, or in accordance with a more detailed schedule if required by the applicable requirement.

[45CSR§30-4.3.h.1.B.]

3.6. Compliance Plan

3.6.1. Reserved.

3.7. Permit Shield

- 3.7.1. The permittee is hereby granted a permit shield in accordance with 45CSR§30-5.6. The permit shield applies provided the permittee operates in accordance with the information contained within this permit.
- 3.7.2. The following requirements specifically identified are not applicable to the source based on the determinations set forth below. The permit shield shall apply to the following requirements provided the conditions of the determinations are met.
- a. **45CSR10 - To Prevent and Control Air Pollution from The Emission Of Sulfur Oxides.** This rule potentially applies to fuel burning units, including glycol dehydration unit reboilers and fuel gas heaters. Pursuant to 45CSR§10-10.1, units rated less than 10 MMBtu/hr are exempt from section 3 (SO₂ weight emission standards) and sections 6 through 8 (registration, permits, testing, monitoring, recordkeeping, reporting) of the rule. 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. The reboilers and fuel gas heaters at the station are each rated less than 10 MMBtu/hr and as such are exempt from aforementioned sections of 45CSR10.
 - b. **45CSR21 - Regulation to Prevent and Control Air Pollution from the Emission of Volatile Organic Compounds.** The Middlebourne V Compressor Station is not located in Cabell, Kanawha, Putnam, Wayne, nor Wood counties.
 - c. **45CSR27 - To Prevent and Control the Emissions of Toxic Air Pollutants.** Natural gas is included as a petroleum product and contains less than 5% benzene by weight. 45CSR'27-2.4 exempts equipment Aused in the production and distribution of petroleum products providing that such equipment does not produce or contact materials containing more than 5% benzene by weight.@
 - d. **40 CFR 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.** This subpart applies to steam generating units greater than 100 MMBtu/hr. Middlebourne V Compressor Station does not have any steam generating units greater than 100 MMBtu/hr.
 - e. **40 CFR 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.** This subpart applies to steam generating units greater than 10 MMBtu/hr and less than 100 MMBtu/hr. Middlebourne V Compressor Station does not have any steam generating units greater than 10 MMBtu/hr.
 - f. **40 CFR 60 Subpart K - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978.** All tanks at the Middlebourne V Compressor Station commenced construction after May 19, 1978.
 - g. **40 CFR 60 Subpart Ka - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984.** All tanks at the Middlebourne V Compressor Station commenced construction after July 23, 1984.

- h. **40 CFR 60 Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984.** Each tank potentially subject to this subpart has a design capacity less than 1,589.874 m³ and is used for petroleum or condensate stored prior to custody transfer. Therefore, per §60.110b(d)(4) this subpart does not apply.
- i. **40 CFR 60 Subpart GG - Standards of Performance for Stationary Gas Turbines.** There are no gas turbines at the Middlebourne V Compressor Station.
- j. **40 CFR 60 Subpart KKK - Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011.** Middlebourne V Compressor Station is not a “Natural Gas Processing Plant” as defined in §60.631 and was constructed after August 23, 2011.
- k. **40 CFR 60 Subpart LLL - Standards of Performance for SO₂ Emissions From Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011.** There are no sweetening units at the Middlebourne V Compressor Station.
- l. **40 CFR 60 Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.** All engines at Middlebourne V Compressor Station are spark ignition engines.
- m. **40 CFR 60 Subpart KKKK – Standards of Performance for Stationary Combustion Turbines.** There are no combustion turbines at the Middlebourne V Compressor Station.
- n. **40 CFR 60 Subpart OOOO - Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or before September 18, 2015.** The equipment at the Middlebourne V Station was installed after September 18, 2015. Therefore, 40 CFR 60 Subpart OOOO does not apply.
- o. **40 CFR 61 Subpart V - National Emission Standard for Equipment Leaks (Fugitive Emission Sources).** There are no sources as listed in §61.240(a) at the Middlebourne V Station that are intended to operate in volatile hazardous air pollutant service.
- p. **40 CFR 63 Subpart H - National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks.** There is no equipment or systems listed in 40 CFR §63.160(a) at the Middlebourne V Station that operate “in organic hazardous air pollutant service” as defined in 40 CFR §63.161.
- q. **40 CFR 63 Subpart VV - National Emission Standards for Oil-Water Separators and Organic-Water Separators.** The Middlebourne V Station is not subject to another subpart under 40 CFR Parts 60, 61, or 63 that reference this subpart.
- r. **40 CFR 63 Subpart HHH - National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities.** The Middlebourne V Station transports natural gas prior to the point of custody transfer and therefore is not considered a part of the natural gas transmission and storage source category as described in 40 CFR §63.1270(a).

- s. **40 CFR 63 Subpart YYYY - National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines.** There are no stationary combustion turbines located at the Middlebourne V Station.

- t. **40 CFR 63 Subpart EEEE - National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline).** The Middlebourne V Station is considered a “production field facility” as defined in §63.761 of 40 CFR 63 Subpart HH. Therefore per §63.2334(c)(1) it is not subject to this subpart.

- u. **40 CFR 63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters.** This MACT standard applies to industrial, commercial, and institutional boilers and process heaters at major sources of HAPs. Middlebourne V Compressor Station is not major for HAPS.

4.0 Compressor and Generator Engines [emission point ID(s): 1E – 12E, 33E-38E, 32E, 40E]

4.1. Limitations and Standards

4.1.1. For the compressor engines:

- a. Maximum emissions from each of the 2,500 hp natural gas fired reciprocating compressor engines equipped with oxidation catalyst, Caterpillar G3608 (~~C-100 through C-1100~~ no less than 11 facility-wide) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	2.76	12.07
Carbon Monoxide	0.88	3.86
Volatile Organic Compounds (includes formaldehyde)	1.76	7.72
Formaldehyde	0.11	0.48

- b. Maximum emissions from each of the 2,675 hp natural gas fired reciprocating compressor engines equipped with oxidation catalyst, Caterpillar G3608 (~~C-1200 through C-1800~~ no more than 7 facility-wide) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	2.95	12.92
Carbon Monoxide	0.94	4.13
Volatile Organic Compounds (includes formaldehyde)	1.89	8.27
Formaldehyde	0.12	0.52

[45CSR13, R13-3394, §5.1.1.]

- 4.1.2. Maximum emissions from each of the 649 hp natural gas fired generator engines, PSI Industrial (GEN2 and GEN3) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	1.43	0.72
Carbon Monoxide	2.86	1.43
Volatile Organic Compounds	1.00	0.50

[45CSR13, R13-3394, §5.1.2.]

- 4.1.3. The emission limitations specified in permit conditions 4.1.1. – 4.1.2. shall apply at all times except during periods of start-up and shut-down provided that the duration of these periods does not exceed 30 minutes per occurrence. The permittee shall operate the engines in a manner consistent with good air pollution control practices for minimizing emissions at all times, including periods of start-up and shut-down. The

emissions from start-up and shut-down shall be included in the twelve (12) month rolling total of emissions. The permittee shall comply with all applicable start-up and shut-down requirements in accordance with 40 CFR Part 60, Subparts JJJJ and 40 CFR Part 63, Subpart ZZZZ.

[45CSR13, R13-3394, §5.1.3.]

4.1.4. Requirements for Use of Oxidation Catalyst Reduction Devices (1C-12C and 18C-23C)

- a. Lean-burn natural gas compressor engines (C-100 through C-1800) equipped with oxidation catalyst air pollution control devices shall be fitted with a closed-loop automatic air/fuel ratio feedback controller to ensure emissions of regulated pollutants do not exceed the emission limit listed in permit condition 4.1.1. for any engine/oxidation catalyst combination under varying load. The closed-loop, automatic air/fuel ratio controller shall control a fuel metering valve to ensure a lean-rich mixture.
- b. For natural gas compressor engines (C-100 through C-1800), the permittee shall monitor the temperature to the inlet of the catalyst and in accordance with manufacturer's specifications; a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs. If the engine shuts off due to high temperature, the permittee shall also check for thermal deactivation of the catalyst before normal operations are resumed.
- c. The permittee shall follow a written operation and maintenance plan that provides the periodic and annual maintenance requirements.
- d. No person shall knowingly:
 1. Remove or render inoperative any air pollution or auxiliary air pollution control device installed subject to the requirements of this permit;
 2. Install any part or component when the principal effect of the part or component is to bypass, defeat or render inoperative any air pollution control device or auxiliary air pollution control device installed subject to the requirements of this permit; or
 3. Cause or allow engine exhaust gases to bypass any catalytic reduction device.

[45CSR13, R13-3394, §5.1.4.]

- 4.1.5. Maximum Yearly Operation Limitation. The maximum yearly hours of operation for each of the 649 hp natural gas fired generator engines, PSI Industrial (GEN2 and GEN3) shall not exceed 1,000 hours per year. Compliance with the Maximum Yearly Operation Limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the hours of operation at any given time during the previous twelve consecutive calendar months.

[45CSR13, R13-3394, §5.1.5.]

4.2. Monitoring Requirements

4.2.1. Oxidization Catalyst Control Devices (1C-12C and 18C-23C)

- a. The permittee shall regularly inspect, properly maintain and/or replace catalytic reduction devices and auxiliary air pollution control devices to ensure functional and effective operation of the engine's

physical and operational design. The permittee shall ensure proper operation, maintenance and performance of catalytic reduction devices and auxiliary air pollution control devices by:

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

[45CSR13, R13-3394, §5.2.1.]

4.3. Testing Requirements

- 4.3.1. See Facility-Wide Testing Requirements Section 3.3. and Testing Requirements of Section 9.3. and Section 10.2.

4.4. Recordkeeping Requirements

- 4.4.1. To demonstrate compliance with condition 4.1.4., the permittee shall maintain records of all catalytic reduction device maintenance. Said records shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

[45CSR13, R13-3394, §5.4.1.]

- 4.4.2. To demonstrate compliance with permit condition 4.1.5., the permittee shall maintain records of the hours of operation of GEN2 and GEN3. Said records shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

[45CSR13, R13-3394, §5.4.2.]

4.5. Reporting Requirements

- 4.5.1. See Facility-Wide Reporting Requirements Section 3.5. and Reporting Requirements of Sections 9.5. and 10.5.

4.6. Compliance Plan

- 4.6.1. Reserved.

5.0 Source-Specific Hazardous Air Pollutant Requirements (Natural Gas Dehydration Units Not Subject to MACT Standards and being controlled by Thermal Oxidizer Control Devices) [emission point ID(s): 28E, 29E, 44E]

5.1. Limitations and Standards

5.1.1. **Maximum Throughput Limitation.** The maximum dry natural gas throughput to the TEG dehydration units/still columns (DEHY1 - DEHY3) shall not exceed the following for each unit.

TEG Dehydration Unit ID	Maximum Dry Natural Gas Throughput (mmscfd)
DEHY1	260
DEHY2	260
DEHY3	150

Compliance with the Maximum Throughput Limitation shall be determined using a twelve-month rolling total. A twelve month rolling total shall mean the sum of the monthly throughput at any given time during the previous twelve consecutive calendar months.

[45CSR13, R13-3394, §6.1.1.]

5.1.2. Recycled reboilers controlling the Dehydrator Flash Tanks shall be designed and operated in accordance with the following:

- a. The vapors/overheads from the flash tanks shall be routed through a closed vent system to the reboiler at all times when there is a potential that vapors (emissions) can be generated from the flash tank.
- b. The reboiler shall only be fired with vapors from the flash tank, and natural gas may be used as supplemental fuel.
- c. The vapors/overheads from the flash tank shall be introduced into the flame zone of the reboiler.
- d. When the flash tank gas cannot be used by the reboiler due to excess gas or the reboiler is offline, the gas shall be sent to the vapor recovery units (VRU-100 through VRU-300) via the storage tanks to achieve a minimum control efficiency of 98%.

[45CSR13, R13-3394, §6.1.2.]

5.1.3. *Thermal Oxidizers (TO-1 through TO-3).* The permittee shall comply with the design and operating requirements below:

- a. Vapors that are being controlled by the thermal oxidizers shall be routed to the thermal oxidizers at all times;
- b. Thermal oxidizers shall be operated with a flame present at all times, as determined by the methods specified in permit condition 5.2.1.;
- c. Thermal oxidizers shall be operated according to the manufacturer's specifications for residence time and minimum combustion chamber temperature;
- d. Thermal oxidizers shall be operated at all times when emissions are vented to them;

- e. To ensure compliance with permit condition 5.1.3.d., the permittee shall monitor in accordance with condition 5.2.1. of this permit.
- f. Thermal oxidizers shall be designed for and operated with no visible emissions as determined by the methods specified in permit condition 5.3.1. except for periods not to exceed a total of 5 minutes during any 2 consecutive hours; and,
- g. The permittee shall monitor the thermal oxidizer(s) to ensure that they are operated and maintained in conformance with their designs.

[45CSR13, R13-3394, §6.1.3.]

- 5.1.4. Maximum emissions from each of the thermal oxidizers (TO-1 through TO-2) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Volatile Organic Compounds	1.93	8.48
Benzene	0.03	0.11
Total HAP	0.24	1.07

[45CSR13, R13-3394, §6.1.4.]

- 5.1.5. Maximum emissions from thermal oxidizer (TO-3) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Volatile Organic Compounds	1.99	8.72
Benzene	0.03	0.12
Total HAP	0.25	1.11

[45CSR13, R13-3394, §6.1.5.]

- 5.1.6. No person shall cause or allow particulate matter to be discharged from any incinerator into the open air in excess of the quantity determined by use of the following formula:

$$\text{Emissions (lb/hr)} = F \times \text{Incinerator Capacity (tons/hr)}$$

Where, the factor, F, is as indicated in Table I below:

Table I: Factor, F, for Determining Maximum Allowable Particulate Emissions.

Incinerator Capacity	Factor F
A. Less than 15,000 lbs/hr	5.43
B. 15,000 lbs/hr or greater	2.72

The allowable Particulate Emissions from TO-1, TO-2 and TO-3 are as follows:

Emission Unit ID	Maximum Fuel Capacity (Waste Gas & Natural Gas) (scf/hr)*	Feed to Incinerator (ton/hr)	Allowable Hourly PM Emissions (lb/hr)
TO-1	20,830	0.58	3.15
TO-2	20,830	0.58	3.15
TO-3	20,830	0.58	3.15

*Note: Waste Gas & Natural Gas Density is based on 0.056 lb/ft³

[45CSR§6-4.1]

- 5.1.7. No person shall cause or allow emission of smoke into the atmosphere from any incinerator which is twenty percent (20%) opacity or greater.

[45CSR§6-4.3]

5.2. Monitoring Requirements

- 5.2.1. To demonstrate compliance with the pilot flame requirements of permit conditions 5.1.3.b., the presence of a pilot flame shall be continuously monitored using a thermocouple or any other equivalent device to detect the presence of a flame when emissions are vented to it. The pilot shall be equipped such that it sounds an alarm, or initiates notification via remote alarm to the nearest field office, when the pilot light is out.

[45CSR13, R13-3394, §6.2.1.]

- 5.2.2. The permittee shall monitor the throughput of dry natural gas fed to the dehydration system on a monthly basis for each glycol dehydration unit.

[45CSR13, R13-3394, §6.2.2.]

5.3. Testing Requirements

- 5.3.1. In order to demonstrate compliance with the opacity requirements of permit condition 5.1.3.f. the permittee shall conduct a Method 22 opacity test for at least two hours. This test shall demonstrate no visible emissions are observed for more than a total of 5 minutes during any 2 consecutive hour period using 40CFR60 Appendix A Method 22. The permittee shall conduct this test within one (1) year of permit issuance or initial startup whichever is later. The visible emission checks shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40 CFR part 60, appendix A, Method 22 or from the lecture portion of 40 CFR part 60, appendix A, Method 9 certification course.

[45CSR13, R13-3394, §6.3.1.]

- 5.3.2. In order to demonstrate compliance with permit conditions 5.1.4. and 5.1.5. upon request of the Director, the permittee shall demonstrate compliance with the HAP emissions thresholds using GLYCalc Version 3.0 or higher. The permittee shall sample in accordance with GPA Method 2166 and analyze the samples utilizing the extended GPA Method 2286 as specified in the GRI-GLYCalc V4 Technical Reference User Manual and Handbook.

[45CSR13, R13-3394, §6.3.2.]

- 5.3.3. *Determination of glycol dehydration benzene emissions.* In order to demonstrate that the benzene emissions are less than 1 tpy, the permittee shall determine the actual average benzene emissions using the procedure in the paragraph below. Emissions shall be determined either uncontrolled, or with federally enforceable controls in place.

The owner or operator shall determine actual average benzene or BTEX emissions using the model GRI-GLYCalc™, Version 3.0 or higher, and the procedures presented in the associated GRI-GLYCalc™ Technical Reference Manual. Inputs to the model shall be representative of actual operating conditions of the glycol dehydration unit and may be determined using the procedures documented in the Gas Research Institute (GRI) report entitled “Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions” (GRI-95/0368.1).

[45CSR13, R13-3394, §6.3.3.; 45CSR34; 40 CFR §63.772(b)(2)]

5.4. Recordkeeping Requirements

- 5.4.1. For the purpose of demonstrating compliance with permit conditions 5.1.3.b. and 5.2.1., the permittee shall maintain records of the times and duration of all periods which the pilot flame was absent.
[45CSR13, R13-3394, §6.4.1.]
- 5.4.2. For the purpose of demonstrating compliance with the requirements set forth in permit conditions 5.1.3. and 5.3.2., the permittee shall maintain records of testing conducted in accordance with 5.3.2.
[45CSR13, R13-3394, §6.4.2.]
- 5.4.3. The permittee shall document and maintain the corresponding records specified by the on-going monitoring requirements of 5.2. and testing requirements of 5.3.
[45CSR13, R13-3394, §6.4.3.]
- 5.4.4. For the purpose of demonstrating compliance with permit condition 5.1.3.f., the permittee shall maintain records of the visible emission opacity tests conducted per permit condition 5.3.1.
[45CSR13, R13-3394, §6.4.4.]
- 5.4.5. For the purpose of demonstrating compliance with the minor source status of hazardous air pollutants required by permit conditions 5.1.4. and 5.1.5., the permittee shall maintain a record of all potential to emit (PTE) HAP calculations for the entire affected facility. These records shall include the natural gas compressor engines and ancillary equipment.
[45CSR13, R13-3394, §6.4.5.]
- 5.4.6. The permittee shall maintain a record of the dry natural gas throughput through the dehydration system to demonstrate compliance with permit condition 5.1.1.
[45CSR13, R13-3394, §6.4.6.]
- 5.4.7. To demonstrate that the permittee is exempt from the requirements of 40 CFR §63.764(d) if the actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere is less than 0.90 megagram per year (1 tpy), as determined by the procedures specified in 40 CFR §63.772(b)(2) and permit condition 5.3.3. of this permit, records of the actual average benzene emissions (in terms of benzene emissions per year) shall be maintained
[45CSR13, R13-3394, §6.4.7.; 45CSR34; 40 CFR §63.764(e) and §63.774(d)(1)(ii)]

- 5.4.8. All records required under Section 5.4. shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

[45CSR13, R13-3394, §6.4.8.]

5.5. Reporting Requirements

- 5.5.1. If permittee is required by the Director to demonstrate compliance with permit condition 5.3.3., then the permittee shall submit a testing protocol at least thirty (30) days prior to testing and shall submit a notification of the testing date at least fifteen (15) days prior to testing. The permittee shall submit the testing results within sixty (60) days of testing and provide all supporting calculations and testing data.

[45CSR13, R13-3394, §6.5.1.]

- 5.5.2. Any deviation(s) from the allowable visible emission requirement for any emission source discovered during observations using 40 CFR Part 60, Appendix A, Method 9 or 22 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of the occurrence and shall include at least the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.

[45CSR13, R13-3394, §6.5.2.]

- 5.5.3. Any deviation(s) from the thermal oxidizer design and operation criteria in permit condition 5.1.3. shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of discovery of such deviation.

[45CSR13, R13-3394, §6.5.3.]

5.6. Compliance Plan

- 5.6.1. Reserved.

6.0 Reboilers, Heaters [emission point ID(s): 16E, 19E, 43E, 27E, 39E]

6.1 Limitations and Standards

6.1.1. Maximum Design Heat Input. The maximum design heat input (MDHI) shall not exceed the following:

Emission Unit ID#	Emission Unit Description	MDHI (MMBTU/hr)
DREB1	Glycol Dehydration Reboiler	1.5
DREB2	Glycol Dehydration Reboiler	1.5
DREB3	Glycol Dehydration Reboiler	1.5
FUEL1	Fuel Conditioning Heater	0.5
FUEL2	Fuel Conditioning Heater	0.75

[45CSR13, R13-3394, §7.1.1.]

6.1.2. 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 greater than ten (10) percent opacity based on a six minute block average.

[45CSR13, R13-3394, §7.1.2.; 45CSR§2-3.1.]

6.2 Monitoring Requirements

6.2.1. At such reasonable times as the Secretary may designate, the permittee shall conduct Method 9 emission observations for the purpose of demonstrating compliance with permit condition 6.1.2. Method 9 shall be conducted in accordance with 40 CFR 60 Appendix A.

[45CSR13, R13-3394, §7.2.1.]

6.3 Testing Requirements

6.3.1. Compliance with the visible emission requirements of permit condition 6.1.2. shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9 or by using measurements from continuous opacity monitoring systems approved by the Director. The Director may require the installation, calibration, maintenance and operation of continuous opacity monitoring systems and may establish policies for the evaluation of continuous opacity monitoring results and the determination of compliance with the visible emission requirements of permit condition 6.1.2. Continuous opacity monitors shall not be required on fuel burning units which employ wet scrubbing systems for emission control.

[45CSR13, R13-3394, §7.3.1.; 45CSR§2-3.2.]

6.4 Recordkeeping Requirements

6.4.1. The permittee shall maintain records of all monitoring data required by permit condition 6.2.1. documenting the date and time of each visible emission check, the emission point or equipment/source identification number, the name or means of identification of the observer, the results of the check(s), whether the visible emissions are normal for the process, and, if applicable, all corrective measures taken or planned. The permittee shall also record the general weather conditions (i.e. sunny, approximately 80°F, 6 - 10 mph NE wind) during the visual emission check(s). Should a visible emission observation be required

to be performed per the requirements specified in Method 9, the data records of each observation shall be maintained per the requirements of Method 9.
[45CSR13, R13-3394, §7.4.1.]

6.5. Reporting Requirements

- 6.5.1. Any deviation(s) from the allowable visible emission requirement for any emission source discovered during observations using 40 CFR Part 60, Appendix A, Method 9 or 22 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of the occurrence and shall include at least the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
[45CSR13, R13-3394, §7.5.1.]

6.6. Compliance Plan

- 6.6.1. Reserved

7.0 Storage Tanks [emission point ID(s): 13C/14C/26C, 28E/29E44E]

7.1. Limitations and Standards

7.1.1. The permittee shall route all VOC and HAP emissions from the Storage Tanks (T01 – T11) to a vapor recovery system (VRU-100 - VRU-300), prior to release to the atmosphere. The vapor recovery system shall be designed to achieve a minimum guaranteed control efficiency of 98% for volatile organic compound (VOC) and hazardous air pollutants (HAP) emissions. Emissions from these tanks will be collected and compressed by the vapor recovery units (VRU-100 through VRU-300) whereby the vapors are sufficiently compressed to be introduced into the inlet gas line and processed with the inlet gas.
[45CSR13, R13-3394, §8.1.1.]

7.1.2. *Operation and Maintenance of Air Pollution Control Equipment.* The permittee shall, to the extent practicable, install, maintain, and operate the vapor recovery units (VRU-100 - VRU-300) and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary
[45CSR13, R13-3394, §8.1.2.; 45CSR§13-5.10]

7.1.3. The maximum annual throughput of product to the storage tanks shall not exceed the following:

Storage Tank ID	Storage Tank Size (bbl)	Product Stored	Maximum Annual Throughput (gal/yr)
T01, T02, T03, T08, T09	400 each	Condensate	6,898,500 (combined)
T04	500	Settling Tank (Condensate/ Produced Water)	8,968,050
T05, T06, T07, T10, T11	400 each	Produced Water	2,069,550 (combined)

[45CSR13, R13-3394, §8.1.3.]

7.1.4. Maximum emissions from the storage tank battery (T01 – T11) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Volatile Organic Compounds	1.55	6.80

[45CSR13, R13-3394, §8.1.4.]

7.1.5. In addition to the vapor recovery units (VRU-100 - VRU-300), the permittee shall utilize three (3) of the following requirements:

- a. Install additional sensing equipment to monitor the run status of the vapor recovery units (VRU-100 through VRU-300).

- b. Install a by-pass system which operates automatically whereby discharge is re-routed back to the inlet of the vapor recovery units (VRU-100 through VRU-300) until the appropriate pressure is built up for the compressor to turn on.
- c. Install a blanket gas and have automatic throttling valves to ensure oxygen does not enter the tanks.
- d. Install a compressor that has the ability to vary the drive.

[45CSR13, R13-3394, §8.1.5.]

- 7.1.6. Emissions from the Storage Tanks (T01 - T11) that are recovered and routed to the vapor recovery units (VRU-100 - VRU-300) shall be designed and operated as specified in the paragraphs a. through c.
- a. The cover and all openings on the cover (e.g., access hatches, sampling ports, pressure relief valves and gauge wells) shall form a continuous impermeable barrier over the entire surface area of the liquid in the storage vessel.
 - b. Each cover opening shall be secured in a closed, sealed position (e.g., covered by a gasketed lid or cap) whenever material is in the unit on which the cover is installed except during those times when it is necessary to use an opening as follows:
 - 1. To add material to, or remove material from the unit (this includes openings necessary to equalize or balance the internal pressure of the unit following changes in the level of the material in the unit);
 - 2. To inspect or sample the material in the unit;
 - 3. To inspect, maintain, repair, or replace equipment located inside the unit; or
 - 4. To vent liquids, gases, or fumes from the unit through a closed-vent system designed and operated in accordance with the requirements 7.1.7. of this section to a control device.
 - c. Each Storage Tank (T01-T11) thief hatch shall be weighted and properly seated. You must select gasket material for the hatch based on composition of the fluid in the storage vessel and weather conditions.

[45CSR13, R13-3394, §8.1.6.; 45CSR§13-5.10]

- 7.1.7. The facility shall comply with the closed vent system requirements for the Storage Tanks (T01-T11) as noted below.
- a. You must design the closed vent system to route all gases, vapors, and fumes emitted from the material in the Storage Tanks (T01-T11) to the vapor recovery units (VRU-100 - VRU-300).
 - b. You must design and operate a closed vent system with no detectable emissions, as determined using olfactory, visual and auditory inspections.

- c. You must meet the requirements specified in paragraphs c.1. and c.2. of this condition if the closed vent system contains one or more bypass devices that could be used to divert all or a portion of the gases, vapors, or fumes from entering the control device or to a process.
 - 1. Except as provided in paragraph c.2 of this condition, you must comply with either paragraph c.1.A. or c.1.B. of this condition for each bypass device.
 - A. You must properly install, calibrate, maintain, and operate a flow indicator at the inlet to the bypass device that could divert the stream away from the control device or process to the atmosphere that sounds an alarm, or initiates notification via remote alarm to the nearest field office, when the bypass device is open such that the stream is being, or could be diverted away from the control device or process to the atmosphere.
 - B. You must secure the bypass device valve installed at the inlet to the bypass device in the non-diverting position using a car-seal or a lock-and-key type configuration.
 - 2. Low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and safety devices are not subject to the requirements of paragraph c.1. of this condition.

[45CSR13, R13-3394, §8.1.7.; 45CSR§13-5.10.]

7.2. Monitoring Requirements

- 7.2.1. The permittee shall monitor the throughput to the storage vessels (T01-T11) on a monthly basis.
[45CSR13, R13-3394, §8.2.1.]
- 7.2.2. To demonstrate compliance with condition 7.1.1., the permittee shall monitor the vapor recovery units (VRU-100 through VRU-300) in accordance with the plans and specifications and manufacturer's recommendations.
[45CSR13, R13-3394, §8.2.2.]
- 7.2.3. To demonstrate compliance with the closed vent system requirements of Conditions 7.1.6. and 7.1.7., the permittee shall:
 - a. Initial requirements. Conduct an initial visual, olfactory, and auditory inspection for defects that could result in air emissions within 180 days of start-up. Defects include, but are not limited to, visible cracks, holes, or gaps in piping; loose connections; liquid leaks; or broken or missing caps or other closure devices.
 - 1. The annual inspection shall include the bypass inspection, conducted according to paragraph c. of this condition.
 - 2. In the event that a leak or defect is detected, you must repair the leak or defect as soon as practicable. Grease or another applicable substance must be applied to deteriorating or cracked gaskets to improve the seal while awaiting repair.
 - 3. Delay of repair of a closed vent system for which leaks or defects have been detected is allowed if the repair is technically infeasible without a shutdown, or if you determine that emissions resulting from immediate repair would be greater than the fugitive emission likely to result from delay of repair. You must complete repair of such equipment by the end of the next shutdown.

- b. Continuous requirements. Conduct an annual visual, olfactory, and auditory inspection for defects that could result in air emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in piping, loose connections; liquid leaks; or broken or missing caps or other closure devices.
 - 1. The annual inspection shall be conducted within 365 calendar days from the date of the previous inspection or earlier.
 - 2. The annual inspection shall include the bypass inspection, conducted according to paragraph (c) of this section.
- c. Bypass inspection. Visually inspect the bypass valve during the initial and annual inspection for the presence of the car seal or lock-and-key type configuration to verify that the valve is maintained in the non-diverting position to ensure that the vent stream is not diverted through the bypass device. If an alternative method is used, conduct the inspection of the bypass as described in the operating procedures.
- d. Unsafe to inspect requirements. You may designate any parts of the closed vent system as unsafe to inspect if the requirements in paragraphs d.1. and d.2. of this condition are met. Unsafe to inspect parts are exempt from the inspection requirements of paragraphs a. and b. of this condition.
 - 1. You determine that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with the requirements.
 - 2. You have a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.
- e. Difficult to inspect requirements. You may designate any parts of the closed vent system as difficult to inspect, if the requirements in paragraphs e.1. and e.2. of this condition are met. Difficult to inspect parts are exempt from the inspection requirements of paragraphs a. and b. of this condition.
 - 1. You determine that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface.
 - 2. You have a written plan that requires inspection of the equipment at least once every 5 years.

[45CSR13, R13-3394, §8.2.3.; 45CSR§13-5.10.]

7.3. Testing Requirements

- 7.3.1. Reserved.

7.4. Recordkeeping Requirements

- 7.4.1. All records required under Section 7.4. shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

[45CSR13, R13-3394, §8.3.1.]

7.4.2. *Record of Maintenance of VRU.* The permittee shall maintain accurate records of the vapor recovery units (VRU-100 - VRU-300) equipment inspection and/or preventative maintenance procedures.

[45CSR13, R13-3394, §8.3.2.]

7.4.3. *Record of Malfunctions of VRU.* The permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the vapor recovery units (VRU-100 -VRU-300) during which excess emissions occur. For each such case, the following information shall be recorded:

- a. The equipment involved.
- b. Steps taken to minimize emissions during the event.
- c. The duration of the event.
- d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

- e. The cause of the malfunction.
- f. Steps taken to correct the malfunction.
- g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

[45CSR13, R13-3394, §8.3.3.]

7.4.4. To demonstrate compliance with condition 7.1.3. and 7.1.4., the permittee shall maintain a record of the aggregate throughput for the storage tanks on a monthly and rolling twelve month total. Said records shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

[45CSR13, R13-3394, §8.3.4.]

7.4.5. The permittee shall maintain a copy of all design records of the process, maintenance records of equipment and any downtime hours associated with the vapor recovery units (VRU-100 - VRU-300).

[45CSR13, R13-3394, §8.3.5.]

7.4.6. The permittee shall maintain records of the additional monitoring required in condition 7.1.5. to demonstrate compliance with the 98% control efficiency claimed and the condition 7.1.1.

[45CSR13, R13-3394, §8.3.6.]

7.4.7. To demonstrate compliance with the closed vent monitoring requirements, the following records shall be maintained.

- a. The initial compliance requirements;
- b. Each annual visual inspection conducted to demonstrate continuous compliance, including records of any repairs that were made as results of the inspection;
- c. Bypass requirements.
 1. Each inspection or each time the key is checked out or a record each time the alarm is sounded;
 2. Each occurrence that the control device was bypassed. If the device was bypassed, the records shall include the date, time, and duration of the event and shall provide the reason the event occurred. The record shall also include the estimate of emissions that were released to the environment as a result of the bypass.
- d. Any part of the system that has been designated as “unsafe to inspect” in accordance with 7.2.3.d or “difficult to inspect” in accordance with 7.2.3.e.

[45CSR13, R13-3394, §8.3.7.; 45CSR§13-5.10.]

7.5. Reporting Requirements

- 7.5.1. Upon request by the Director, the permittee shall report deviations within a requested time frame of any occurrences when the control device was operated outside of the parameters defined in the monitoring plan.
[45CSR13, R13-3394, §8.4.1.]
- 7.5.2. The permittee shall notify the Director of any downtime of the vapor recovery units (VRU-100 through VRU-300) in excess of 2%, based on the 12 month rolling total, in writing to the Director of the Division of Air Quality as soon as practicable, but within ten (10) calendar days of the discovery and shall include, at a minimum, the following information: the dates and durations of each downtime event, the cause or suspected causes for each downtime event, any corrective measures taken or planned for each downtime event.
[45CSR13, R13-3394, §8.4.2.]

7.6. Compliance Plan

- 7.6.1. Reserved.

8.0 Product Loadout Rack [emission point ID(s): 28E/29E/44E]

8.1 Limitations and Standards

- 8.1.1. Truck loading vapors are captured by a vapor balance systems and routed to the reboilers (DREB1, DREB2, DREB3) or thermal oxidizers (TO-1, TO-2, TO-3) and controlled with at least 93.1% capture and control efficiency for volatile organic compounds and hazardous air pollutants.
[45CSR13, R13-3394, §9.1.1.]
- 8.1.2. The maximum quantity of condensate that shall be loaded shall not exceed 6,898,500 gallons per year. Compliance with the Maximum Yearly Operation Limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the condensate throughput at any given time during the previous twelve consecutive calendar months.
[45CSR13, R13-3394, §9.1.2.]
- 8.1.3. The maximum quantity of produced water that shall be loaded shall not exceed 2,069,550 gallons per year. Compliance with the Maximum Yearly Operation Limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the produced water throughput at any given time during the previous twelve consecutive calendar months.
[45CSR13, R13-3394, §9.1.3.]
- 8.1.4. The permittee shall install, maintain, and operate all above-ground piping, valves, pumps, etc. that service lines in the transport of potential sources of regulated air pollutants to prevent any substantive fugitive escape of regulated air pollutants. Any above-ground piping, valves, pumps, etc. that shows signs of excess wear and that have a reasonable potential for substantive fugitive emissions of regulated air pollutants shall be replaced.
[45CSR13, R13-3394, §9.1.4.]
- 8.1.5. The Condensate Truck Loading and Produced Water Truck Loading shall be operated in accordance with the plans and specifications filed in Permit Application R13-3394A.
[45CSR13, R13-3394, §9.1.5.]
- 8.1.6. Maximum emissions from the product loadout rack (LDOUT1) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Volatile Organic Compounds	4.27	1.34
Total Hazardous Air Pollutants	0.09	0.03

[45CSR13, R13-3394, §9.1.6.]

- 8.1.7. Recycled reboilers shall be designed and operated in accordance with the following:
- The vapors/overheads from the product loadout rack shall be routed through a closed vent system to the reboiler at all times when there is a potential that vapors (emissions) can be generated from the flash tank.
 - The vapors/overheads from the product loadout rack shall be introduced into the flame zone of the reboiler to achieve a minimum capture and control efficiency of 93.1%.

- c. When the product loadout rack gas cannot be used by the reboiler due to excess gas or the reboiler is offline, the gas shall be sent to the thermal oxidizers (TO-1 – TO-3) to achieve a minimum capture and control efficiency of 93.1%. The thermal oxidizers shall be operated in accordance with permit condition 5.1.3.

[45CSR13, R13-3394, §9.1.7.]

8.2. Monitoring Requirements

- 8.2.1. See Facility-Wide Monitoring Requirements Section 3.2.
- 8.2.2. To demonstrate compliance with the pilot flame requirements of permit condition 5.1.3.b., the presence of a pilot flame shall be continuously monitored using a thermocouple or any other equivalent device to detect the presence of a flame when emissions are vented to it. The pilot shall be equipped such that it sounds an alarm, or initiates notification via remote alarm to the nearest field office, when the pilot light is out.

[45CSR13, R13-3394, §9.2.2.]

8.3. Testing Requirements

- 8.3.1. In order to demonstrate compliance with the flare opacity requirements of permit condition 5.1.3.f. the permittee shall conduct a Method 22 opacity test for at least two hours. This test shall demonstrate no visible emissions are observed for more than a total of 5 minutes during any 2 consecutive hour period using 40 CFR 60 Appendix A Method 22. The permittee shall conduct this test within one (1) year of permit issuance or initial startup whichever is later. The visible emission checks shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40 CFR part 60, appendix A, Method 22 or from the lecture portion of 40 CFR part 60, appendix A, Method 9 certification course.

[45CSR13, R13-3394, §9.3.1.]

8.4. Recordkeeping Requirements

- 8.4.1. All records required under Section 8.4. shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years.
- [45CSR13, R13-3394, §9.4.1.]**
- 8.4.2. To demonstrate compliance with permit conditions 8.1.2. and 8.1.3., the permittee shall maintain a record of the aggregate throughput for the product loadout rack (LDOUT1) on a monthly and rolling twelve month total.
- [45CSR13, R13-3394, §9.4.2.]**
- 8.4.3. For the purpose of demonstrating compliance with permit condition 8.2.2., the permittee shall maintain records of the times and duration of all periods which the pilot flame was absent.

[45CSR13, R13-3394, §9.4.3.]

8.4.4. The permittee shall document and maintain the corresponding records specified by the on-going monitoring requirements of 8.2 and testing requirements of 8.3.
[45CSR13, R13-3394, §9.4.4.]

8.4.5. All records required under Section 8.4. shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.
[45CSR13, R13-3394, §9.4.5.]

8.5. Reporting Requirements

8.5.1. See Facility-Wide Reporting Requirements Section 3.5.

8.5.2. Any deviation(s) from the allowable visible emission requirement for any emission source discovered during observations using 40 CFR Part 60, Appendix A, Method 9 or 22 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of the occurrence and shall include at least the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
[45CSR13, R13-3394, §9.5.2.]

8.5.3. Any deviation(s) from the thermal oxidizer design and operation criteria in permit condition 5.1.3. shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of discovery of such deviation.
[45CSR13, R13-3394, §9.5.3.]

8.6. Compliance Plan

8.6.1. Reserved.

9.0 40CFR60 Subpart JJJJ Requirements for Compressor and Generator Engines [emission point ID(s): 1E – 12E, 33E-38E, 32E, 40E]

9.1. Limitations and Standards

9.1.1. Owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to 40 CFR 60 Subpart JJJJ for their stationary SI ICE as follows:

Engine type and fuel	Maximum engine power	Manufacture date	Emission standards ^a					
			g/HP-hr			ppmvd at 15% O ₂		
			NO _x	CO	VOC ^d	NO _x	CO	VOC ^d
Non-Emergency SI Natural Gas	HP ≥ 500 HP	7/1/2010	1.0	2.0	0.7	82	270	60

^a Owners and operators of stationary non-certified SI engines may choose to comply with the emission standards in units of either g/HP-hr or ppmvd at 15 percent O₂.

^d For purposes of 40 CFR 63 Subpart JJJJ, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

[45CSR13, R13-3394, §10.2.1.; 45CSR16; 40 CFR §60.4233(e); Table 1 to 40 CFR 60 Subpart JJJJ]

9.1.2. Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in 40 CFR §60.4233 over the entire life of the engine.

[45CSR13, R13-3394, §10.2.3.; 45CSR16; 40 CFR §60.4234]

9.2. Monitoring Requirements

9.2.1. If you are an owner or operator of a stationary SI internal combustion engine and must comply with the emission standards specified in 40 CFR §60.4233(e), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) and (2) of 40 CFR §60.4243 as follows:

- a. Purchasing an engine certified according to procedures specified in 40 CFR 60 Subpart JJJJ, for the same model year and demonstrating compliance according to one of the methods specified in paragraph (a) of 40 CFR §60.4243 below. (*GEN2 and GEN3*)
 1. If you operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, you must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required if you are an owner or operator. You must also meet the requirements as specified in 40 CFR part 1068, subparts A through D, as they apply to you. If you adjust engine settings according to and consistent with the manufacturer's instructions, your stationary SI internal combustion engine will not be considered out of compliance.
 2. If you do not operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, your engine will be considered a non-certified engine, and you must demonstrate compliance according to the following:

If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test within 1 year of engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

- b. Purchasing a non-certified engine and demonstrating compliance with the emission standards specified in 40 CFR §60.4233(e) and according to the requirements specified in 40 CFR §60.4244, as applicable, and according to paragraph (b)(2)(ii) of 40 CFR §60.4243 below. (C-100 – C-1800)

If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

[45CSR13, R13-3394, §10.4.1.; 45CSR16; 40 CFR §§60.4243(a)(1), (a)(2)(iii), (b)(1) and (b)(2)(ii)]

- 9.2.2. Owners and operators of stationary SI natural gas fired engines may operate their engines using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, the owners and operators are required to conduct a performance test to demonstrate compliance with the emission standards of 40 CFR §60.4233.

[45CSR13, R13-3394, §10.4.4.; 45CSR16; 40 CFR §60.4243(e)]

- 9.2.3. It is expected that air-to-fuel ratio controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller must be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.

[45CSR13, R13-3394, §10.4.6.; 45CSR16; 40 CFR §60.4243(g)]

9.3. Testing Requirements

- 9.3.1. Owners and operators of stationary SI ICE who conduct performance tests must follow the following procedures:

- a. Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in 40 CFR §60.8 and under the specific conditions that are specified by Table 2 to 40 CFR §60 Subpart JJJJ.
- b. You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in 40 CFR §60.8(c). If your stationary SI internal combustion engine is non-operational, you do not need to startup the engine solely to conduct a performance test; however, you must conduct the performance test immediately upon startup of the engine.
- c. You must conduct three separate test runs for each performance test required in this section, as specified in 40 CFR §60.8(f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour.

- d. To determine compliance with the NO_x mass per unit output emission limitation, convert the concentration of NO_x in the engine exhaust using Equation 1 of this section:

Where:

ER = Emission rate of NO_x in g/HP-hr.

C_d = Measured NO_x concentration in parts per million by volume (ppmv).

1.912×10^{-3} = Conversion constant for ppm NO_x to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour (HP-hr).

- e. To determine compliance with the CO mass per unit output emission limitation, convert the concentration of CO in the engine exhaust using Equation 2 of this section:

Where:

ER = Emission rate of CO in g/HP-hr.

C_d = Measured CO concentration in ppmv.

1.164×10^{-3} = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

- f. For purposes of this subpart, when calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, convert the concentration of VOC in the engine exhaust using Equation 3 of this section:

Where:

ER = Emission rate of VOC in g/HP-hr.

C_a = VOC concentration measured as propane in ppmv.

1.833×10^{-3} = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

- g. If the owner/operator chooses to measure VOC emissions using either Method 18 of 40 CFR part 60, appendix A, or Method 320 of 40 CFR part 63, appendix A, then it has the option of correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using Equations 4 and 5 of this section. The corrected VOC concentration can then be placed on a propane basis using Equation 6 of this section.

Where:

RF_i = Response factor of compound i when measured with EPA Method 25A.

C_{Mi} = Measured concentration of compound i in ppmv as carbon.

C_{Ai} = True concentration of compound i in ppmv as carbon.

Where:

$C_{i\text{corr}}$ = Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

$C_{i\text{meas}}$ = Concentration of compound i measured by EPA Method 320, ppmv as carbon.

Where:

$C_{P\text{eq}}$ = Concentration of compound i in mg of propane equivalent per DSCM.

[45CSR13, R13-3394, §10.5.1.; 45CSR16; 40 CFR §60.4244; Table 2 to 40 CFR 60 Subpart JJJJ]

9.4. Recordkeeping Requirements

- 9.4.1. Owners and operators of all stationary SI ICE must keep records of the following information:
- a. All notifications submitted to comply with 40 CFR 60 Subpart JJJJ and all documentation supporting any notification.
 - b. Maintenance conducted on the engine.
 - c. If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 1048, 1054, and 1060, as applicable.
 - d. If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to §60.4243(a)(2), documentation that the engine meets the emission standards.

[45CSR13, R13-3394, §10.6.1.a.; 45CSR16; 40 CFR §60.4245(a)]

9.5. Reporting Requirements

- 9.5.1. Owners and operators of stationary SI ICE greater than or equal to 500 HP that have not been certified by an engine manufacturer to meet the emission standards in §60.4231 must submit an initial notification as required in §60.7(a)(1). The notification must include the following information:
- a. Name and address of the owner or operator;
 - b. The address of the affected source;
 - c. Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;
 - d. Emission control equipment; and
 - e. Fuel used.

[45CSR13, R13-3394, §10.6.1.c.; 45CSR16; 40 CFR §60.4245(c)]

- 9.5.2. Owners and operators of stationary SI ICE that are subject to performance testing must submit a copy of each performance test as conducted in §60.4244 within 60 days after the test has been completed. Performance test reports using EPA Method 18, EPA Method 320, or ASTM D6348-03 (incorporated by reference—see 40 CFR 60.17) to measure VOC require reporting of all QA/QC data. For Method 18, report results from sections 8.4 and 11.1.1.4; for Method 320, report results from sections 8.6.2, 9.0, and 13.0; and for ASTM D6348-03 report results of all QA/QC procedures in Annexes 1-7.

[45CSR13, R13-3394, §10.6.1.d.; 45CSR16; 40 CFR §60.4245(d)]

9.6. Compliance Plan

- 9.6.1. Reserved.

10.0 40 CFR 60 Subpart OOOOa Requirements - Reciprocating Compressors [emission point ID(s): *IE* – *12E, 33E-38E*]

10.1. Limitations and Standards

10.1.1. You must reduce VOC emissions by complying with the following standards for each reciprocating compressor affected facility:

- a. You must replace the reciprocating compressor rod packing according to either paragraph a.1. or a.2. of this condition, or you must comply with paragraph a.3. of this condition.
 1. On or before the compressor has operated for 26,000 hours. The number of hours of operation must be continuously monitored beginning upon initial startup of your reciprocating compressor affected facility, or the date of the most recent reciprocating compressor rod packing replacement, whichever is latest.
 2. Prior to 36 months from the date of the most recent rod packing replacement, or 36 months from the date of startup for a new reciprocating compressor for which the rod packing has not yet been replaced.
 3. Collect the VOC emissions from the rod packing using a rod packing emissions collection system that operates under negative pressure and route the rod packing emissions to a process through a closed vent system that meets the requirements of 40 CFR §60.5411a(a) and (d).
- b. You must demonstrate initial compliance with standards that apply to reciprocating compressor affected facilities as required by 40 CFR §60.5410a(c).
- c. You must demonstrate continuous compliance with standards that apply to reciprocating compressor affected facilities as required by 40 CFR §60.5415a(c).
- d. You must perform the reporting as required by 40 CFR §60.5420a(b)(1) and (4) and the recordkeeping as required by 40 CFR §60.5420a(c)(3), (6) through (9), and (17), as applicable.

[45CSR13, R13-3394, §11.1.1.; 45CSR16; 40 CFR §60.5385a]

10.1.2. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. The provisions for exemption from compliance during periods of startup, shutdown and malfunctions provided for in 40 CFR §60.8(c) do not apply to 40 CFR 60 Subpart OOOOa.

[45CSR16; 40 CFR §60.5370a(b)]

10.2. Monitoring Requirements

10.2.1. You must determine initial compliance with the standards for each affected facility using the following requirements. Except as otherwise provided in 40 CFR §60.5410a, the initial compliance period begins

upon initial startup and ends no later than one year after the initial startup date for your affected facility. The initial compliance period may be less than one full year.

- a. To achieve initial compliance with the standards for each reciprocating compressor affected facility you must comply with paragraphs (c)(1) through (c)(4) of 40 CFR §60.5410a.
 1. If complying with 40 CFR §60.5385a(a)(1) or (2), during the initial compliance period, you must continuously monitor the number of hours of operation or track the number of months since the last rod packing replacement.
 2. If complying with 40 CFR §60.5385a(a)(3), you must operate the rod packing emissions collection system under negative pressure and route emissions to a process through a closed vent system that meets the requirements of 40 CFR §60.5411a(a) and (d).
 3. You must submit the initial annual report for your reciprocating compressor as required in 40 CFR §60.5420a(b)(1) and (4).
 4. You must maintain the records as specified in 40 CFR §60.5420a(c)(3) for each reciprocating compressor affected facility.

[45CSR13, R13-3394, §11.2.1.; 45CSR16; 40 CFR §§60.5410a and 60.5410a(c)]

10.2.2. For each reciprocating compressor affected facility complying with 40 CFR §60.5385a(a)(1) or (2), you must demonstrate continuous compliance according to paragraphs (1) through (3) of 40 CFR §60.5415a(c) as follows:

- a. You must continuously monitor the number of hours of operation for each reciprocating compressor affected facility or track the number of months since initial startup or the date of the most recent reciprocating compressor rod packing replacement, whichever is later.
- b. You must submit the annual reports as required in 40 CFR §60.5420a(b)(1) and (4) and maintain records as required in 40 CFR §60.5420a(c)(3).
- c. You must replace the reciprocating compressor rod packing on or before the total number of hours of operation reaches 26,000 hours or the number of months since the most recent rod packing replacement reaches 36 months.

[45CSR13, R13-3394, §11.3.1.; 45CSR16; 40 CFR §§60.5415a(c), (c)(1), (2), and (3)]

10.2.3. For each reciprocating compressor affected facility complying with 40 CFR §60.5385a(a)(3), you must demonstrate continuous compliance according to paragraph (4) of 40 CFR §60.5415a(c) as follows:

- a. You must operate the rod packing emissions collection system under negative pressure and continuously comply with the cover and closed vent requirements in §60.5416a(a) and (b).

[45CSR13, R13-3394, §11.3.1.; 45CSR16; 40 CFR §§60.5415a(c), (c)(4)]

10.3. Testing Requirements

10.3.1. Reserved.

10.4. Recordkeeping Requirements

10.4.1. You must maintain the records identified as specified in 40 CFR §60.7(f) and in paragraphs (c)(1) through (18) of 40 CFR §60.5420a. All records required by this 40 CFR 60 Subpart OOOOa must be maintained either onsite or at the nearest local field office for at least 5 years. Any records required to be maintained by Subpart OOOOa that are submitted electronically via the EPA's CDX may be maintained in electronic format.

- a. For each reciprocating compressor affected facility, you must maintain the following records.
 1. Records of the cumulative number of hours of operation or number of months since initial startup, or since the previous replacement of the reciprocating compressor rod packing, whichever is latest. Alternatively, a statement that emissions from the rod packing are being routed to a process through a closed vent system under negative pressure.
 2. Records of the date and time of each reciprocating compressor rod packing replacement, or date of installation of a rod packing emissions collection system and closed vent system as specified in 40 CFR §60.5385a(a)(3).
 3. Records of deviations in cases where the reciprocating compressor was not operated in compliance with the requirements specified in 40 CFR §60.5385a, including the date and time the deviation began, duration of the deviation, and a description of the deviation.

[45CSR16; 40 CFR §§60.5420a(c) and (c)(3)]

10.5. Reporting Requirements

10.5.1. You must submit the notifications according to paragraphs (a)(1) and (2) of 40 CFR §60.5420a if you own or operate one or more of the affected facilities specified in 40 CFR §60.5365a that was constructed, modified or reconstructed during the reporting period.

If you own or operate an affected facility that is the group of all equipment within a process unit at an onshore natural gas processing plant, or a sweetening unit, you must submit the notifications required in 40 CFR §§60.7(a)(1), (3), and (4) and 60.15(d). If you own or operate a well, centrifugal compressor, reciprocating compressor, pneumatic controller, pneumatic pump, storage vessel, collection of fugitive emissions components at a well site, or collection of fugitive emissions components at a compressor station, you are not required to submit the notifications required in §§60.7(a)(1), (3), and (4) and 60.15(d).

[45CSR13, R13-3394, §11.4.1.; 45CSR16; 40 CFR §§60.5420a(a) and (a)(1)]

10.5.2. You must submit annual reports containing the information specified in paragraphs (b)(1) and (4) of 40 CFR §60.5420a to the Administrator and performance test reports as specified in paragraph (b)(9) of 40 CFR §60.5420a, if applicable. You must submit annual reports following the procedure specified in paragraph (b)(11) of 40 CFR §60.5420a. The initial annual report is due no later than 90 days after the end of the initial compliance period as determined according to 40 CFR §60.5410a. Subsequent annual reports are due no later than same date each year as the initial annual report. If you own or operate more than one affected facility, you may submit one report for multiple affected facilities provided the report contains all

of the information required as specified in paragraphs (b)(1) and (4) of 40 CFR §60.5420a. Annual reports may coincide with Title V reports as long as all the required elements of the annual report are included. You may arrange with the Administrator a common schedule on which reports required by 40 CFR Part 70 may be submitted as long as the schedule does not extend the reporting period.

- a. The general information specified in the following paragraphs is required for all 40 CFR 60 Subpart OOOOa reports.
 1. The company name, facility site name associated with the affected facility, US Well ID or US Well ID associated with the affected facility, if applicable, and address of the affected facility. If an address is not available for the site, include a description of the site location and provide the latitude and longitude coordinates of the site in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983.
 2. An identification of each affected facility being included in the annual report.
 3. Beginning and ending dates of the reporting period.
 4. A certification by a certifying official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- b. For each reciprocating compressor affected facility, the information specified in the following paragraphs:
 1. The cumulative number of hours of operation or the number of months since initial startup or since the previous reciprocating compressor rod packing replacement, whichever is latest. Alternatively, a statement that emissions from the rod packing are being routed to a process through a closed vent system under negative pressure.
 2. If applicable, for each deviation that occurred during the reporting period and recorded as specified in paragraph 40 CFR §60.5420a(c)(3)(iii), the date and time the deviation began, duration of the deviation and a description of the deviation.
 3. If required to comply with 40 CFR §60.5385a(a)(3), the information in the following paragraphs:
 - A. Dates of each inspection required under 40 CFR §60.5416a(a) and (b);
 - B. Each defect or leak identified during each inspection, and date of repair or date of anticipated repair if repair is delayed; and
 - C. Date and time of each bypass alarm or each instance the key is checked out if you are subject to the bypass requirements of 40 CFR §60.5416a(a)(4).

[45CSR13, R13-3394, §11.4.2.; 45CSR16; 40 CFR §§60.5420a(b)(1) and (b)(4)]

10.6. Compliance Plan

10.6.1. Reserved.

11.0 40 CFR 60 Subpart OOOOa Requirements – Fugitive Emission Components

11.1. Limitations and Standards

11.1.1. For each affected facility under 40 CFR §60.5365a(j), you must reduce VOC emissions by complying with the following requirements. The requirements in this condition are independent of the closed vent system and cover requirements in 40 CFR §60.5411a.

a. You must comply with the following:

You must monitor all fugitive emission components, as defined in 40 CFR §60.5430a, in accordance with paragraphs b. through g. of this condition. You must repair all sources of fugitive emissions in accordance with paragraph h. of this condition. You must keep records in accordance with paragraph i. of this condition and report in accordance with paragraph j. of this condition. For purposes of this condition, fugitive emissions are defined as any visible emission from a fugitive emissions component observed using optical gas imaging or an instrument reading of 500 parts per million (ppm) or greater using Method 21 of appendix A-7 to 40 CFR Part 60.

b. You must develop an emissions monitoring plan that covers the collection of fugitive emissions components at compressor stations within each company-defined area in accordance with paragraphs c. and d. of this condition.

c. Fugitive emissions monitoring plans must include the elements specified below, at a minimum:

1. Frequency for conducting surveys. Surveys must be conducted at least as frequently as required by paragraphs f. and g. of this condition.
2. Technique for determining fugitive emissions (*i.e.*, Method 21 of appendix A-7 to 40 CFR Part 60 or optical gas imaging meeting the requirements in paragraphs c.7.i. through vii. of this condition).
3. Manufacturer and model number of fugitive emissions detection equipment to be used.
4. Procedures and timeframes for identifying and repairing fugitive emissions components from which fugitive emissions are detected, including timeframes for fugitive emission components that are unsafe to repair. Your repair schedule must meet the requirements of paragraph h. of this condition at a minimum.
5. Procedures and timeframes for verifying fugitive emission component repairs.
6. Records that will be kept and the length of time records will be kept.
7. If you are using optical gas imaging, your plan must also include the elements specified in paragraphs c.7.i. through vii. of this condition.
 - i. Verification that your optical gas imaging equipment meets the specifications of paragraphs c.7.i.A. and B. of this condition. This verification is an initial verification, and may either be performed by the facility, by the manufacturer, or by a third party. For the purposes of complying with the fugitive emissions monitoring program with optical gas imaging, a fugitive emission is defined as any visible emissions observed using optical gas imaging.

- A. Your optical gas imaging equipment must be capable of imaging gases in the spectral range for the compound of highest concentration in the potential fugitive emissions.
- B. Your optical gas imaging equipment must be capable of imaging a gas that is half methane, half propane at a concentration of 10,000 ppm at a flow rate of ≤ 60 g/hr from a quarter inch diameter orifice.
- ii. Procedure for a daily verification check.
- iii. Procedure for determining the operator's maximum viewing distance from the equipment and how the operator will ensure that this distance is maintained.
- iv. Procedure for determining maximum wind speed during which monitoring can be performed and how the operator will ensure monitoring occurs only at wind speeds below this threshold.
- v. Procedures for conducting surveys, including the items specified in paragraphs c.7.v.A. through C. of this condition.
 - A. How the operator will ensure an adequate thermal background is present in order to view potential fugitive emissions.
 - B. How the operator will deal with adverse monitoring conditions, such as wind.
 - C. How the operator will deal with interferences (e.g., steam).
- vi. Training and experience needed prior to performing surveys.
- vii. Procedures for calibration and maintenance. At a minimum, procedures must comply with those recommended by the manufacturer.
- 8. If you are using Method 21 of appendix A-7 of 40 CFR Part 60, your plan must also include the elements specified in paragraphs c.8.i. through iii. of this condition. For the purposes of complying with the fugitive emissions monitoring program using Method 21 of appendix A-7 of 40 CFR Part 60 a fugitive emission is defined as an instrument reading of 500 ppm or greater.
 - i. *Verification that your monitoring equipment meets the requirements specified in Section 6.0 of Method 21 at 40 CFR part 60, appendix A-7.* For purposes of instrument capability, the fugitive emissions definition shall be 500 ppm or greater methane using a FID-based instrument. If you wish to use an analyzer other than a FID-based instrument, you must develop a site-specific fugitive emission definition that would be equivalent to 500 ppm methane using a FID-based instrument (e.g., 10.6 eV PID with a specified isobutylene concentration as the fugitive emission definition would provide equivalent response to your compound of interest).
 - ii. *Procedures for conducting surveys.* At a minimum, the procedures shall ensure that the surveys comply with the relevant sections of Method 21 at 40 CFR part 60, appendix A-7, including Section 8.3.1.

- iii. *Procedures for calibration.* The instrument must be calibrated before use each day of its use by the procedures specified in Method 21 of appendix A-7 of 40 CFR Part 60. At a minimum, you must also conduct precision tests at the interval specified in Method 21 of appendix A-7 of 40 CFR Part 60, Section 8.1.2, and a calibration drift assessment at the end of each monitoring day. The calibration drift assessment must be conducted as specified in paragraph c.8.iii.A. of this condition. Corrective action for drift assessments is specified in paragraphs c.8.iii.B. and C. of this condition.
 - A. Check the instrument using the same calibration gas that was used to calibrate the instrument before use. Follow the procedures specified in Method 21 of appendix A-7 of 40 CFR Part 70, Section 10.1, except do not adjust the meter readout to correspond to the calibration gas value. If multiple scales are used, record the instrument reading for each scale used. Divide the arithmetic difference of the initial and post-test calibration response by the corresponding calibration gas value for each scale and multiply by 100 to express the calibration drift as a percentage.
 - B. If a calibration drift assessment shows a negative drift of more than 10 percent, then all equipment with instrument readings between the fugitive emission definition multiplied by (100 minus the percent of negative drift/divided by 100) and the fugitive emission definition that was monitored since the last calibration must be re-monitored.
 - C. If any calibration drift assessment shows a positive drift of more than 10 percent from the initial calibration value, then, at the owner/operator's discretion, all equipment with instrument readings above the fugitive emission definition and below the fugitive emission definition multiplied by (100 plus the percent of positive drift/divided by 100) monitored since the last calibration may be re-monitored.
- d. Each fugitive emissions monitoring plan must include the elements specified in paragraphs d.1. through 3. of this condition, at a minimum, as applicable.
 1. If you are using optical gas imaging, your plan must include procedures to ensure that all fugitive emissions components are monitored during each survey. Example procedures include, but are not limited to, a sitemap with an observation path, a written narrative of where the fugitive emissions components are located and how they will be monitored, or an inventory of fugitive emissions components.
 2. If you are using Method 21 of appendix A-7 of 40 CFR Part 60, your plan must include a list of fugitive emissions components to be monitored and method for determining the location of fugitive emissions components to be monitored in the field (*e.g.*, tagging, identification on a process and instrumentation diagram, etc.).
 3. Your fugitive emissions monitoring plan must include the written plan developed for all of the fugitive emissions components designated as difficult-to-monitor in accordance with paragraph g.3. of this condition, and the written plan for fugitive emissions components designated as unsafe-to-monitor in accordance with paragraph g.4. of this condition.
- e. Each monitoring survey shall observe each fugitive emissions component, as defined in 40 CFR §60.5430a, for fugitive emissions.

- f. You must conduct an initial monitoring survey within 90 days of the startup of a new compressor station for each collection of fugitive emissions components at the new compressor station. For a modified collection of fugitive emissions components at a compressor station, the initial monitoring survey must be conducted within 90 days of the modification.
- g. A monitoring survey of each collection of fugitive emissions components at a compressor station must be performed at the frequencies specified in paragraph g.1. of this condition, with the exceptions noted in paragraphs g.2. and 3. of this condition.
 1. Except as provided in this paragraph g.1., a monitoring survey of the collection of fugitive emissions components at a compressor station must be conducted at least semiannually after the initial survey. Consecutive semiannual monitoring surveys must be conducted at least 4 months apart and no more than 7 months apart.
 2. Fugitive emissions components that cannot be monitored without elevating the monitoring personnel more than 2 meters above the surface may be designated as difficult-to-monitor. Fugitive emissions components that are designated difficult-to-monitor must meet the specifications of paragraphs g.2.i. through iv. of this condition.
 - i. A written plan must be developed for all of the fugitive emissions components designated difficult-to-monitor. This written plan must be incorporated into the fugitive emissions monitoring plan required by paragraphs b., c., and d. of this condition.
 - ii. The plan must include the identification and location of each fugitive emissions component designated as difficult-to-monitor.
 - iii. The plan must include an explanation of why each fugitive emissions component designated as difficult-to-monitor is difficult-to-monitor.
 - iv. The plan must include a schedule for monitoring the difficult-to-monitor fugitive emissions components at least once per calendar year.
 3. Fugitive emissions components that cannot be monitored because monitoring personnel would be exposed to immediate danger while conducting a monitoring survey may be designated as unsafe-to-monitor. Fugitive emissions components that are designated unsafe-to-monitor must meet the specifications of paragraphs g.3.i. through iv. of this condition.
 - i. A written plan must be developed for all of the fugitive emissions components designated unsafe-to-monitor. This written plan must be incorporated into the fugitive emissions monitoring plan required by paragraphs b., c., and d. of this condition.
 - ii. The plan must include the identification and location of each fugitive emissions component designated as unsafe-to-monitor.
 - iii. The plan must include an explanation of why each fugitive emissions component designated as unsafe-to-monitor is unsafe-to-monitor.
 - iv. The plan must include a schedule for monitoring the fugitive emissions components designated as unsafe-to-monitor.

- h. Each identified source of fugitive emissions shall be repaired, as defined in 40 CFR §60.5430a, in accordance with paragraphs h.1. and 2. of this condition.
 1. A first attempt at repair shall be made no later than 30 calendar days after detection of the fugitive emissions.
 2. Repair shall be completed as soon as practicable, but no later than 30 calendar days after the first attempt at repair as required in paragraph h.1. of this condition.
 3. If the repair is technically infeasible, would require a vent blowdown, a compressor station shutdown, a well shutdown or well shut-in, or would be unsafe to repair during operation of the unit, the repair must be completed during the next scheduled compressor station shutdown for maintenance, scheduled well shutdown, scheduled well shut-in, after a scheduled vent blowdown, or within 2 years, whichever is earliest. For purposes of this paragraph h.3., a vent blowdown is the opening of one or more blowdown valves to depressurize major production and processing equipment, other than a storage vessel.
 4. Each identified source of fugitive emissions must be resurveyed to complete repair according to the requirements in paragraphs h.4.i. through iv. of this condition, to ensure that there are no fugitive emissions.
 - i. The operator may resurvey the fugitive emissions components to verify repair using either Method 21 of appendix A-7 of 40 CFR Part 60 or optical gas imaging.
 - ii. For each repair that cannot be made during the monitoring survey when the fugitive emissions are initially found, a digital photograph must be taken of that component or the component must be tagged during the monitoring survey when the fugitives were initially found for identification purposes and subsequent repair. The digital photograph must include the date that the photograph was taken and must clearly identify the component by location within the site (*e.g.*, the latitude and longitude of the component or by other descriptive landmarks visible in the picture).
 - iii. Operators that use Method 21 of appendix A-7 of 40 CFR Part 60 to resurvey the repaired fugitive emissions components are subject to the resurvey provisions specified in paragraphs h.4.iii.A. and B. of this condition.
 - A. A fugitive emissions component is repaired when the Method 21 instrument indicates a concentration of less than 500 ppm above background or when no soap bubbles are observed when the alternative screening procedures specified in section 8.3.3 of Method 21 of appendix A-7 of 40 CFR Part 60 are used.
 - B. Operators must use the Method 21 monitoring requirements specified in paragraph c.8.ii. of this condition or the alternative screening procedures specified in section 8.3.3 of Method 21 of appendix A-7 of 40 CFR Part 60 .
 - iv. Operators that use optical gas imaging to resurvey the repaired fugitive emissions components, are subject to the resurvey provisions specified in paragraphs h.4.iv.A. and B. of this condition.

- A. A fugitive emissions component is repaired when the optical gas imaging instrument shows no indication of visible emissions.
 - B. Operators must use the optical gas imaging monitoring requirements specified in paragraph c.7. of this condition.
- i. Records for each monitoring survey shall be maintained as specified 40 CFR §60.5420a(c)(15).
 - j. Annual reports shall be submitted for each collection of fugitive emissions components at a compressor station that include the information specified in §60.5420a(b)(7). Multiple collection of fugitive emissions components at a compressor station may be included in a single annual report.

[45CSR13, R13-3394, §12.1.1.; 45CSR16; 40 CFR §§60.5397a, (a)(1), (b) – (e), (f)(2), (g), (g)(2) - (g)(4), (h) - (j)]

11.2. Monitoring Requirements

- 11.2.1. You must determine initial compliance with the standards for each affected facility using the following requirements. Except as otherwise provided in 40 CFR §60.5410a, the initial compliance period begins upon initial startup, and ends no later than 1 year after the initial startup date for your affected facility. The initial compliance period may be less than 1 full year.

[45CSR13, R13-3394, §12.2.1.; 45CSR16; 40 CFR §60.5410a]

- a. To achieve initial compliance with the fugitive emission standards for each collection of fugitive emissions components at a compressor station you must comply with paragraphs (j)(1) through (5) of 40 CFR §60.5410a.
 - 1. You must develop a fugitive emissions monitoring plan as required in 40 CFR §60.5397a(b), (c), and (d).
 - 2. You must conduct an initial monitoring survey as required in 40 CFR §60.5397a(f).
 - 3. You must maintain the records specified in 40 CFR §60.5420a(c)(15).
 - 4. You must repair each identified source of fugitive emissions for each affected facility as required in 40 CFR §60.5397a(h).
 - 5. You must submit the initial annual report for each collection of fugitive emissions components at a compressor station as required in 40 CFR §60.5420a(b)(1) and (7).

[45CSR13, R13-3394, §12.2.2.; 45CSR16; 40 CFR §60.5410a(j)]

- 11.2.2. For each collection of fugitive emissions components at a compressor station, you must demonstrate continuous compliance with the fugitive emission standards specified in 40 CFR §60.5397a(a)(1) according to paragraphs (h)(1) through (4) of 40 CFR §60.5415a.

- 1. You must conduct periodic monitoring surveys as required in 40 CFR §60.5397a(g).

2. You must repair each identified source of fugitive emissions as required in 40 CFR §60.5397a(h).
3. You must maintain records as specified in 40 CFR §60.5420a(c)(15).
4. You must submit annual reports for each collection of fugitive emissions components at a compressor station as required in 40 CFR §60.5420a(b)(1) and (7).

[45CSR13, R13-3394, §12.2.3.; 45CSR16; 40 CFR §60.5415a(h)]

11.3. Testing Requirements

- 11.3.1. Reserved.

11.4. Recordkeeping Requirements

- 11.4.1. You must maintain the records identified as specified in 40 CFR §60.7(f) and in paragraphs (c)(1) through (18) of 40 CFR §60.5420a. All records required by this 40 CFR 60 Subpart OOOOa must be maintained either onsite or at the nearest local field office for at least 5 years. Any records required to be maintained by Subpart OOOOa that are submitted electronically via the EPA's CDX may be maintained in electronic format.
 - a. For each collection of fugitive emissions components at a compressor station, maintain the records identified below.
 1. The date of startup or the date of modification for each collection of fugitive emissions components at a compressor station.
 2. The fugitive emissions monitoring plan as required in 40 CFR §§60.5397a(b), (c), and (d).
 3. The records of each monitoring survey as specified in paragraphs a.3.i. through ix. of this condition.
 - i. Date of the survey.
 - ii. Beginning and end time of the survey.
 - iii. Name of operator(s), training, and experience of the operator(s) performing the survey.
 - iv. Monitoring instrument used.
 - v. Fugitive emissions component identification when Method 21 of appendix A-7 of this part is used to perform the monitoring survey.
 - vi. Ambient temperature, sky conditions, and maximum wind speed at the time of the survey. For compressor stations, operating mode of each compressor (*i.e.*, operating, standby pressurized, and not operating-depressurized modes) at the station at the time of the survey.
 - vii. Any deviations from the monitoring plan or a statement that there were no deviations from the monitoring plan.

- viii. Records of calibrations for the instrument used during the monitoring survey.
- ix. Documentation of each fugitive emission detected during the monitoring survey, including the information specified in paragraphs a.3.ix.A. through H. of this condition.
 - A. Location of each fugitive emission identified.
 - B. Type of fugitive emissions component, including designation as difficult-to-monitor or unsafe-to-monitor, if applicable.
 - C. If Method 21 of appendix A-7 of this part is used for detection, record the component ID and instrument reading.
 - D. For each repair that cannot be made during the monitoring survey when the fugitive emissions are initially found, a digital photograph or video must be taken of that component or the component must be tagged for identification purposes. The digital photograph must include the date that the photograph was taken and must clearly identify the component by location within the site (*e.g.*, the latitude and longitude of the component or by other descriptive landmarks visible in the picture). The digital photograph or identification (*e.g.*, tag) may be removed after the repair is completed, including verification of repair with the resurvey.
 - E. The date of first attempt at repair of the fugitive emissions component(s).
 - F. The date of successful repair of the fugitive emissions component, including the resurvey to verify repair and instrument used for the resurvey.
 - G. Identification of each fugitive emission component placed on delay of repair and explanation for each delay of repair.
 - H. Date of planned shutdowns that occur while there are any components that have been placed on delay of repair.
- 4. For each collection of fugitive emissions components at a compressor station complying with an alternative means of emissions limitation under 40 CFR §60.5399a, you must maintain the records specified by the specific alternative fugitive emissions standard for a period of at least 5 years.

[45CSR13, R13-3394, §12.4.3.; 45CSR16; 40 CFR §§60.5420a(c)(15)(i), (vi), (vii), and (viii)]

- 11.4.2. To demonstrate compliance with permit condition 11.1.1.d, the permittee shall maintain the reporting as reporting as required by 40 CFR §60.5420a(b)(1) and (4) and the recordkeeping as required by 40 CFR §60.5420a(c)(3), (6) through (9), and (17), as applicable
[45CSR13, R13-3394, §12.4.4.]

11.5. Reporting Requirements

- 11.5.1. You must submit the notifications according to paragraphs (a)(1) and (2) of 40 CFR §60.5420a if you own or operate one or more of the affected facilities specified in 40 CFR §60.5365a that was constructed, modified or reconstructed during the reporting period.

If you own or operate an affected facility that is the group of all equipment within a process unit at an onshore natural gas processing plant, or a sweetening unit, you must submit the notifications required in 40 CFR §§60.7(a)(1), (3), and (4) and 60.15(d). If you own or operate a well, centrifugal compressor, reciprocating compressor, pneumatic controller, pneumatic pump, storage vessel, collection of fugitive emissions components at a well site, or collection of fugitive emissions components at a compressor station, you are not required to submit the notifications required in 40 CFR §§60.7(a)(1), (3), and (4) and 60.15(d).

[45CSR13, R13-3394, §12.4.1.; 45CSR16; 40 CFR §§60.5420a(a) and (a)(1)]

- 11.5.2. You must submit annual reports containing the information specified in paragraphs (b)(1) and (7) of 40 CFR §60.5420a and performance test reports as specified in paragraph (b)(9) of 40 CFR §60.5420a, if applicable. You must submit annual reports following the procedure specified in paragraph (b)(11) of 40 CFR §60.5420a. The initial annual report is due no later than 90 days after the end of the initial compliance period as determined according to 40 CFR §60.5410a. Subsequent annual reports are due no later than same date each year as the initial annual report. If you own or operate more than one affected facility, you may submit one report for multiple affected facilities provided the report contains all of the information required as specified in paragraphs (b)(1) and (7) of 40 CFR §60.5420a. Annual reports may coincide with Title V reports as long as all the required elements of the annual report are included. You may arrange with the Administrator a common schedule on which reports required by 40 CFR Part 70 may be submitted as long as the schedule does not extend the reporting period.

- a. The general information specified in the following paragraphs is required for all 40 CFR 60 Subpart OOOOa reports.
1. The company name, facility site name associated with the affected facility, US Well ID or US Well ID associated with the affected facility, if applicable, and address of the affected facility. If an address is not available for the site, include a description of the site location and provide the latitude and longitude coordinates of the site in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983.
 2. An identification of each affected facility being included in the annual report.
 3. Beginning and ending dates of the reporting period.
 4. A certification by a certifying official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- b. For the collection of fugitive emissions components at each compressor station, report the information specified in paragraphs b.1. through 3. of this condition.
1. Designation of the type of site (*i.e.*, well site or compressor station) at which the collection of fugitive emissions components is located. For each collection of fugitive emissions components at a compressor station that became an affected facility during the reporting period, you must include the date of startup or the date of modification.

2. For each fugitive emissions monitoring survey performed during the annual reporting period, the information specified below.
 - i. Date of the survey.
 - ii. Monitoring instrument used.
 - iii. Any deviations from the monitoring plan elements under 40 CFR §60.5397a(c)(1), (2), and (7) and (c)(8)(i) or a statement that there were no deviations from these elements of the monitoring plan.
 - iv. Number and type of components for which fugitive emissions were detected.
 - v. Number and type of fugitive emissions components that were not repaired as required in 40 CFR §60.5397a(h).
 - vi. Number and type of fugitive emission components (including designation as difficult-to-monitor or unsafe-to-monitor, if applicable) on delay of repair and explanation for each delay of repair.
 - vii. Date of planned shutdown(s) that occurred during the reporting period if there are any components that have been placed on delay of repair.
3. For each collection of fugitive emissions components at a compressor station complying with an alternative fugitive emissions standard under 40 CFR §60.5399a, in lieu of the information specified in paragraphs b.1. and 2. of this condition, you must provide the information specified in paragraphs b.3.i. through iii. below:
 - i. The alternative standard with which you are complying.
 - ii. The site-specific reports specified by the specific alternative fugitive emissions standard, submitted in the format in which they were submitted to the state, local, or tribal authority. If the report is in hard copy, you must scan the document and submit it as an electronic attachment to the annual report required in 40 CFR §60.5420a(b).
 - iii. If the report specified by the specific alternative fugitive emissions standard is not site-specific, you must submit the information specified in paragraphs b.1. and 2. of this condition for each individual site complying with the alternative standard.

[45CSR13, R13-3394, §12.4.2.; 45CSR16; 40 CFR §§60.5420a(b), (b)(1), and (b)(7)]

11.6. Compliance Plan

- 11.6.1. Reserved.

12.0 40 CFR 63 Subpart ZZZZ Requirements [emission point ID(s): 1E -12E, 33E – 38E, 32E, 40E]

12.1. Limitations and Standards

12.1.1. Compressor engines C-100 through C-1800 and generator engines GEN2 and GEN 3 must meet the requirements of 40 CFR Part 63 by meeting the requirements of 40 CFR Part 60 Subpart JJJJ for Spark ignition engines. No further requirements apply for such engines under 40 CFR Part 63.
[45CSR13, R13-3394, §13.1.2.; 45CSR34; 40 CFR §§63.6590(c) and (c)(1)]

12.2. Monitoring Requirements

12.2.1. Reserved.

12.3. Testing Requirements

12.3.1. Reserved.

12.4. Recordkeeping Requirements

12.4.1. Reserved.

12.5. Reporting Requirements

12.5.1. Reserved.

12.6. Compliance Plan

12.6.1. Reserved.

13.0 Blowdowns, Compressor Startups and Pigging Operations

13.1. Limitations and Standards

- 13.1.1. The maximum number of blowdown events per year shall not exceed 1,404, with an estimated 3,195,504 scf per year. Compliance shall be determined using a twelve-month rolling total. A twelve-month rolling total shall mean the sum of the blowdown events at any given time during the previous twelve consecutive calendar months.
[45CSR13, R13-3394, §14.1.1.]
- 13.1.2. The maximum number of compressor startup events per year shall not exceed 1,404, with an estimated 1,474,200 scf per year. Compliance shall be determined using a twelve-month rolling total. A twelve-month rolling total shall mean the sum of the blowdown events at any given time during the previous twelve consecutive calendar months.
[45CSR13, R13-3394, §14.1.2.]
- 13.1.3. The maximum number of low-pressure pigging events per year shall not exceed 593, with an estimated 269,222 scf per year. Compliance shall be determined using a twelve-month rolling total. A twelve-month rolling total shall mean the sum of the low-pressure pigging events at any given time during the previous twelve consecutive calendar months.
[45CSR13, R13-3394, §14.1.3.]
- 13.1.4. The maximum number of high-pressure pigging events per year shall not exceed 780, with an estimated 2,506,140 scf per year. Compliance shall be determined using a twelve-month rolling total. A twelve-month rolling total shall mean the sum of the high-pressure pigging events at any given time during the previous twelve consecutive calendar months.
[45CSR13, R13-3394, §14.1.4.]

13.2. Monitoring Requirements

- 13.2.1. Reserved.

13.3. Testing Requirements

- 13.3.1. Reserved.

13.4. Recordkeeping Requirements

- 13.4.1. All records required under section 13.4 of this permit shall be kept in accordance with permit condition 3.4.2.
[45CSR13, R13-3394, §14.2.1.]
- 13.4.2. To demonstrate compliance with permit conditions 13.1.1 – 13.1.4, the permittee shall maintain a record of the blowdown, startup, and pigging events and estimated volume per event (scf) on a monthly and rolling twelve-month total.
[45CSR13, R13-3394, §14.2.2.]

13.5. Reporting Requirements

- 13.5.1. Any exceedance of permit conditions 13.1.1 – 13.1.4 must be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the date of the exceedance, the estimate of VOC emissions released to the atmosphere as a result of the exceedance and any corrective measures taken or planned.
[45CSR13, R13-3394, §14.3.1.]

13.6. Compliance Plan

- 13.6.1. Reserved.

Fact Sheet



For Draft/Proposed Permitting Action Under 45CSR30 and Title V of the Clean Air Act

Permit Number: **R30-09500087-2021**
Application Received: **May 4, 2021**
Plant Identification Number: **03-54-095-00087**
Permittee: **Antero Midstream LLC**
Facility Name: **Middlebourne V Compressor Station**
Mailing Address: **1615 Wynkoop Street, Denver, CO 80202**

Physical Location: Middlebourne, Tyler County, West Virginia
UTM Coordinates: 513.603 km Easting • 4374.245 km Northing • Zone 17
Directions: From Middlebourne, WV, drive northeast on WV-18N/ Main St. toward Court St. / Dodd St. Drive 3.8 miles and turn right toward Elk Fork. Continue onto Elk Fork for 0.4 miles. Turn right on Elk Fork Rd and drive for 3.2 miles. The facility entrance will be on the right.

Facility Description

The Middlebourne V Compressor Station is an existing natural gas compressor station covered by Standard Industrial Classification (SIC) 4922. The station has the potential to operate seven (7) days per week, twenty-four (24) hours per day, fifty-two (52) weeks per year. The station separates, compresses, and dries gas off the inlet pipeline stream. The station includes eighteen (18) compressor engines with oxidation catalysts, two (2) natural gas generators, two (2) 260 MMscfd dehydrators with two (2) reboilers, one (1) 130 MMscfd dehydrator with one (1) reboiler, five (5) 400-bbl condensate tanks, five (5) 400-bbl produced water tanks, one (1) 500-bbl settling tank, one (1) 0.5 MMBtu/hr fuel conditioning heater, one (1) 0.75 MMBtu/hr fuel conditioning heater, three (3) thermal oxidizers, three (3) vapor recovery units (VRU), liquid loadout operations, fugitive component emissions, and auxiliary tanks.

Emissions Summary

Plantwide Emissions Summary [Tons per Year]		
Regulated Pollutants	Potential Emissions	2020 Actual Emissions
Carbon Monoxide (CO)	101.64	15.77 6
Nitrogen Oxides (NO _x)	233.40	69.59
Particulate Matter (PM _{2.5})	14.69	4.42 27
Particulate Matter (PM ₁₀)	14.69	4.60 45
Total Particulate Matter (TSP)	16.51	4.60 45
Sulfur Dioxide (SO ₂)	0.84	0.26
Volatile Organic Compounds (VOC)	234.25	91.54 3

PM₁₀ is a component of TSP.

Hazardous Air Pollutants	Potential Emissions	2020 Actual Emissions
Benzene	0.70	0.15
Toluene	1.77	0.16
Ethylbenzene	0.17	0.02
Xylenes	0.61	0.08
n-Hexane	4.12	0.45
Acetaldehyde	1.47	0.38
Acrolein	3.79	1.68
Methanol	1.85	0.82
Formaldehyde	9.05	3.80 78
Other HAPs	1.19	0.41
Total HAPs	24.72	7.95

Some of the above HAPs may be counted as PM or VOCs.

Title V Program Applicability Basis

This facility has the potential to emit 101.64 tons per year CO, 233.40 tons per year NO_x, 234.25 tons per year VOC. Due to this facility's potential to emit over 100 tons per year of criteria pollutant, Antero Midstream LLC is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Legal and Factual Basis for Permit Conditions

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the State of West Virginia Operating Permit Rule 45CSR30 for the purposes of Title V of the Federal Clean Air Act and the underlying applicable requirements in other state and federal rules.

This facility has been found to be subject to the following applicable rules:

Federal and State:

45CSR2	To Prevent And Control Particulate Air Pollution From Combustion Of Fuel In Indirect Heat Exchangers
45CSR6	Control Of Air Pollution From Combustion Of Refuse.
45CSR11	Standby Plans For Emergency Episodes.
45CSR13	Permits For Construction, Modification, Relocation And Operation Of Stationary Sources Of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, And Procedures For Evaluation
45CSR16	Standards Of Performance For New Stationary Sources
WV Code § 22-5-4 (a) (14)	The Secretary can request any pertinent information such as annual emission inventory reporting.
45CSR30	Operating permit requirement.
45CSR34	Emission Standards for Hazardous Air Pollutants
40 C.F.R. Part 60, Subpart JJJJ	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
40 C.F.R. Part 60, Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015
40 C.F.R. Part 61	Asbestos inspection and removal
40 C.F.R. Part 63, Subpart HH	National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities
40 C.F.R. Part 63, Subpart ZZZZ	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
40 C.F.R. Part 82, Subpart F	Ozone depleting substances

State Only:

45CSR4	No objectionable odors.
45CSR17	To Prevent And Control Particulate Matter Air Pollution From Materials Handling, Preparation, Storage And Other Sources Of Fugitive Particulate Matter

Each State and Federally-enforceable condition of the Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the Title V permit as such.

The Secretary's authority to require standards under 40 C.F.R. Part 60 (NSPS), 40 C.F.R. Part 61 (NESHAPs), and 40 C.F.R. Part 63 (NESHAPs MACT) is provided in West Virginia Code §§ 22-5-1 *et seq.*, 45CSR16, 45CSR34 and 45CSR30.

Active Permits/Consent Orders

Permit or Consent Order Number	Date of Issuance	Permit Determinations or Amendments That Affect the Permit (if any)
R13-3394H	August 20, 2021	

Conditions from this facility's Rule 13 permit(s) governing construction-related specifications and timing requirements will not be included in the Title V Operating Permit but will remain independently enforceable under the applicable Rule 13 permit(s). All other conditions from this facility's Rule 13 permit(s) governing the source's operation and compliance have been incorporated into this Title V permit in accordance with the "General Requirement Comparison Table," which may be downloaded from DAQ's website.

Determinations and Justifications

This is an initial Title V permit for Antero Midstream LLC's Middlebourne V Compressor Station. The following are the state rule and federal regulation determinations and justifications:

1. **45CSR2 - To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers**

45CSR2 applies to fuel burning units, defined as equipment burning fuel "for the primary purpose of producing heat or power by indirect heat transfer". The reboilers (DREB1, DREB2, DREB3) and fuel conditioning heaters (FUEL1, FUEL2) are fuel burning units each with a design heat input under 10 million BTU/hr. Section 11.1 of the rule states that any fuel burning unit(s) having a heat input under ten (10) million B.T.U's per hour will be exempt from sections 4, 5, 6, 8 and 9. The reboilers, and heater treaters are subject to the 10 percent opacity limits required by section 3.1 of this rule. Compliance with the visible emission requirements shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9 at the request of the Director.

2. **45CSR6 - Control Air Pollution from Combustion of Refuse**

This rule establishes emission standards for particulate matter and requirements for activities involving incineration of refuse.

The facility has three (3) thermal oxidizers (TO-1, TO-2, and TO-3) that are subject to the emission standards for particulate matter and opacity requirements set forth in section 4 of this rule. The opacity from these units shall not exceed 20 percent, except as provided by section 4.4. The allowable hourly particulate matter emissions are calculated using the following formula (Section 4.1):

$$\text{Emissions (lb/hr)} = F \times \text{Incinerator Capacity (tons/hr)}$$

Where, the factor, F, is as indicated in Table I below:

Table I: Factor, F, for Determining Maximum Allowable Particulate Emissions.

Incinerator Capacity	Factor F
A. Less than 15,000 lbs/hr	5.43
B. 15,000 lbs/hr or greater	2.72

The allowable Particulate Emissions from TO-1, TO-2 and TO-3 are as follows:

The allowable Particulate Emissions from TO-1, TO-2 and TO-3 are as follows:

Emission Unit ID	Maximum Fuel Capacity (Waste Gas & Natural Gas) (scf/hr)*	Feed to Incinerator (ton/hr)	Allowable Hourly PM Emissions (lb/hr)
TO-1	20,830	0.58	3.15
TO-2	20,830	0.58	3.15
TO-3	20,830	0.58	3.15

*Note: Waste Gas & Natural Gas Density is based on 0.056 lb/ft³

Although the allowable Rule 6 hourly PM emission limits are 3.15 lb/hr for each thermal oxidizer, the actual hourly particulate matter emissions are negligible (0.005 lb/hr). Therefore, these units should demonstrate compliance with 45CSR§6-4.1 (hourly particulate matter limit) and 45CSR§6-4.3 (twenty-percent opacity requirement) by operating the thermal oxidizers with a flame present at all times (condition 5.1.3.b) and with no visible emissions (condition 5.1.3.f). The facility will demonstrate compliance with, conditions 5.1.3.b and 5.1.3.f by continuously monitoring the pilot flame of the thermal oxidizers and recording the times during all periods which the pilot flame was absent (conditions 5.2.1 and 5.4.1); and by conducting opacity tests to demonstrate that there are no visible emissions.

3. **45CSR13 - Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation**

Permit R13-3394H was issued on August 20, 2021. The applicable requirements of Permit R13-3394H have been incorporated into the Title V permit. 40 CFR 60 Subpart JJJJ and 40 CFR 63 Subpart OOOOa have been revised. Therefore, where applicable, the requirements of permit R13-3394H from these subparts have been revised to the updated/new requirements of these subparts.

4. **45CSR16 - Standards of Performance for New Stationary Sources**

This rule establishes and adopts standards of performance for new stationary sources promulgated by the U.S. EPA pursuant to section 111(b) of the federal Clean Air Act, as amended.

The facility is subject to 40 CFR 60 Subpart JJJJ and Subpart OOOOa. See discussions for these rules below.

5. **45CSR34 - Emission Standards for Hazardous Air Pollutants**

This rule establishes and adopts a program of national emission standards for hazardous air pollutants and other regulatory requirements promulgated by the U.S. EPA pursuant to 40 CFR Part 61, 63 and section 112 of the federal Clean Air Act, as amended.

The facility is subject to 40 CFR 63 Subpart ZZZZ and Subpart HH. See discussions for these rules below.

6. **40CFR60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines**

The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (6) of 40 CFR §60.4230. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

~~Engines C-100 – C-1100~~ No less than Eleven of the compressor engines are Caterpillar G3608 compressor engines that are 4-stroke, lean burn, spark ignition RICE, manufactured after July 1, 2007. They are non-emergency engines rated at 2,500 HP each and are fueled by natural gas. All of the engines are equipped with oxidation catalysts. The engines must meet the emissions limits of 40 CFR §60.4233(e) and Table 1: NO_x – 1.0 g/hp-hr (5.51 lb/hr); CO – 2.0 g/hp-hr (11.02 lb/hr); and VOC – 0.7 g/hp-hr (3.86 lb/hr). Based on the manufacturer's specifications for these engines, the emission standards will be met.

~~Engines C-1200 – C-1800~~ No more than Seven of the compressor engines are Caterpillar G3608 compressor engines that are 4-stroke, lean burn, spark ignition RICE, manufactured after July 1, 2007. They are non-emergency engines rated at 2,675 HP each and are fueled by natural gas. All of the engines are equipped with oxidation catalysts. The engines must meet the emissions limits of 40 CFR §60.4233(e) and Table 1: NO_x – 1.0 g/hp-hr (5.90 lb/hr); CO – 2.0 g/hp-hr (11.79 lb/hr); and VOC – 0.7 g/hp-hr (4.13 lb/hr). Based on the manufacturer's specifications for these engines, the emission standards will be met.

Engines GEN2 and GEN3 are PSI Industrial 21.9L generator engines that are 4-stroke, rich burn, spark ignition RICE, manufactured after July 1, 2007. They are non-emergency engines rated at 649 HP each and are fueled by natural gas. These engines are subject to the following emission limits: NO_x – 1.0 g/hp-hr (1.43 lb/hr); CO – 2.0 g/hp-hr (2.86 lb/hr); and VOC – 0.7 g/hp-hr (1.00 lb/hr). Based on the manufacturer's specifications for these engines, the emission standards will be met. Antero provided the EPA Certification of Conformity for these engines. Therefore, as long as these engines are operated in a certified manner, performance testing is not required. Since the hourly and annual emission limits in condition 4.1.2 are the hourly limits from 40 CFR 60 Subpart JJJJ for 1,000 hours/year of operation, compliance with condition 4.1.2 will be demonstrated through compliance with 40 CFR 60 Subpart JJJJ and the maximum yearly hours of operation limit in condition 4.1.5.

Antero will demonstrate compliance with this subpart for the non-certified engines (C-100 – C-1800) in accordance with §60.4243(b)(2)(ii), which requires the facility to keep a maintenance plan and records of conducted maintenance and to maintain and operate the engines in a manner consistent with good air pollution control practices for minimizing emissions. Additionally, Antero has conducted the initial performance tests and is required to conduct subsequent compliance testing every 8,760 hours or three years, whichever comes first to demonstrate compliance with the emissions standards. Testing will be conducted in accordance with §60.4244.

Records of all notifications submitted to comply with this subpart, maintenance conducted on the engines, and performance testing will be maintained in accordance with §60.4245(a). Initial notifications have been submitted. Performance testing results will be reported as required in §60.4245(d).

Permit R13-3394H included several conditions from 40 CFR 60 Subpart JJJJ that were not applicable to the engines at the facility. For example, it included the 40 CFR 60 Subpart JJJJ requirements for engines less than 500 hp when all engines at the facility are greater than 500 hp. The Title V permit only includes 40 CFR 60 Subpart JJJJ requirements that are applicable to engines at the facility.

7. **40CFR60 Subpart OOOOa - Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015**

40 CFR 60 Subpart OOOOa establishes emission standards and compliance schedules for the control of the pollutant greenhouse gases (GHG). The greenhouse gas standard in this subpart is in the form of a limitation on emissions of methane from affected facilities in the crude oil and natural gas source category that commence construction, modification, or reconstruction after September 18, 2015. This subpart also establishes emission standards and compliance schedules for the control of volatile

organic compounds (VOC) and sulfur dioxide (SO₂) emissions from affected facilities in the crude oil and natural gas source category that commence construction, modification or reconstruction after September 18, 2015:

- a. Each gas well affected facility, which is a single natural gas well.

There are no gas wells at this facility. Therefore, all requirements regarding gas well affected facilities under 40 CFR 60 Subpart OOOOa do not apply.

- b. Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals.

There are no centrifugal compressors at the Middlebourne V Compressor Station. Therefore, all requirements regarding centrifugal compressors under 40 CFR 60 Subpart OOOOa do not apply.

- c. Each reciprocating compressor affected facility, which is a single reciprocating compressor.

There are reciprocating compressors located at the Middlebourne V Compressor Station that were constructed after September 18, 2015. Therefore, the requirements regarding reciprocating compressors under 40 CFR 60 Subpart OOOOa do apply. There are no cover and closed vent systems for the reciprocating compressors. The facility will be required to perform the following:

- Replace the reciprocating compressor rod packing at least every 26,000 hours of operation or 36 months.
- Demonstrate initial compliance by continuously monitoring the number of hours of operation or track the number of months since the last rod packing replacement.
- Submit the appropriate start up notifications.
- Submit the initial annual report for the reciprocating compressors.
- Maintain records of hours of operation since last rod packing replacement, records of the date and time of each rod packing replacement, and records of deviations in cases where the reciprocating compressor was not operated in compliance.

- d. Each Pneumatic Controller

▪ *The Middlebourne V Compressor Station does not have any gas driven pneumatic controllers. All pneumatic controllers are electric or compressed air driven. Therefore, all requirements regarding pneumatic controllers under 40 CFR 60 Subpart OOOOa do not apply.*

- e. Each storage vessel affected facility, which is a single storage vessel with the potential for VOC emissions equal to or greater than 6 tpy.

The potential for VOC emissions must be calculated using a generally accepted model or calculation methodology, based on the maximum average daily throughput (as defined in 40 CFR §60.5430a) for a 30-day period of production prior to the applicable emission determination deadline specified in 40 CFR §60.5365a(e)(2). The determination may take into account requirements under a legally and practically enforceable limit in an operating permit or other requirement established under a federal or state authority. For each storage vessel affected facility that emits more than 6 tpy of VOC, the permittee must reduce VOC emissions by 95% or greater within 60 days of startup

The storage vessels located at the Middlebourne V Compressor Station are controlled by a VRU which reduces the potential to emit to less than 6 tpy of VOC. Permit R13-3394H provides legally and practically enforceable permit conditions that limit the VOC emissions. Therefore, Antero is not required by 40 CFR 60 Subpart OOOOa to further reduce VOC emissions. Antero is claiming a control efficiency of 98% for the VRU. In order to claim a control of 98%, Antero is required to meet additional design/function requirements. Antero will be required to perform three (3) of the following additional requirements:

- *Additional sensing equipment.*
 - *Properly designed bypass system*
 - *Appropriate gas blanket.*
 - *A compressor that is suitable and has the ability to vary the drive speed.*
- f. The group of all equipment within a process unit at an onshore natural gas processing plant is an affected facility.

The Middlebourne V Compressor Station is not a natural gas processing plant. Therefore, Leak Detection and Repair (LDAR) requirements for onshore natural gas processing plants do not apply.

- g. Sweetening units located at onshore natural gas processing plants that commenced construction, modification, or reconstruction after September 18, 2015, and on or before November 16, 2020, and sweetening units that commence construction, modification, or reconstruction after November 16, 2020.

The Middlebourne V Compressor Station is not a natural gas processing plant nor are there any sweetening units at the Middlebourne V Compressor Station. Therefore, all requirements regarding sweetening units under 40 CFR 60 Subpart OOOOa do not apply.

- h. Each pneumatic pump affected facility:

The pneumatic pump requirements apply only to natural gas processing facilities and well sites. The Middlebourne V Compressor Station is not a natural gas processing plant nor a well site, therefore, all requirements regarding pneumatic pumps under 40 CFR 60 Subpart OOOOa do not apply.

- i. The collection of fugitive emissions components at a compressor station, as defined in 40 CFR §60.5430a, is an affected facility.

The standard requires a source to establish a plan to monitor equipment leaks at compressor stations on a semiannually basis either using EPA Method 21 or an optical gas imaging camera. The standard requires detected leaks to be repaired within 30 days of detecting the leak. If the repair is technically infeasible, would require a vent blowdown or a compressor station shutdown, or would be unsafe to repair during operation of the unit, the repair or replacement must be completed during the next scheduled compressor station shutdown, after a planned vent blowdown or within 2 years, whichever is earlier.

The standard applies to any component that has the potential to emit fugitive emissions of methane or VOC at a compressor station, including but not limited to valves, connectors, pressure relief devices, open-ended lines, flanges, covers and closed vent systems not subject to 40 CFR

§60.5411 or §60.5411a, thief hatches or other openings on a controlled storage vessel not subject to 40 CFR §60.5395 or §60.5395a, compressors, instruments, and meters. Fugitive emissions are defined as any visible emission from a fugitive emissions component observed using optical gas imaging or an instrument reading of 500 parts per million (ppm) or greater using Method 21 of appendix A-7 to 40 CFR Part 60.

The requirements of 40 CFR 60 Subpart OOOOa for monitoring fugitive emission are applicable to the Middlebourne V Compressor Station.

8. **40CFR63 Subpart HH - National Emissions Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities**

This subpart applies to the owners and operators of the emission points, specified in paragraph (b) of 40 CFR §63.760 that are located at oil and natural gas production facilities that meet the specified criteria in paragraphs 40 CFR §§63.760(a)(1) and either (a)(2) or (a)(3) of §63.760. Per the definitions in §63.761, the Middlebourne V Compressor Station is considered a “production field facility” as it is before custody transfer (before a gas processing plant). Therefore, for major source determination for this subpart, only those HAP emissions from glycol dehydration and storage tanks shall be aggregated. Aggregating these HAPs results in the Middlebourne V Compressor Station being classified as an area source of HAP emissions under this subpart.

Because the facility is an area source of HAP emissions and the actual average emissions of benzene from each glycol dehydration unit process vent to the atmosphere is < 0.90 megagram per year (1.0 tpy), pursuant to 40 CFR §63.764(e)(1)(ii), the three (3) dehydration units (DEHY1, DEHY2 and DEHY3) are exempt from the requirements of this subpart except for the requirement to maintain records of the actual average benzene emissions per year as specified in 40 CFR §63.774(d)(1)(ii).

9. **40CFR63 Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines**

Subpart ZZZZ establishes emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations. Under the Subpart ZZZZ definition of major source for production field facilities, only HAP emissions from glycol dehydration units, storage vessel with the potential for flash emissions, combustion turbines and reciprocating internal combustion engines shall be aggregated for a major source determination. Aggregating these HAPs results in the Middlebourne V Compressor Station being classified as an area source of HAP emissions under this subpart

The eighteen CAT G3608 compressor engines (C-100 – C-1800) and two PSI Industrial 21.9L generator engines (GEN2 and GEN3) at the Middlebourne V Compressor Station are classified as new spark ignition engines located at an area source of HAP emissions. The engines must meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR part 60 Subpart JJJJ, for spark ignition engines. No further requirements apply for these engines under this subpart.

Non-Applicability Determinations

The following requirements have been determined not to be applicable to the subject facility due to the following:

- a. **45CSR10 - To Prevent and Control Air Pollution From The Emission Of Sulfur Oxides.** This rule potentially applies to fuel burning units, including glycol dehydration unit reboilers and fuel gas heaters. Pursuant to 45CSR§10-10.1, units rated less than 10 MMBtu/hr are exempt from section 3

- (SO₂ weight emission standards) and sections 6 through 8 (registration, permits, testing, monitoring, recordkeeping, reporting) of the rule. 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. The reboilers and fuel gas heaters at the station are each rated less than 10 MMBtu/hr and as such are exempt from aforementioned sections of 45CSR10.
- b. **45CSR21 - Regulation to Prevent and Control Air Pollution from the Emission of Volatile Organic Compounds.** The Middlebourne V Compressor Station is not located in Cabell, Kanawha, Putnam, Wayne, nor Wood counties.
 - c. **45CSR27 - To Prevent and Control the Emissions of Toxic Air Pollutants.** Natural gas is included as a petroleum product and contains less than 5% benzene by weight. 45CSR'27-2.4 exempts equipment Aused in the production and distribution of petroleum products providing that such equipment does not produce or contact materials containing more than 5% benzene by weight.@
 - d. **40 C.F.R 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.** This subpart applies to steam generating units greater than 100 MMBtu/hr. Middlebourne V Compressor Station does not have any steam generating units greater than 100 MMBtu/hr.
 - e. **40 C.F.R 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.** This subpart applies to steam generating units greater than 10 MMBtu/hr and less than 100 MMBtu/hr. Middlebourne V Compressor Station does not have any steam generating units greater than 10 MMBtu/hr.
 - f. **40 CFR 60 Subpart K - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978.** All tanks at the Middlebourne V Compressor Station commenced construction after May 19, 1978.
 - g. **40 CFR 60 Subpart Ka - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984.** All tanks at the Middlebourne V Compressor Station commenced construction after July 23, 1984.
 - h. **40 CFR 60 Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984.** Each tank potentially subject to this subpart has a design capacity less than 1,589.874 m³ and is used for petroleum or condensate stored prior to custody transfer. Therefore, per §60.110b(d)(4) this subpart does not apply.
 - i. **40 CFR 60 Subpart GG - Standards of Performance for Stationary Gas Turbines.** There are no gas turbines at the Middlebourne V Compressor Station.
 - j. **40 CFR 60 Subpart KKK - Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011.** Middlebourne V Compressor Station is not a “Natural Gas Processing Plant” as defined in §60.631 and was constructed after August 23, 2011.
 - k. **40 CFR 60 Subpart LLL - Standards of Performance for SO₂ Emissions From Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced After**

- January 20, 1984, and on or Before August 23, 2011.* There are no sweetening units at the Middlebourne V Compressor Station.
- l. **40 CFR 60 Subpart IIII - *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.*** All engines at Middlebourne V Compressor Station are spark ignition engines.
 - m. **40 CFR 60 Subpart KKKK – *Standards of Performance for Stationary Combustion Turbines.*** There are no combustion turbines at the Middlebourne V Compressor Station.
 - n. **40 CFR 60 Subpart OOOO - *Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or before September 18, 2015.*** The equipment at the Middlebourne V Station was installed after September 18, 2015. Therefore, 40 CFR 60 Subpart OOOO does not apply.
 - o. **40 CFR 61 Subpart V - *National Emission Standard for Equipment Leaks (Fugitive Emission Sources).*** There are no sources as listed in §61.240(a) at the Middlebourne V Station that are intended to operate in volatile hazardous air pollutant service.
 - p. **40 CFR 63 Subpart H - *National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks.*** There is no equipment or systems listed in 40 CFR §63.160(a) at the Middlebourne V Station that operate “in organic hazardous air pollutant service” as defined in 40 CFR §63.161.
 - q. **40 CFR 63 Subpart VV - *National Emission Standards for Oil-Water Separators and Organic-Water Separators.*** The Middlebourne V Station is not subject to another subpart under 40 CFR Parts 60, 61, or 63 that reference this subpart.
 - r. **40 CFR 63 Subpart HHH - *National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities.*** The Middlebourne V Station transports natural gas prior to the point of custody transfer and therefore is not considered a part of the natural gas transmission and storage source category as described in 40 CFR §63.1270(a).
 - s. **40 CFR 63 Subpart YYYY - *National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines.*** There are no stationary combustion turbines located at the Middlebourne V Station.
 - t. **40 CFR 63 Subpart EEEE - *National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline).*** The Middlebourne V Station is considered a “production field facility” as defined in §63.761 of 40 CFR 63 Subpart HH. Therefore per §63.2334(c)(1) it is not subject to this subpart.
 - u. **40 C.F.R 63 Subpart DDDDD - *National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters.*** This MACT standard applies to industrial, commercial, and institutional boilers and process heaters at major sources of HAPs. Middlebourne V Compressor Station is not major for HAPS.

Request for Variances or Alternatives

None.

Insignificant Activities

Insignificant emission unit(s) and activities are identified in the Title V application.

Comment Period

Beginning Date: (Date of Notice Publication)
Ending Date: (Publication Date PLUS 30 Days)

Point of Contact

All written comments should be addressed to the following individual and office:

Frederick Tipane
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304
304/926-0499 ext. 41910
frederick.tipane@wv.gov

Procedure for Requesting Public Hearing

During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The Secretary shall grant such a request for a hearing if he/she concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.

Response to Comments (Statement of Basis)

Not applicable.



Tipane, Frederick <frederick.tipane@wv.gov>

Antero Midstream's Middlebourne V Compressor Station - Pre-Draft Title V Initial Permit # R30-09500087-2021

1 message

Tipane, Frederick <frederick.tipane@wv.gov>
To: Jena Resnick <jresnick@anteroresources.com>

Mon, Nov 8, 2021 at 2:49 PM

Good afternoon Jena,

Attached for your review is the Pre-Draft/Proposed Initial Title V Permit (R30-09500087-2021) and Fact Sheet for Antero Midstream LLC's Middlebourne V Compressor Station. Please verify the 2020 actual emissions for the pollutants listed in the "Emissions Summary" table in the fact sheet and provide the missing 2020 HAP actual emissions. Please forward any comments or issues with the permit or fact sheet and the requested information to me as soon as possible but no later than next Thursday November 18, 2021.

Feel free to contact me if you wish to discuss or have any questions.

Regards,
Fred

--

Frederick Tipane
WVDEP/Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Office: (304) 414-1910
Fax: (304) 926-0479
E-mail: frederick.tipane@wv.gov

2 attachments**Pre-DPPermit R30-09500087-2021.docx**
354K**Pre-DPFactSheet R30-9500087-2021.doc**
164K



Tipane, Frederick <frederick.tipane@wv.gov>

RE: Antero Midstream's Middlebourne V Compressor Station - Pre-Draft Title V Initial Permit # R30-09500087-2021

1 message

Jena Resnick <jresnick@anteroresources.com>

Mon, Nov 8, 2021 at 2:54 PM

To: "Tipane, Frederick" <frederick.tipane@wv.gov>

Cc: Kaitlin Meszaros <kmeszaros@anteroresources.com>, Max Knop <mknop@anteroresources.com>

Thanks, Frederick. We will get back to you before next Thursday.

Jena Resnick

Office: 303.357.7344

Cell: 303.818.1957

From: Tipane, Frederick <frederick.tipane@wv.gov>**Sent:** Monday, November 8, 2021 12:49 PM**To:** Jena Resnick <jresnick@anteroresources.com>**Subject:** Antero Midstream's Middlebourne V Compressor Station - Pre-Draft Title V Initial Permit # R30-09500087-2021

This email came from outside of Antero. Do not click any link or open any attachment unless you know it is not malicious. Forward it to the helpdesk if you are not sure.

Good afternoon Jena,

Attached for your review is the Pre-Draft/Proposed Initial Title V Permit (R30-09500087-2021) and Fact Sheet for Antero Midstream LLC's Middlebourne V Compressor Station. Please verify the 2020 actual emissions for the pollutants listed in the "Emissions Summary" table in the fact sheet and provide the missing 2020 HAP actual emissions. Please forward any comments or issues with the permit or fact sheet and the requested information to me as soon as possible but no later than next Thursday November 18, 2021.

Feel free to contact me if you wish to discuss or have any questions.

Regards,

Fred

--

Frederick Tipane
WVDEP/Division of Air Quality
[601 57th Street, SE](#)
Charleston, WV 25304

11/8/21, 3:39 PM

State of West Virginia Mail - RE: Antero Midstream's Middlebourne V Compressor Station - Pre-Draft Title V Initial Permit # R30-0...

Office: (304) 414-1910

Fax: (304) 926-0479

E-mail: frederick.tipane@wv.gov



Tipane, Frederick <frederick.tipane@wv.gov>

RE: [External] Middlebourne V CS, Application No.: R30-09500087-2021

1 message

Tipane, Frederick <Frederick.Tipane@wv.gov>
To: Kaitlin Meszaros <kmeszaros@anteroresources.com>
Cc: "Jena Resnick (jresnick@anteroresources.com)" <jresnick@anteroresources.com>

Tue, May 18, 2021 at 7:40 AM

Good Morning Kaitlin,

Thank you for the update for the Middlebourne V Title V Application regarding the issuance of R13-3394G. R13-3394G will be incorporated into the Title V permit unless a newer version of the permit should happen to be issued prior to the processing of the Title V permit, in which case the latest version of R13-3394 will be incorporated.

Regards,

Fred Tipane



From: Kaitlin Meszaros <kmeszaros@anteroresources.com>
Sent: Monday, May 17, 2021 5:09 PM
To: Tipane, Frederick <Frederick.Tipane@wv.gov>
Cc: Jena Resnick <jresnick@anteroresources.com>
Subject: [External] Middlebourne V CS, Application No.: R30-09500087-2021

CAUTION: External email. Do not click links or open attachments unless you verify sender.

Good afternoon Frederick,

I wanted to pass along, since I know you have just completed the administrative review for the Antero Middlebourne V Title V application, that a modified construction permit was just issued for this station. R13-3394G permits two changes to the applicable permit at the time this Title V application was submitted. The

changes are minor, as classified, under 45CSR30 so will really just change Table 1 capacities and emissions rates for the compressor engines.

- Increase horsepower for seven of the compressor engines to 2,675
- Increase NOx emissions rate to 0.5 g/bhp-hr

Let me know if there are any questions or additional items you need to incorporate these changes in the Title V permit currently being drafted.

Thank you,

Kaitlin Meszaros

631-245-0308



Frederick Tipane.vcf

26K



Tipane, Frederick <frederick.tipane@wv.gov>

[External] Middlebourne V CS, Application No.: R30-09500087-2021

1 message

Kaitlin Meszaros <kmeszaros@anteroresources.com>
To: "Frederick.Tipane@wv.gov" <Frederick.Tipane@wv.gov>
Cc: Jena Resnick <jresnick@anteroresources.com>

Mon, May 17, 2021 at 5:08 PM

CAUTION: External email. Do not click links or open attachments unless you verify sender.

Good afternoon Frederick,

I wanted to pass along, since I know you have just completed the administrative review for the Antero Middlebourne V Title V application, that a modified construction permit was just issued for this station. R13-3394G permits two changes to the applicable permit at the time this Title V application was submitted. The changes are minor, as classified, under 45CSR30 so will really just change Table 1 capacities and emissions rates for the compressor engines.

- Increase horsepower for seven of the compressor engines to 2,675
- Increase NOx emissions rate to 0.5 g/bhp-hr

Let me know if there are any questions or additional items you need to incorporate these changes in the Title V permit currently being drafted.

Thank you,

Kaitlin Meszaros

631-245-0308

 **095-00087_PERM_13-3394G.pdf**
1006K

West Virginia Department of Environmental Protection

*Harold D. Ward
Cabinet Secretary*

Modification Permit



R13- 3394G

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§22-5-1 et seq.) and 45 C.S.R. 13 – Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the above-referenced facility is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Issued to:

**Antero Midstream LLC
Middlebourne V Compressor Station
095-00087**

Laura M. Crowder

*Laura M. Crowder
Director, Division of Air Quality*

Issued: May 17, 2021

**Laura M.
Crowder**

Digitally signed by: Laura M.
Crowder
DN: CN = Laura M. Crowder, email =
Laura.M.Crowder@wv.gov, C =
US, O = West Virginia Department
of Environmental Protection, OU =
Division of Air Quality
Date: 2021.05.17 13:34:49 -04'00'

This permit supersedes and replaces R13-3394F issued on December 16, 2020.

Facility Location: Elk Fork Road, Middlebourne, Tyler County, West Virginia
Mailing Address: 1615 Wynkoop Street, Denver, CO 80202
Facility Description: Natural gas compressor station
NAICS Code: 486210
UTM Coordinates: 513.603 km Easting • 4,374.245 km Northing • Zone 17
Permit Type: Modification
Description of Change: Increase horsepower for seven (7) compressor engines and increase NO_x emission factor for compressor engines.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

The source is subject to 45CSR30. The permittee has the duty to update the facility's Title V (45CSR30) permit application to reflect the changes permitted herein.

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1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
C-100	1E	Caterpillar G3608 Compressor Engine	2019	2,500 hp	Ox Cat (1C)
C-200	2E	Caterpillar G3608 Compressor Engine	2019	2,500 hp	Ox Cat (2C)
C-300	3E	Caterpillar G3608 Compressor Engine	2019	2,500 hp	Ox Cat (3C)
C-400	4E	Caterpillar G3608 Compressor Engine	2019	2,500 hp	Ox Cat (4C)
C-500	5E	Caterpillar G3608 Compressor Engine	2019	2,500 hp	Ox Cat (5C)
C-600	6E	Caterpillar G3608 Compressor Engine	2019	2,500 hp	Ox Cat (6C)
C-700	7E	Caterpillar G3608 Compressor Engine	2019	2,500 hp	Ox Cat (7C)
C-800	8E	Caterpillar G3608 Compressor Engine	2019	2,500 hp	Ox Cat (8C)
C-900	9E	Caterpillar G3608 Compressor Engine	2019	2,500 hp	Ox Cat (9C)
C-1000	10E	Caterpillar G3608 Compressor Engine	2019	2,500 hp	Ox Cat (10C)
C-1100	11E	Caterpillar G3608 Compressor Engine	2019	2,500 hp	Ox Cat (11C)
C-1200	12E	Caterpillar G3608 Compressor Engine	2019	2,675 hp	Ox Cat (12C)
C-1300	33E	Caterpillar G3608 Compressor Engine	2019	2,675 hp	Ox Cat (18C)
C-1400	34E	Caterpillar G3608 Compressor Engine	2019	2,675 hp	Ox Cat (19C)
C-1500	35E	Caterpillar G3608 Compressor Engine	2019	2,675 hp	Ox Cat (20C)
C-1600	36E	Caterpillar G3608 Compressor Engine	2019	2,675 hp	Ox Cat (21C)
C-1700	37E	Caterpillar G3608 Compressor Engine	2019	2,675 hp	Ox Cat (22C)
C-1800	38E	Caterpillar G3608 Compressor Engine	2019	2,675 hp	Ox Cat (23C)
GEN2	32E	NG PSI Generator	2020	649 hp	None
GEN3	40E	NG PSI Generator	2020	649 hp	None
DEHY1	14E	TEG Dehydration Unit Still Vent	2020	260 mmscfd	TO-1 (15C)
DFLSH1	16E/15C	Dehydrator Flash Tank	2020	260 mmscfd	DREB1 (16E) or TO-1 (15C)
DREB1	16E	TEG Dehydration Unit Reboiler	2019	1.5 MMBtu/hr	None
DEHY2	17E	TEG Dehydration Unit Still Vent	2020	260 mmscfd	TO-2 (16C)
DFLSH2	19E/16C	Dehydrator Flash Tank	2020	260 mmscfd	DREB2 (19E) or TO-2 (16C)
DREB2	19E	TEG Dehydration Unit Reboiler	2019	1.5 MMBtu/hr	None
DEHY3	41E	TEG Dehydration Unit Still Vent	2020	130 mmscfd	TO-3 (24C)
DFLSH3	43E/24C	Dehydrator Flash Tank	2020	130 mmscfd	DREB3(43E) or TO-3 (24C)

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
DREB3	43E	TEG Dehydration Unit Reboiler	2019	1.5 MMBtu/hr	None
T01	13C/14C	Condensate Storage Tank	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T02	13C/14C	Condensate Storage Tank	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T03	13C/14C	Condensate Storage Tank	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T04	13C/14C	Condensate/Produced Water Settling Tank	2019	500 bbl (21,000 gal)	VRU-100 ¹ - VRU-300 ¹
T05	13C/14C	Produced Water Storage Tank	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T06	13C/14C	Produced Water Storage Tank	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T07	13C/14C	Produced Water Storage Tank	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T08	13C/14C	Condensate Storage Tank	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T09	13C/14C	Condensate Storage Tank	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T10	13C/14C	Produced Water Storage Tank	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
T11	13C/14C	Produced Water Storage Tank	2019	400 bbl (16,800 gal)	VRU-100 ¹ - VRU-300 ¹
FUEL1	27E	Fuel Conditioning Heater	2019	0.5 MMBTU/hr	None
FUEL2	39E	Fuel Conditioning Heater	2019	0.75 MMBTU/hr	None
LDOUT1	30E	Production Liquids Truck Load Out	2019	585 ² bbl/day	15C, 16C, 24C, 16E, 19E, 43E
TO-1	28E	Thermal Oxidizer Control Device	2020	6.0 MMBTU/hr	NA
TO-2	29E	Thermal Oxidizer Control Device	2020	6.0 MMBTU/hr	NA
TO-3	44E	Thermal Oxidizer Control Device	2019	6.0 MMBTU/hr	NA
TK-100	TK-100	Compressor Skid Oily Water Tank	2019	3,000 gal	None
TK-102	TK-102	TEG Make-Up Tank	2019	3,000 gal	None
TK-103	TK-103	Compressor Coolant Tank	2019	1,000 gal	None
TK-104	TK-104	Engine Lube Oil Tank	2019	3,000 gal	None

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
TK-105	TK-105	Compressor Lube Oil Tank	2019	3,000 gal	None
TK-106	TK-106	Compressor Skid Oily Water Tank	2019	3,000 gal	None
TK-108	TK-108	TEG Make-Up Tank	2019	3,000 gal	None
TK-109	TK-109	Compressor Coolant Tank	2019	1,000 gal	None
TK-110	TK-110	Engine Lube Oil Tank	2019	3,000 gal	None
TK-111	TK-111	Compressor Lube Oil Tank	2019	3,000 gal	None
VENT1	31E	Venting Episodes	Variable	NA	None

1 – Working, Breathing, and Flashing losses routed to Vapor Recovery Unit for recirculation back into the process.

2 – 450 bbl/day Condensate and 135 bbl/day Produced Water

1.1. Control Devices

Emission Unit	Pollutant	Control Device	Control Efficiency
2,500 hp Caterpillar G3608 RICE w/ Ox Cat (C-100 – C-1100)	Carbon Monoxide	Oxidation Catalyst	0.16 g/bhp-hr
	Volatile Organic Compounds		0.32 g/bhp-hr
	Formaldehyde		0.02 g/bhp-hr
2,675 hp Caterpillar G3608 RICE w/ Ox Cat (C-1200 – C-1800)	Carbon Monoxide	Oxidation Catalyst	0.16 g/bhp-hr
	Volatile Organic Compounds		0.32 g/bhp-hr
	Formaldehyde		0.02 g/bhp-hr
TEG Dehydrator Still Vents (DEHY1 – DEHY3)	Volatile Organic Compounds	Thermal Oxidizers (TO1 – TO3)	98 %
	Hazardous Air Pollutants		98 %
TEG Dehydrator Flash Tanks (DFLSH1 – DFLSH3)	Volatile Organic Compounds	Recycled Reboiler or Thermal Oxidizers (TO-1 – TO-3)	98 %
	Hazardous Air Pollutants		98 %
Product Tanks (T01 – T11)	Volatile Organic Compounds	Vapor Recovery Units	98 %
	Hazardous Air Pollutants		98 %
Production Liquids Truck Loadout (LDOUT1)	Volatile Organic Compounds	Recycled Reboiler w TO backup	93.1 %
	Hazardous Air Pollutants		93.1 %

2.0. General Conditions

2.1. Definitions

- 2.1.1. All references to the “West Virginia Air Pollution Control Act” or the “Air Pollution Control Act” mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.
- 2.1.2. The “Clean Air Act” means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.
- 2.1.3. “Secretary” means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45CSR§30-2.12.). The Director of the Division of Air Quality is the Secretary’s designated representative for the purposes of this permit.

2.2. Acronyms

CAAA	Clean Air Act Amendments	NO_x	Nitrogen Oxides
CBI	Confidential Business Information	NSPS	New Source Performance Standards
CEM	Continuous Emission Monitor	PM	Particulate Matter
CES	Certified Emission Statement	PM_{2.5}	Particulate Matter less than 2.5 µm in diameter
C.F.R. or CFR	Code of Federal Regulations	PM₁₀	Particulate Matter less than 10µm in diameter
CO	Carbon Monoxide	Ppb	Pounds per Batch
C.S.R. or CSR	Codes of State Rules	Pph	Pounds per Hour
DAQ	Division of Air Quality	Ppm	Parts per Million
DEP	Department of Environmental Protection	Ppmv or ppmv	Parts per Million by Volume
dscm	Dry Standard Cubic Meter	PSD	Prevention of Significant Deterioration
FOIA	Freedom of Information Act	Psi	Pounds per Square Inch
HAP	Hazardous Air Pollutant	SIC	Standard Industrial Classification
HON	Hazardous Organic NESHAP	SIP	State Implementation Plan
HP	Horsepower	SO₂	Sulfur Dioxide
lbs/hr	Pounds per Hour	TAP	Toxic Air Pollutant
LDAR	Leak Detection and Repair	TPY	Tons per Year
M	Thousand	TRS	Total Reduced Sulfur
MACT	Maximum Achievable Control Technology	TSP	Total Suspended Particulate
MDHI	Maximum Design Heat Input	USEPA	United States Environmental Protection Agency
MM	Million	UTM	Universal Transverse Mercator
MMBtu/hr or mmbtu/hr	Million British Thermal Units per Hour	VEE	Visual Emissions Evaluation
MMCF/hr or mmcf/hr	Million Cubic Feet per Hour	VOC	Volatile Organic Compounds
NA	Not Applicable	VOL	Volatile Organic Liquids
NAAQS	National Ambient Air Quality Standards		
NESHAPS	National Emissions Standards for Hazardous Air Pollutants		

2.3. Authority

This permit is issued in accordance with West Virginia air pollution control law W.Va. Code §§ 22-5-1. et seq. and the following Legislative Rules promulgated thereunder:

- 2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation;*

2.4. Term and Renewal

- 2.4.1. This permit supersedes and replaces previously issued Permit R13-3394F. This Permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any other applicable legislative rule;

2.5. Duty to Comply

- 2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Applications R13-3394 – R13-3394G and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;
[45CSR§§13-5.10 and -10.3.]
- 2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;
- 2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;
- 2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses, and/or approvals from other agencies; i.e., local, state, and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.

[45CSR§13-4.]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.

[45CSR§13-5.4.]

2.10 Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.

[45CSR§13-5.1]

2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

- a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;
- d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

2.12. Emergency

- 2.12.1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by

improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

- 2.12.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of Section 2.12.3 are met.
- 2.12.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;
 - b. The permitted facility was at the time being properly operated;
 - c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and
 - d. The permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice must contain a detailed description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.
- 2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.
- 2.12.5 The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13. [45CSR§13-10.1.]

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

- 3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]
- 3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]
- 3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management, and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§34]
- 3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1] *[State Enforceable Only]*
- 3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]
- 3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45CSR11.
[45CSR§11-5.2.]

3.2. Monitoring Requirements

[Reserved]

3.3. Testing Requirements

- 3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling

connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

- a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.
- b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4. or 45CSR§13-5.4 as applicable.
- c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.
- d. The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1.; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:
 1. The permit or rule evaluated, with the citation number and language;
 2. The result of the test for each permit or rule condition; and,
 3. A statement of compliance or noncompliance with each permit or rule condition.

[WV Code § 22-5-4(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

- 3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports, and notifications) required by this permit recorded in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two (2) years of data shall be maintained on site. The remaining three (3) years of data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.
- 3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
[45CSR§4. State Enforceable Only.]

3.5. Reporting Requirements

- 3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- 3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.
- 3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class or by private carrier with postage prepaid to the address(es), or submitted in electronic format by email as set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

DAQ:
Director
WVDEP
Division of Air Quality
601 57th Street
Charleston, WV 25304-2345

US EPA:
Section Chief
U.S. Environmental Protection Agency, Region III
Enforcement and Compliance Assurance Division Air
Section (3ED21)
1650 Arch Street
Philadelphia, PA 19103-2029

DAQ Compliance and Enforcement¹:
DEPAirQualityReports@wv.gov

¹For all self-monitoring reports (MACT, GACT, NSPS, etc.), stack tests and protocols, Notice of Compliance Status Reports, Initial Notifications, etc.

3.5.4. **Operating Fee**

- 3.5.4.1. In accordance with 45CSR30 – Operating Permit Program, the permittee shall submit a certified emissions statement and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality. A receipt for the appropriate fee shall be maintained on the premises for which the receipt has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.
- 3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Source-Specific Requirements

4.1. Limitations and Standards

4.1.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:

- a. The date, place as defined in this permit, and time of sampling or measurements;
- b. The date(s) analyses were performed;
- c. The company or entity that performed the analyses;
- d. The analytical techniques or methods used;
- e. The results of the analyses; and
- f. The operating conditions existing at the time of sampling or measurement.

4.1.2. **Minor Source of Hazardous Air Pollutants (HAP).** HAP emissions from the facility shall be less than 10 tons/year of any single HAP or 25 tons/year of any combination of HAPs. Compliance with this Section shall ensure that the facility is a minor HAP source.

4.1.3. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.

[45CSR§13-5.10.]

4.1.4. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

- a. The equipment involved.
- b. Steps taken to minimize emissions during the event.
- c. The duration of the event.
- d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

- e. The cause of the malfunction.
- f. Steps taken to correct the malfunction.
- g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.

4.1.5. Only those emission units/sources as identified in Table 1.0, with the exception of any *de minimis* sources as identified under Table 45-13B of 45CSR13, are authorized at the permitted facility.

5.0. Source-Specific Requirements (Engines, Microturbine Generator, Generator)

5.1. Limitations and Standards

- 5.1.1. a. Maximum emissions from each of the 2,500 hp natural gas fired reciprocating engines equipped with oxidation catalyst, Caterpillar G3608 (C-100 – C-1100) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	2.76	12.07
Carbon Monoxide	0.88	3.86
Volatile Organic Compounds (includes formaldehyde)	1.76	7.72
Formaldehyde	0.11	0.48

- b. Maximum emissions from each of the 2,675 hp natural gas fired reciprocating engines equipped with oxidation catalyst, Caterpillar G3608 (C-1200 – C-1800) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	2.95	12.92
Carbon Monoxide	0.94	4.13
Volatile Organic Compounds (includes formaldehyde)	1.89	8.27
Formaldehyde	0.12	0.52

- 5.1.2. Maximum emissions from each of the 649 hp natural gas fired generators, PSI Industiral (GEN2, GEN3) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	1.43	0.72
Carbon Monoxide	2.86	1.43
Volatile Organic Compounds	1.00	0.50

- 5.1.3. The emission limitations specified in permit conditions 5.1.1 – 5.1.2 shall apply at all times except during periods of start-up and shut-down provided that the duration of these periods does not exceed 30 minutes per occurrence. The permittee shall operate the engines in a manner consistent with good air pollution control practices for minimizing emissions at all times, including periods of start-up and shut-down. The emissions from start-up and shut-down shall be included in the twelve (12) month rolling total of emissions. The permittee shall comply with all applicable start-

up and shut-down requirements in accordance with 40 CFR Part 60, Subparts JJJJ and 40 CFR Part 63, Subpart ZZZZ.

5.1.4. Requirements for Use of Oxidation Catalyst Reduction Devices (1C-12C, 18C-23C))

- a. Lean-burn natural gas compressor engines (C-100 – C-1800) equipped with oxidation catalyst air pollution control devices shall be fitted with a closed-loop automatic air/fuel ratio feedback controller to ensure emissions of regulated pollutants do not exceed the emission limit listed in permit condition 5.1.1 for any engine/oxidation catalyst combination under varying load. The closed-loop, automatic air/fuel ratio controller shall control a fuel metering valve to ensure a lean-rich mixture.
- b. For natural gas compressor engines (C-100 – C-1800), the permittee shall monitor the temperature to the inlet of the catalyst and in accordance with manufacturer's specifications; a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs. If the engine shuts off due to high temperature, the permittee shall also check for thermal deactivation of the catalyst before normal operations are resumed.
- c. The permittee shall follow a written operation and maintenance plan that provides the periodic and annual maintenance requirements.
- d. No person shall knowingly:
 1. Remove or render inoperative any air pollution or auxiliary air pollution control device installed subject to the requirements of this permit;
 2. Install any part or component when the principal effect of the part or component is to bypass, defeat or render inoperative any air pollution control device or auxiliary air pollution control device installed subject to the requirements of this permit; or
 3. Cause or allow engine exhaust gases to bypass any catalytic reduction device.

5.1.5. Maximum Yearly Operation Limitation. The maximum yearly hours of operation for each of the 649 hp natural gas fired generators, PSI Industrial (GEN2, GEN3) shall not exceed 1,000 hours per year. Compliance with the Maximum Yearly Operation Limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the hours of operation at any given time during the previous twelve consecutive calendar months.

5.2. Monitoring Requirements

5.2.1. Oxidization Catalyst Control Devices (1C-12C, 18C-23C)

- a. The permittee shall regularly inspect, properly maintain and/or replace catalytic reduction devices and auxiliary air pollution control devices to ensure functional and effective operation of the engine's physical and operational design. The permittee shall ensure proper operation, maintenance and performance of catalytic reduction devices and auxiliary air pollution control devices by:
 1. Maintaining proper operation of the automatic air/fuel ratio controller or automatic feedback controller.
 2. Following operating and maintenance recommendations of the catalyst element manufacturer.

5.3. Testing Requirements

5.3.1. See Facility-Wide Testing Requirements Section 3.3 and Testing Requirements of Sections 10.5, 11.2, and 11.3.

5.4. Recordkeeping Requirements

- 5.4.1. To demonstrate compliance with section 5.1.4 the permittee shall maintain records of all catalytic reduction device maintenance. Said records shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.
- 5.4.2. To demonstrate compliance with permit condition 5.1.5, the permittee shall maintain records of the hours of operation of GEN2 and GEN3. Said records shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

5.5. Reporting Requirements

- 5.5.1. See Facility-Wide Reporting Requirements Section 3.5 and Reporting Requirements of Sections 10.6 and 11.4.

6.0. Source-Specific Hazardous Air Pollutant Requirements (Natural Gas Dehydration Units Not Subject to MACT Standards and being controlled by Thermal Oxidizer Control Devices)

6.1. Limitations and Standards

- 6.1.1. **Maximum Throughput Limitation.** The maximum dry natural gas throughput to the TEG dehydration units/still columns (DEHY1-DEHY3) shall not exceed the following for each unit.

TEG Dehydration Unit ID	Maximum Dry Natural Gas Throughput (mmscfd)
DEHY1	260
DEHY2	260
DEHY3	130

Compliance with the Maximum Throughput Limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the monthly throughput at any given time during the previous twelve consecutive calendar months.

- 6.1.2. Recycled reboilers controlling the Dehydrator Flash Tanks shall be designed and operated in accordance with the following:
- The vapors/overheads from the flash tanks shall be routed through a closed vent system to the reboiler at all times when there is a potential that vapors (emissions) can be generated from the flash tank.
 - The reboiler shall only be fired with vapors from the flash tank, and natural gas may be used as supplemental fuel.
 - The vapors/overheads from the flash tank shall be introduced into the flame zone of the reboiler.
 - When the flash tank gas cannot be used by the reboiler due to excess gas or the reboiler is offline, the gas shall be sent to the vapor recovery units (VRU-100 - VRU-300) via the storage tanks to achieve a minimum control efficiency of 98%.
- 6.1.3. *Thermal Oxidizers (TO-1 – TO-3).* The permittee shall comply with the design and operating requirements below:
- Vapors that are being controlled by the thermal oxidizers shall be routed to the thermal oxidizers at all times;
 - Thermal oxidizers shall be operated with a flame present at all times, as determined by the methods specified in permit condition 6.2.1;
 - Thermal oxidizers shall be operated according to the manufacturer's specifications for residence time and minimum combustion chamber temperature;
 - Thermal oxidizers shall be operated at all times when emissions are vented to them;
 - To ensure compliance with permit condition 6.1.3(d), the permittee shall monitor in accordance with section 6.2.1 of this permit.
 - Thermal oxidizers shall be designed for and operated with no visible emissions as determined by the methods specified in permit condition 6.3.1 except for periods not to exceed a total of 5 minutes during any 2 consecutive hours; and,

- g. The permittee shall monitor the thermal oxidizer(s) to ensure that they are operated and maintained in conformance with their designs.

- 6.1.4. Maximum emissions from each of the thermal oxidizers (TO-1 - TO-2) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Volatile Organic Compounds	1.93	8.48
Benzene	0.03	0.11
Total HAP	0.24	1.07

- 6.1.5. Maximum emissions from thermal oxidizer (TO-3) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Volatile Organic Compounds	2.00	8.78
Benzene	0.03	0.12
Total HAP	0.25	1.12

6.2. Monitoring Requirements

- 6.2.1. To demonstrate compliance with the pilot flame requirements of permit conditions 6.1.3.b, the presence of a pilot flame shall be continuously monitored using a thermocouple or any other equivalent device to detect the presence of a flame when emissions are vented to it. The pilot shall be equipped such that it sounds an alarm, or initiates notification via remote alarm to the nearest field office, when the pilot light is out.
- 6.2.2. The permittee shall monitor the throughput of dry natural gas fed to the dehydration system on a monthly basis for each glycol dehydration unit.

6.3. Testing Requirements

- 6.3.1. In order to demonstrate compliance with the opacity requirements of permit condition 6.1.3.f the permittee shall conduct a Method 22 opacity test for at least two hours. This test shall demonstrate no visible emissions are observed for more than a total of 5 minutes during any 2 consecutive hour period using 40CFR60 Appendix A Method 22. The permittee shall conduct this test within one (1) year of permit issuance or initial startup whichever is later. The visible emission checks shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40 CFR part 60, appendix A, Method 22 or from the lecture portion of 40 CFR part 60, appendix A, Method 9 certification course.

- 6.3.2. In order to demonstrate compliance with permit conditions 6.1.4 and 6.1.5 upon request of the Director, the permittee shall demonstrate compliance with the HAP emissions thresholds using GLYCalc Version 3.0 or higher. The permittee shall sample in accordance with GPA Method 2166 and analyze the samples utilizing the extended GPA Method 2286 as specified in the GRI-GLYCalc V4 Technical Reference User Manual and Handbook.
- 6.3.3. Determination of glycol dehydration benzene emissions. In order to demonstrate that the benzene emissions are less than 1 tpy, the permittee shall determine the actual average benzene emissions using the procedure in the paragraph below. Emissions shall be determined either uncontrolled, or with federally enforceable controls in place.

The owner or operator shall determine actual average benzene or BTEX emissions using the model GRI-GLYCalc™, Version 3.0 or higher, and the procedures presented in the associated GRI-GLYCalc™ Technical Reference Manual. Inputs to the model shall be representative of actual operating conditions of the glycol dehydration unit and may be determined using the procedures documented in the Gas Research Institute (GRI) report entitled “Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions” (GRI-95/0368.1).

[§ 63.772 (b)(2)]

6.4. Recordkeeping Requirements

- 6.4.1. For the purpose of demonstrating compliance with permit conditions 6.1.3.b and 6.2.1, the permittee shall maintain records of the times and duration of all periods which the pilot flame was absent.
- 6.4.2. For the purpose of demonstrating compliance with the requirements set forth in permit conditions 6.1.3 and 6.3.2., the permittee shall maintain records of testing conducted in accordance with 6.3.2.
- 6.4.3. The permittee shall document and maintain the corresponding records specified by the on-going monitoring requirements of 6.2 and testing requirements of 6.3.
- 6.4.4. For the purpose of demonstrating compliance with permit condition 6.1.3.b, the permittee shall maintain records of the visible emission opacity tests conducted per permit condition 6.3.1.
- 6.4.5. For the purpose of demonstrating compliance with the minor source status of hazardous air pollutants required by permit conditions 6.1.4 and 6.1.5, the permittee shall maintain a record of all potential to emit (PTE) HAP calculations for the entire affected facility. These records shall include the natural gas compressor engines and ancillary equipment.
- 6.4.6. The permittee shall maintain a record of the dry natural gas throughput through the dehydration system to demonstrate compliance with permit condition 6.1.1.
- 6.4.7. To demonstrate that the permittee is exempt from the requirements of § 63.764 (d) if the actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere is less than 0.90 megagram per year (1 tpy), as determined by the procedures specified in § 63.772(b)(2) and permit condition 6.3.3 of this permit, records of the actual average benzene emissions (in terms of benzene emissions per year) shall be maintained.
[§ 63.764(e)]
- 6.4.8. All records required under Section 6.4 shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a

requirement of this permit or upon request by the Director shall be certified by a responsible official.

6.5. Reporting Requirements

- 6.5.1 If permittee is required by the Director to demonstrate compliance with permit condition 6.3.3, then the permittee shall submit a testing protocol at least thirty (30) days prior to testing and shall submit a notification of the testing date at least fifteen (15) days prior to testing. The permittee shall submit the testing results within sixty (60) days of testing and provide all supporting calculations and testing data.
- 6.5.2. Any deviation(s) from the allowable visible emission requirement for any emission source discovered during observations using 40CFR Part 60, Appendix A, Method 9 or 22 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of the occurrence and shall include at least the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
- 6.5.3. Any deviation(s) from the thermal oxidizer design and operation criteria in permit condition 6.1.3 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of discovery of such deviation.

7.0. Source-Specific Requirements (Reboilers, Heater)

7.1. Limitations and Standards

- 7.1.1. Maximum Design Heat Input. The maximum design heat input (MDHI) shall not exceed the following:

Emission Unit ID#	Emission Unit Description	MDHI (MMBTU/hr)
DREB1	Glycol Dehydration Reboiler	1.5
DREB2	Glycol Dehydration Reboiler	1.5
DREB3	Glycol Dehydration Reboiler	1.5
FUEL1	Fuel Conditioning Heater	0.5
FUEL2	Fuel Conditioning Heater	0.75

- 7.1.2. 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 greater than ten (10) percent opacity based on a six minute block average.
[45CSR§2-3.1.]

7.2. Monitoring Requirements

- 7.2.1. At such reasonable times as the Secretary may designate, the permittee shall conduct Method 9 emission observations for the purpose of demonstrating compliance with permit condition 7.1.2. Method 9 shall be conducted in accordance with 40 CFR 60 Appendix A.

7.3. Testing Requirements

- 7.3.1. Compliance with the visible emission requirements of permit condition 7.1.2 shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9 or by using measurements from continuous opacity monitoring systems approved by the Director. The Director may require the

installation, calibration, maintenance and operation of continuous opacity monitoring systems and may establish policies for the evaluation of continuous opacity monitoring results and the determination of compliance with the visible emission requirements of permit condition 7.1.2. Continuous opacity monitors shall not be required on fuel burning units which employ wet scrubbing systems for emission control. [45CSR§2-3.2.]

7.4. Recordkeeping Requirements

- 7.4.1. The permittee shall maintain records of all monitoring data required by permit condition 7.2.1 documenting the date and time of each visible emission check, the emission point or equipment/source identification number, the name or means of identification of the observer, the results of the check(s), whether the visible emissions are normal for the process, and, if applicable, all corrective measures taken or planned. The permittee shall also record the general weather conditions (i.e. sunny, approximately 80°F, 6 - 10 mph NE wind) during the visual emission check(s). Should a visible emission observation be required to be performed per the requirements specified in Method 9, the data records of each observation shall be maintained per the requirements of Method 9.

7.5. Reporting Requirements

- 7.5.1. Any deviation(s) from the allowable visible emission requirement for any emission source discovered during observations using 40CFR Part 60, Appendix A, Method 9 or 22 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of the occurrence and shall include at least the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.

8.0. Source-Specific Requirements (Storage Tanks)

8.1. Limitations and Standards

- 8.1.1. The permittee shall route all VOC and HAP emissions from the Storage Tanks (T01 – T11) to a vapor recovery system (VRU-100 - VRU-300), prior to release to the atmosphere. The vapor recovery system shall be designed to achieve a minimum guaranteed control efficiency of 98% for volatile organic compound (VOC) and hazardous air pollutants (HAP) emissions. Emissions from these tanks will be collected and compressed by the vapor recovery units (VRU-100 - VRU-300) whereby the vapors are sufficiently compressed to be introduced into the inlet gas line and processed with the inlet gas.
- 8.1.2. *Operation and Maintenance of Air Pollution Control Equipment.* The permittee shall, to the extent practicable, install, maintain, and operate the vapor recovery units (VRU-100 - VRU-300) and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.
[45CSR§13-5.10.]

8.1.3. The maximum annual throughput of product to the storage tanks shall not exceed the following:

Storage Tank ID	Storage Tank Size (bbl)	Product Stored	Maximum Annual Throughput (gal/yr)
T01, T02, T03, T08, T09	400 each	Condensate	6,898,500 (combined)
T04	500	Settling Tank (Condensate/ Produced Water)	8,968,050
T05, T06, T07, T10, T11	400 each	Produced Water	2,069,550 (combined)

8.1.4. Maximum emissions from the storage tank battery (T01 – T11) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Volatile Organic Compounds	1.55	6.80

8.1.5. In addition to the vapor recovery units (VRU-100 - VRU-300), the permittee shall utilize three (3) of the following requirements:

- a. Install additional sensing equipment to monitor the run status of the vapor recovery units (VRU-100 - VRU-300).
- b. Install a by-pass system which operates automatically whereby discharge is re-routed back to the inlet of the vapor recovery units (VRU-100 - VRU-300) until the appropriate pressure is built up for the compressor to turn on.
- c. Install a blanket gas and have automatic throttling valves to ensure oxygen does not enter the tanks.
- d. Install a compressor that has the ability to vary the drive.

8.1.6. Emissions from the Storage Tanks (T01-T11) that are recovered and routed to the vapor recovery units (VRU-100 - VRU-300) shall be designed and operated as specified in the paragraphs (a) through (c).

- a. The cover and all openings on the cover (e.g., access hatches, sampling ports, pressure relief valves and gauge wells) shall form a continuous impermeable barrier over the entire surface area of the liquid in the storage vessel.
- b. Each cover opening shall be secured in a closed, sealed position (e.g., covered by a gasketed lid or cap) whenever material is in the unit on which the cover is installed except during those times when it is necessary to use an opening as follows:
 - (i) To add material to, or remove material from the unit (this includes openings necessary to equalize or balance the internal pressure of the unit following changes in the level of the material in the unit);
 - (ii) To inspect or sample the material in the unit;
 - (iii) To inspect, maintain, repair, or replace equipment located inside the unit; or
 - (iv) To vent liquids, gases, or fumes from the unit through a closed-vent system designed and operated in accordance with the requirements 8.1.7 of this section to a control device.

- c. Each Storage Tank (T01-T11) thief hatch shall be weighted and properly seated. You must select gasket material for the hatch based on composition of the fluid in the storage vessel and weather conditions. **[45CSR§13-5.10]**
- 8.1.7. The facility shall comply with the closed vent system requirements for the Storage Tanks (T01-T11) as noted below.
- a. You must design the closed vent system to route all gases, vapors, and fumes emitted from the material in the Storage Tanks (T01-T11) to the vapor recovery units (VRU-100 - VRU-300).
 - b. You must design and operate a closed vent system with no detectable emissions, as determined using olfactory, visual and auditory inspections.
 - c. You must meet the requirements specified in paragraphs (i) and (ii) of this section if the closed vent system contains one or more bypass devices that could be used to divert all or a portion of the gases, vapors, or fumes from entering the control device or to a process.
 - (i) Except as provided in paragraph (ii) of this section, you must comply with either paragraph (A) or (B) of this section for each bypass device.
 - A. You must properly install, calibrate, maintain, and operate a flow indicator at the inlet to the bypass device that could divert the stream away from the control device or process to the atmosphere that sounds an alarm, or initiates notification via remote alarm to the nearest field office, when the bypass device is open such that the stream is being, or could be diverted away from the control device or process to the atmosphere.
 - B. You must secure the bypass device valve installed at the inlet to the bypass device in the non-diverting position using a car-seal or a lock-and-key type configuration.
 - (ii) Low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and safety devices are not subject to the requirements of paragraph (i) of this section.
[45CSR§13-5.10]

8.2. Monitoring Requirements

- 8.2.1. The permittee shall monitor the throughput to the storage vessels (T01-T11) on a monthly basis.
- 8.2.2. To demonstrate compliance with section 8.1.1, the permittee shall monitor the vapor recovery units (VRU-100 - VRU-300) in accordance with the plans and specifications and manufacturer's recommendations.
- 8.2.3. To demonstrate compliance with the closed vent system requirements of Sections 8.1.6 and 8.1.7, the permittee shall:
- a. Initial requirements. Conduct an initial visual, olfactory, and auditory inspection for defects that could result in air emissions within 180 days of start-up. Defects include, but are not limited to, visible cracks, holes, or gaps in piping; loose connections; liquid leaks; or broken or missing caps or other closure devices.
 - i. The annual inspection shall include the bypass inspection, conducted according to paragraph (c) of this section.
 - ii. In the event that a leak or defect is detected, you must repair the leak or defect as soon as practicable. Grease or another applicable substance must be applied to deteriorating or cracked gaskets to improve the seal while awaiting repair.

- iii. Delay of repair of a closed vent system for which leaks or defects have been detected is allowed if the repair is technically infeasible without a shutdown, or if you determine that emissions resulting from immediate repair would be greater than the fugitive emission likely to result from delay of repair. You must complete repair of such equipment by the end of the next shutdown.
- b. Continuous requirements. Conduct an annual visual, olfactory, and auditory inspection for defects that could result in air emissions. Defect include, but are not limited to, visible cracks, holes, or gaps in piping, loose connections; liquid leaks; or broken or missing caps or other closure devices.
 - i. The annual inspection shall be conducted within 365 calendar days from the date of the previous inspection or earlier.
 - ii. The annual inspection shall include the bypass inspection, conducted according to paragraph (c) of this section.
- c. Bypass inspection. Visually inspect the bypass valve during the initial and annual inspection for the presence of the car seal or lock-and-key type configuration to verify that the valve is maintained in the non-diverting position to ensure that the vent stream is not diverted through the bypass device. If an alternative method is used, conduct the inspection of the bypass as described in the operating procedures.
- d. Unsafe to inspect requirements. You may designate any parts of the closed vent system as unsafe to inspect if the requirements in paragraphs (i) and (ii) of this section are met. Unsafe to inspect parts are exempt from the inspection requirements of paragraphs (a) and (b) of this section.
 - i. You determine that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with the requirements.
 - ii. You have a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.
- e. Difficult to inspect requirements. You may designate any parts of the closed vent system as difficult to inspect, if the requirements in paragraphs (i) and (ii) of this section are met. Difficult to inspect parts are exempt from the inspection requirements of paragraphs (a) and (b) of this section.
 - i. You determine that the equipment cannot be inspected without elevating the inspecting personnel more than 2 meters above a support surface.
 - ii. You have a written plan that requires inspection of the equipment at least once every 5 years.

[45CSR§13-5.10]

8.3. Recordkeeping Requirements

- 8.3.1. All records required under Section 8.3 shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

- 8.3.2. *Record of Maintenance of VRU.* The permittee shall maintain accurate records of the vapor recovery units (VRU-100 - VRU-300) equipment inspection and/or preventative maintenance procedures.
- 8.3.3. *Record of Malfunctions of VRU.* The permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the vapor recovery units (VRU-100 - VRU-300) during which excess emissions occur. For each such case, the following information shall be recorded:
- a. The equipment involved.
 - b. Steps taken to minimize emissions during the event.
 - c. The duration of the event.
 - d. The estimated increase in emissions during the event.
- For each such case associated with an equipment malfunction, the additional information shall also be recorded:
- e. The cause of the malfunction.
 - f. Steps taken to correct the malfunction.
 - g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.
- 8.3.4. To demonstrate compliance with section 8.1.3 and 8.1.4, the permittee shall maintain a record of the aggregate throughput for the storage tanks on a monthly and rolling twelve month total. Said records shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.
- 8.3.5. The permittee shall maintain a copy all design records of the process, maintenance records of equipment and any downtime hours associated with the vapor recovery units (VRU-100 - VRU-300).
- 8.3.6. The permittee shall maintain records of the additional monitoring required in Section 8.1.5 to demonstrate compliance with the 98% control efficiency claimed and the Section 8.1.1.
- 8.3.7. To demonstrate compliance with the closed vent monitoring requirements, the following records shall be maintained.
- i. The initial compliance requirements;
 - ii. Each annual visual inspection conducted to demonstrate continuous compliance, including records of any repairs that were made as results of the inspection;
 - iii. Bypass requirements.
 - a. Each inspection or each time the key is checked out or a record each time the alarm is sounded;

- b. Each occurrence that the control device was bypassed. If the device was bypassed, the records shall include the date, time, and duration of the event and shall provide the reason the event occurred. The record shall also include the estimate of emissions that were released to the environment as a result of the bypass.

- iv. Any part of the system that has been designated as “unsafe to inspect” in accordance with 8.2.3.d or “difficult to inspect” in accordance with 8.2.3.e.
[45CSR§13-5.10]

8.4. Reporting Requirements

- 8.4.1. Upon request by the Director, the permittee shall report deviations within a requested time from of any occurrences when the control device was operated outside of the parameters defined in the monitoring plan.

- 8.4.2. The permittee shall notify the Director of any downtime of the vapor recovery units (VRU-100 - VRU-300 in excess of 2%, based on the 12 month rolling total, in writing to the Director of the Division of Air Quality as soon as practicable, but within ten (10) calendar days of the discovery and shall include, at a minimum, the following information: the dates and durations of each downtime event, the cause or suspected causes for each downtime event, any corrective measures taken or planned for each downtime event.

9.0. Source-Specific Requirements (Product Loadout Rack)

9.1. Limitations and Standards

- 9.1.1. Truck loading vapors are captured by a vapor balance systems and routed to the reboilers (DREB1, DREB2, DREB3) or thermal oxidizers (TO-1, TO-2, TO-3) and controlled with at least 93.1% capture and control efficiency for volatile organic compounds and hazardous air pollutants.

- 9.1.2. The maximum quantity of condensate that shall be loaded shall not exceed 6,898,500 gallons per year. Compliance with the Maximum Yearly Operation Limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the condensate throughput at any given time during the previous twelve consecutive calendar months.

- 9.1.3. The maximum quantity of produced water that shall be loaded shall not exceed 2,069,550 gallons per year. Compliance with the Maximum Yearly Operation Limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the produced water throughput at any given time during the previous twelve consecutive calendar months.

- 9.1.4. The permittee shall install, maintain, and operate all above-ground piping, valves, pumps, etc. that service lines in the transport of potential sources of regulated air pollutants to prevent any substantive fugitive escape of regulated air pollutants. Any above-ground piping, valves, pumps, etc. that shows signs of excess wear and that have a reasonable potential for substantive fugitive emissions of regulated air pollutants shall be replaced.

- 9.1.5. The Condensate Truck Loading and Produced Water Truck Loading shall be operated in accordance with the plans and specifications filed in Permit Application R13-3394A.

- 9.1.6. Maximum emissions from the product loadout rack (30E) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Volatile Organic Compounds	4.27	1.34
Total Hazardous Air Pollutants	0.09	0.03

- 9.1.7. Recycled reboilers shall be designed and operated in accordance with the following:
- The vapors/overheads from the product loadout rack shall be routed through a closed vent system to the reboiler at all times when there is a potential that vapors (emissions) can be generated from the flash tank.
 - The vapors/overheads from the product loadout rack shall be introduced into the flame zone of the reboiler to achieve a minimum capture and control efficiency of 93.1%.
 - When the product loadout rack gas cannot be used by the reboiler due to excess gas or the reboiler is offline, the gas shall be sent to the thermal oxidizers (TO-1 – TO-3) to achieve a minimum capture and control efficiency of 93.1%. The thermal oxidizers shall be operated in accordance with permit condition 6.1.3.

9.2. Monitoring Requirements

- 9.2.1. See Facility-Wide Monitoring Requirements Section 3.2.
- 9.2.2. To demonstrate compliance with the pilot flame requirements of permit condition 6.1.3.b, the presence of a pilot flame shall be continuously monitored using a thermocouple or any other equivalent device to detect the presence of a flame when emissions are vented to it. The pilot shall be equipped such that it sounds an alarm, or initiates notification via remote alarm to the nearest field office, when the pilot light is out.

9.3. Testing Requirements

- 9.3.1. In order to demonstrate compliance with the flare opacity requirements of permit condition 6.1.3.f the permittee shall conduct a Method 22 opacity test for at least two hours. This test shall demonstrate no visible emissions are observed for more than a total of 5 minutes during any 2 consecutive hour period using 40CFR60 Appendix A Method 22. The permittee shall conduct this test within one (1) year of permit issuance or initial startup whichever is later. The visible emission checks shall determine the presence or absence of visible emissions. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40 CFR part 60, appendix A, Method 22 or from the lecture portion of 40 CFR part 60, appendix A, Method 9 certification course.

9.4. Recordkeeping Requirements

- 9.4.1. All records required under Section 9.3 shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years.
- 9.4.2. To demonstrate compliance with permit conditions 9.1.2 and 9.1.3, the permittee shall maintain a record of the aggregate throughput for the product loadout rack (LDOUT1) on a monthly and rolling twelve month total.

- 9.4.3. For the purpose of demonstrating compliance with permit conditions 6.1.3.b and 9.2.1, the permittee shall maintain records of the times and duration of all periods which the pilot flame was absent.
- 9.4.4. The permittee shall document and maintain the corresponding records specified by the on-going monitoring requirements of 9.2 and testing requirements of 9.3.
- 9.4.5. All records required under Section 9.4 shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

9.5. Reporting Requirements

- 9.5.1. See Facility-Wide Reporting Requirements Section 3.5.
- 9.5.2. Any deviation(s) from the allowable visible emission requirement for any emission source discovered during observations using 40CFR Part 60, Appendix A, Method 9 or 22 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of the occurrence and shall include at least the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
- 9.5.3. Any deviation(s) from the flare or thermal oxidizer design and operation criteria in permit condition 6.1.3 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of discovery of such deviation.

10.0. Source-Specific Requirements (40CFR60 Subpart JJJJ Requirements, C-100 – C-1800, GEN2, GEN3)

10.1. Limitations and Standards

- 10.1.1. The provisions of this subpart are applicable to owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified below. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.
 - a. Owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:
 - 1. On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);
 - 2. *Reserved*;
 - 3. on or after July 1, 2008, for engines with a maximum engine power less than 500 HP; or
 - 4. *Reserved*.
 - b. Owners and operators of stationary SI ICE that commence modification or reconstruction after June 12, 2006.
[40CFR§60.4230(a)]
- 10.1.2. The provisions of this subpart are not applicable to stationary SI ICE being tested at an engine test cell/stand. **[40CFR§60.4230(b)]**

- 10.1.3. If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable. **[40CFR§60.4230(c)]**
- 10.1.4. Stationary SI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR parts 90 and 1048, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security. **[40CFR§60.4230(e)]**
- 10.1.5. Owners and operators of facilities with internal combustion engines that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines. **[40CFR§60.4230(f)]**

10.2. Emission Standards for Owners and Operators

- 10.2.1. Owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to this subpart for their stationary SI ICE. For owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 100 HP (except gasoline and rich burn engines that use LPG) manufactured prior to January 1, 2011 that were certified to the certification emission standards in 40 CFR part 1048 applicable to engines that are not severe duty engines, if such stationary SI ICE was certified to a carbon monoxide (CO) standard above the standard in Table 1 to this subpart, then the owners and operators may meet the CO certification (not field testing) standard for which the engine was certified. **[40CFR§60.4233(e)]**
- 10.2.2. Owners and operators of stationary SI ICE that are required to meet standards that reference 40 CFR 1048.101 must, if testing their engines in use, meet the standards in that section applicable to field testing, except as indicated in paragraph (e) of this section. **[40CFR§60.4233(h)]**
- 10.2.3. Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in §60.4233 over the entire life of the engine. **[40CFR§60.4234]**

10.3. Other Requirements for Owners and Operators

- 10.3.1. After July 1, 2010, owners and operators may not install stationary SI ICE with a maximum engine power of less than 500 HP that do not meet the applicable requirements in §60.4233. **[40CFR§60.4236(a)]**
- 10.3.2. After July 1, 2009, owners and operators may not install stationary SI ICE with a maximum engine power of greater than or equal to 500 HP that do not meet the applicable requirements in §60.4233, except that lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP that do not meet the applicable requirements in §60.4233 may not be installed after January 1, 2010. **[40CFR§60.4236(b)]**
- 10.3.3. For emergency stationary SI ICE with a maximum engine power of greater than 19 KW (25 HP), owners and operators may not install engines that do not meet the applicable requirements in §60.4233 after January 1, 2011. **[40CFR§60.4236(c)]**

- 10.3.4. In addition to the requirements specified in §§60.4231 and 60.4233, it is prohibited to import stationary SI ICE less than or equal to 19 KW (25 HP), stationary rich burn LPG SI ICE, and stationary gasoline SI ICE that do not meet the applicable requirements specified in paragraphs (a), (b), and (c) of this section, after the date specified in paragraph (a), (b), and (c) of this section. **[40CFR§60.4236(d)]**
- 10.3.5. The requirements of this section do not apply to owners and operators of stationary SI ICE that have been modified or reconstructed, and they do not apply to engines that were removed from one existing location and reinstalled at a new location. **[40CFR§60.4236(e)]**
- 10.3.6. Starting on January 1, 2011, if the emergency stationary SI internal combustion engine that is greater than or equal to 130 HP and less than 500 HP that was built on or after January 1, 2011, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter. **[40CFR§60.4237(b)]**

10.4. Compliance Requirements for Owners and Operators

- 10.4.1. If you are an owner or operator of a stationary SI internal combustion engine and must comply with the emission standards specified in §60.4233(d) or (e), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) and (2) of this section.
- a. Purchasing an engine certified according to procedures specified in this subpart, for the same model year and demonstrating compliance according to one of the methods specified in paragraph (a) of this section.
 - b. Purchasing a non-certified engine and demonstrating compliance with the emission standards specified in §60.4233(d) or (e) and according to the requirements specified in §60.4244, as applicable, and according to paragraphs (b)(2)(i) and (ii) of this section.
 1. If you are an owner or operator of a stationary SI internal combustion engine greater than 25 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance.
 2. If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance. **[40CFR§60.4243(b)]**
- 10.4.2. If you are an owner or operator of a stationary SI internal combustion engine that must comply with the emission standards specified in §60.4233(f), you must demonstrate compliance according to paragraph (b)(2)(i) or (ii) of this section, except that if you comply according to paragraph (b)(2)(i) of this section, you demonstrate that your non-certified engine complies with the emission standards specified in §60.4233(f). **[40CFR§60.4243(c)]**
- 10.4.3. Emergency stationary ICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records

indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. Emergency stationary ICE may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. For owners and operators of emergency engines, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as permitted in this section, is prohibited. **[40CFR§60.4243(d)]**

- 10.4.4. Owners and operators of stationary SI natural gas fired engines may operate their engines using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, the owners and operators are required to conduct a performance test to demonstrate compliance with the emission standards of §60.4233. **[40CFR§60.4243(e)]**
- 10.4.5. If you are an owner or operator of a stationary SI internal combustion engine that is less than or equal to 500 HP and you purchase a non-certified engine or you do not operate and maintain your certified stationary SI internal combustion engine and control device according to the manufacturer's written emission-related instructions, you are required to perform initial performance testing as indicated in this section, but you are not required to conduct subsequent performance testing unless the stationary engine is rebuilt or undergoes major repair or maintenance. A rebuilt stationary SI ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a). **[40CFR§60.4243(f)]**
- 10.4.6. It is expected that air-to-fuel ratio controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller must be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times. **[40CFR§60.4243(g)]**
- 10.4.7. If you are an owner/operator of an stationary SI internal combustion engine with maximum engine power greater than or equal to 500 HP that is manufactured after July 1, 2007 and before July 1, 2008, and must comply with the emission standards specified in sections 60.4233(b) or (c), you must comply by one of the methods specified in paragraphs (h)(1) through (h)(4) of this section.
- a. Purchasing an engine certified according to 40 CFR part 1048. The engine must be installed and configured according to the manufacturer's specifications.
 - b. Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.
 - c. Keeping records of engine manufacturer data indicating compliance with the standards.
 - d. Keeping records of control device vendor data indicating compliance with the standards.
- [40CFR§60.4243(h)]**

10.5. Testing Requirements for Owners and Operators

- 10.5.1. Owners and operators of stationary SI ICE who conduct performance tests must follow the procedures in paragraphs (a) through (f) of this section.
- a. Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in §60.8 and under the specific conditions that are specified by Table 2 to this subpart. **[40CFR§60.4244(a)]**

- b. You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c). If your stationary SI internal combustion engine is non-operational, you do not need to startup the engine solely to conduct a performance test; however, you must conduct the performance test immediately upon startup of the engine. **[40CFR§60.4244(b)]**
- c. You must conduct three separate test runs for each performance test required in this section, as specified in §60.8(f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour. **[40CFR§60.4244(c)]**
- d. To determine compliance with the NO_x mass per unit output emission limitation, convert the concentration of NO_x in the engine exhaust using Equation 1 of this section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 1})$$

Where:

ER = Emission rate of NO_x in g/HP-hr.

C_d = Measured NO_x concentration in parts per million by volume (ppmv).

1.912×10⁻³ = Conversion constant for ppm NO_x to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour (HP-hr).

[40CFR§60.4244(d)]

- e. To determine compliance with the CO mass per unit output emission limitation, convert the concentration of CO in the engine exhaust using Equation 2 of this section:

$$ER = \frac{C_d \times 1.164 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 2})$$

Where:

ER = Emission rate of CO in g/HP-hr.

C_d = Measured CO concentration in ppmv.

1.164×10⁻³ = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

[40CFR§60.4244(e)]

- f. For purposes of this subpart, when calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, convert the concentration of VOC in the engine exhaust using Equation 3 of this section:

$$ER = \frac{C_d \times 1.833 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 3})$$

Where:

ER = Emission rate of VOC in g/HP-hr.

C_d = VOC concentration measured as propane in ppmv.

1.833×10^{-3} = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

[40CFR§60.4244(f)]

- g. If the owner/operator chooses to measure VOC emissions using either Method 18 of 40 CFR part 60, appendix A, or Method 320 of 40 CFR part 63, appendix A, then it has the option of correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using Equations 4 and 5 of this section. The corrected VOC concentration can then be placed on a propane basis using Equation 6 of this section.

$$RF_i = \frac{C_{Mi}}{C_{Ai}} \quad (\text{Eq. 4})$$

Where:

RF_i = Response factor of compound i when measured with EPA Method 25A.

C_{Mi} = Measured concentration of compound i in ppmv as carbon.

C_{Ai} = True concentration of compound i in ppmv as carbon.

$$C_{icorr} = RF_i \times C_{imeas} \quad (\text{Eq. 5})$$

Where:

C_{icorr} = Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

C_{imeas} = Concentration of compound i measured by EPA Method 320, ppmv as carbon.

$$C_{Peq} = 0.6098 \times C_{icorr} \quad (\text{Eq. 6})$$

Where:

C_{Peq} = Concentration of compound i in mg of propane equivalent per DSCM.

[40CFR§60.4244(g)]

10.6. Notification, Reports, and Records for Owners and Operators

- 10.6.1. Owners or operators of stationary SI ICE must meet the following notification, reporting and recordkeeping requirements.
- a. Owners and operators of all stationary SI ICE must keep records of the information in paragraphs (a)(1) through (4) of this section.
 1. All notifications submitted to comply with this subpart and all documentation supporting any notification.
 2. Maintenance conducted on the engine.
 3. If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90 and 1048.
 4. If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to §60.4243(a)(2), documentation that the engine meets the emission standards.
[40CFR§60.4245(a)]
 - b. For all stationary SI emergency ICE greater than or equal to 500 HP manufactured on or after July 1, 2010, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than or equal to 130 HP and less than 500 HP manufactured on or after July 1, 2011 that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.
[40CFR§60.4245(b)]
 - c. Owners and operators of stationary SI ICE greater than or equal to 500 HP that have not been certified by an engine manufacturer to meet the emission standards in §60.4231 must submit an initial notification as required in §60.7(a)(1). The notification must include the information in paragraphs (c)(1) through (5) of this section.
 1. Name and address of the owner or operator;
 2. The address of the affected source;
 3. Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;
 4. Emission control equipment; and
 5. Fuel used.
[40CFR§60.4245(c)]
 - d. Owners and operators of stationary SI ICE that are subject to performance testing must submit a copy of each performance test as conducted in §60.4244 within 60 days after the test has been completed. **[40CFR§60.4245(d)]**

11.0. Source-Specific Requirements (40CFR60 Subpart OOOOa Requirements, Reciprocating Compressor Affected Facilities (C-100 – C-1800))

11.1. Limitations and Standards

11.1.1. You must comply with the standards in paragraphs (a) through (d) of this section for each reciprocating compressor affected facility.

- a. You must replace the reciprocating compressor rod packing according to either paragraph (a)(1) or (2) of this section, or you must comply with paragraph (a)(3) of this section.
 1. On or before the compressor has operated for 26,000 hours. The number of hours of operation must be continuously monitored beginning upon initial startup of your reciprocating compressor affected facility, or the date of the most recent reciprocating compressor rod packing replacement, whichever is later.
 2. Prior to 36 months from the date of the most recent rod packing replacement, or 36 months from the date of startup for a new reciprocating compressor for which the rod packing has not yet been replaced.
 3. Collect the methane and VOC emissions from the rod packing using a rod packing emissions collection system that operates under negative pressure and route the rod packing emissions to a process through a closed vent system that meets the requirements of §60.5411a(a) and (d).
- b. You must demonstrate initial compliance with standards that apply to reciprocating compressor affected facilities as required by §60.5410a(c).
- c. You must demonstrate continuous compliance with standards that apply to reciprocating compressor affected facilities as required by §60.5415a(c).
- d. You must perform the 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.

[40CFR§60.5385a]

11.2. Initial Compliance Demonstration

11.2.1. You must determine initial compliance with the standards for each affected facility using the requirements in paragraph (c) of this section. The initial compliance period begins on August 2, 2016 or upon initial startup, whichever is later, and ends no later than one year after the initial startup date for your affected facility or no later than one year after August 2, 2016. The initial compliance period may be less than one full year.

- a. *NA.*
- b. *NA.*
- c. To achieve initial compliance with the standards for each reciprocating compressor affected facility you must comply with paragraphs (c)(1) through (4) of this section.
 1. If complying with §60.5385a(a)(1) or (2), during the initial compliance period, you must continuously monitor the number of hours of operation or track the number of months since the last rod packing replacement.

2. If complying with §60.5385a(a)(3), you must operate the rod packing emissions collection system under negative pressure and route emissions to a process through a closed vent system that meets the requirements of §60.5411a(a) and (d).
3. You must submit the initial annual report for your reciprocating compressor as required in §60.5420a(b)(1) and (4).
4. You must maintain the records as specified in §60.5420a(c)(3) for each reciprocating compressor affected facility.

[40CFR§60.5410a]

11.3. Continuous Compliance Demonstration

11.3.1. For each reciprocating compressor affected facility complying with §60.5385a(a)(1) or (2), you must demonstrate continuous compliance according to paragraphs (1) through (3) of this section. For each reciprocating compressor affected facility complying with §60.5385a(a)(3), you must demonstrate continuous compliance according to paragraph (4) of this section.

1. You must continuously monitor the number of hours of operation for each reciprocating compressor affected facility or track the number of months since initial startup or the date of the most recent reciprocating compressor rod packing replacement, whichever is later.
2. You must submit the annual reports as required in §60.5420a(b)(1) and (4) and maintain records as required in §60.5420a(c)(3).
3. You must replace the reciprocating compressor rod packing on or before the total number of hours of operation reaches 26,000 hours or the number of months since the most recent rod packing replacement reaches 36 months.
4. You must operate the rod packing emissions collection system under negative pressure and continuously comply with the cover and closed vent requirements in §60.5416a(a) and (b).
[40CFR§60.5415a]

11.4. Notification, Recordkeeping, and Reporting Requirements

11.4.1. You must submit the notifications according to paragraphs (a)(1) and (2) of this section if you own or operate one or more of the affected facilities specified in §60.5365a that was constructed, modified or reconstructed during the reporting period.

[40CFR§60.5420a(a)]

11.4.2. Reporting requirements. You must submit annual reports containing the information specified in paragraphs (b)(1) and (4) of this section to the Administrator and performance test reports as specified in paragraph (b)(9) of this section. You must submit annual reports following the procedure specified in paragraph (b)(11) of this section. The initial annual report is due no later than 90 days after the end of the initial compliance period as determined according to §60.5410a. Subsequent annual reports are due no later than same date each year as the initial annual report. If you own or operate more than one affected facility, you may submit one report for multiple affected facilities provided the report contains all of the information required as specified in paragraphs (b)(1) and (4) of this section. Annual reports may coincide with title V reports as long as all the required elements of the annual report are included. You may arrange with the Administrator a common schedule on which reports required by this part may be submitted as long as the schedule does not extend the reporting period.

- (1) The general information specified in paragraphs (1)(i) through (iv) of this section.

- (i) The company name, facility site name associated with the affected facility, US Well ID or US Well ID associated with the affected facility, if applicable, and address of the affected facility. If an address is not available for the site, include a description of the site location and provide the latitude and longitude coordinates of the site in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983.
 - (ii) An identification of each affected facility being included in the annual report.
 - (iii) Beginning and ending dates of the reporting period.
 - (iv) A certification by a certifying official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (4) For each reciprocating compressor affected facility, the information specified in paragraphs (i) through (ii) of this section.
- (i) The cumulative number of hours of operation or the number of months since initial startup or since the previous reciprocating compressor rod packing replacement, whichever is later. Alternatively, a statement that emissions from the rod packing are being routed to a process through a closed vent system under negative pressure.
 - (ii) Records of deviations specified in paragraph (c)(3)(iii) of this section that occurred during the reporting period.

[40CFR§60.5420a]

11.4.3. To demonstrate compliance with permit condition 12.1.1.d, the permittee shall maintain the reporting as 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.

12.0. Source-Specific Requirements (40CFR60 Subpart OOOOa Requirements, Fugitive Emission Components)

12.1. Limitations and Standards

- 12.1.1. For each affected facility under §60.5365a(j), you must reduce GHG (in the form of a limitation on emissions of methane) and VOC emissions by complying with the requirements of paragraphs (a) through (j) of this section. These requirements are independent of the closed vent system and cover requirements in §60.5411a.
- (a) You must monitor all fugitive emission components, as defined in §60.5430a, in accordance with paragraphs (b) through (g) of this section. You must repair all sources of fugitive emissions in accordance with paragraph (h) of this section. You must keep records in accordance with paragraph (i) of this section and report in accordance with paragraph (j) of this section. For purposes of this section, fugitive emissions are defined as: Any visible emission from a fugitive emissions component observed using optical gas imaging or an instrument reading of 500 ppm or greater using Method 21.
 - (b) You must develop an emissions monitoring plan that covers the collection of fugitive emissions components at well sites and compressor stations within each company-defined area in accordance with paragraphs (c) and (d) of this section.
 - (c) Fugitive emissions monitoring plans must include the elements specified in paragraphs (c)(1) through (8) of this section, at a minimum.

- (1) Frequency for conducting surveys. Surveys must be conducted at least as frequently as required by paragraphs (f) and (g) of this section.
- (2) Technique for determining fugitive emissions (i.e., Method 21 at 40 CFR part 60, appendix A-7, or optical gas imaging).
- (3) Manufacturer and model number of fugitive emissions detection equipment to be used.
- (4) Procedures and timeframes for identifying and repairing fugitive emissions components from which fugitive emissions are detected, including timeframes for fugitive emission components that are unsafe to repair. Your repair schedule must meet the requirements of paragraph (h) of this section at a minimum.
- (5) Procedures and timeframes for verifying fugitive emission component repairs.
- (6) Records that will be kept and the length of time records will be kept.
- (7) If you are using optical gas imaging, your plan must also include the elements specified in paragraphs (c)(7)(i) through (vii) of this section.
 - (i) Verification that your optical gas imaging equipment meets the specifications of paragraphs (c)(7)(i)(A) and (B) of this section. This verification is an initial verification and may either be performed by the facility, by the manufacturer, or by a third party. For the purposes of complying with the fugitives emissions monitoring program with optical gas imaging, a fugitive emission is defined as any visible emissions observed using optical gas imaging.
 - (A) Your optical gas imaging equipment must be capable of imaging gases in the spectral range for the compound of highest concentration in the potential fugitive emissions.
 - (B) Your optical gas imaging equipment must be capable of imaging a gas that is half methane, half propane at a concentration of 10,000 ppm at a flow rate of ≤ 60 g/hr from a quarter inch diameter orifice.
 - (ii) Procedure for a daily verification check.
 - (iii) Procedure for determining the operator's maximum viewing distance from the equipment and how the operator will ensure that this distance is maintained.
 - (iv) Procedure for determining maximum wind speed during which monitoring can be performed and how the operator will ensure monitoring occurs only at wind speeds below this threshold.
 - (v) Procedures for conducting surveys, including the items specified in paragraphs (c)(7)(v)(A) through (C) of this section.
 - (A) How the operator will ensure an adequate thermal background is present in order to view potential fugitive emissions.
 - (B) How the operator will deal with adverse monitoring conditions, such as wind.
 - (C) How the operator will deal with interferences (e.g., steam).
 - (vi) Training and experience needed prior to performing surveys.

- (vii) Procedures for calibration and maintenance. At a minimum, procedures must comply with those recommended by the manufacturer.
- (8) If you are using Method 21 of appendix A-7 of this part, your plan must also include the elements specified in paragraphs (c)(8)(i) and (ii) of this section. For the purposes of complying with the fugitive emissions monitoring program using Method 21 a fugitive emission is defined as an instrument reading of 500 ppm or greater.
 - (i) Verification that your monitoring equipment meets the requirements specified in Section 6.0 of Method 21 at 40 CFR part 60, appendix A-7. For purposes of instrument capability, the fugitive emissions definition shall be 500 ppm or greater methane using a FID-based instrument. If you wish to use an analyzer other than a FID-based instrument, you must develop a site-specific fugitive emission definition that would be equivalent to 500 ppm methane using a FID-based instrument (e.g., 10.6 eV PID with a specified isobutylene concentration as the fugitive emission definition would provide equivalent response to your compound of interest).
 - (ii) Procedures for conducting surveys. At a minimum, the procedures shall ensure that the surveys comply with the relevant sections of Method 21 at 40 CFR part 60, appendix A-7, including Section 8.3.1.
- (d) Each fugitive emissions monitoring plan must include the elements specified in paragraphs (d)(1) through (4) of this section, at a minimum, as applicable.
 - (1) Sitemap.
 - (2) A defined observation path that ensures that all fugitive emissions components are within sight of the path. The observation path must account for interferences.
 - (3) If you are using Method 21, your plan must also include a list of fugitive emissions components to be monitored and method for determining location of fugitive emissions components to be monitored in the field (e.g. tagging, identification on a process and instrumentation diagram, etc.).
 - (4) Your plan must also include the written plan developed for all of the fugitive emission components designated as difficult-to-monitor in accordance with paragraph (g)(3)(i) of this section, and the written plan for fugitive emission components designated as unsafe-to-monitor in accordance with paragraph (g)(3)(ii) of this section.
- (e) Each monitoring survey shall observe each fugitive emissions component, as defined in §60.5430a, for fugitive emissions.
- (f)(1) You must conduct an initial monitoring survey within 60 days of the startup of production, as defined in §60.5430a, for each collection of fugitive emissions components at a new well site or by June 3, 2017, whichever is later. For a modified collection of fugitive emissions components at a well site, the initial monitoring survey must be conducted within 60 days of the first day of production for each collection of fugitive emission components after the modification or by June 3, 2017, whichever is later.
- (2) You must conduct an initial monitoring survey within 60 days of the startup of a new compressor station for each new collection of fugitive emissions components at the new compressor station or by June 3, 2017, whichever is later. For a modified collection of fugitive components at a compressor station, the initial monitoring survey must be conducted within 60 days of the modification or by June 3, 2017, whichever is later.

- (g) A monitoring survey of each collection of fugitive emissions components at a well site or at a compressor station must be performed at the frequencies specified in paragraphs (g)(1) and (2) of this section, with the exceptions noted in paragraphs (g)(3) and (4) of this section.
 - (1) A monitoring survey of each collection of fugitive emissions components at a well site within a company-defined area must be conducted at least semiannually after the initial survey. Consecutive semiannual monitoring surveys must be conducted at least 4 months apart.
 - (2) A monitoring survey of the collection of fugitive emissions components at a compressor station within a company-defined area must be conducted at least quarterly after the initial survey. Consecutive quarterly monitoring surveys must be conducted at least 60 days apart.
 - (3) Fugitive emissions components that cannot be monitored without elevating the monitoring personnel more than 2 meters above the surface may be designated as difficult-to-monitor. Fugitive emissions components that are designated difficult-to-monitor must meet the specifications of paragraphs (g)(3)(i) through (iv) of this section.
 - (i) A written plan must be developed for all of the fugitive emissions components designated difficult-to-monitor. This written plan must be incorporated into the fugitive emissions monitoring plan required by paragraphs (b), (c), and (d) of this section.
 - (ii) The plan must include the identification and location of each fugitive emissions component designated as difficult-to-monitor.
 - (iii) The plan must include an explanation of why each fugitive emissions component designated as difficult-to-monitor is difficult-to-monitor.
 - (iv) The plan must include a schedule for monitoring the difficult-to-monitor fugitive emissions components at least once per calendar year.
 - (4) Fugitive emissions components that cannot be monitored because monitoring personnel would be exposed to immediate danger while conducting a monitoring survey may be designated as unsafe-to-monitor. Fugitive emissions components that are designated unsafe-to-monitor must meet the specifications of paragraphs (g)(4)(i) through (iv) of this section.
 - (i) A written plan must be developed for all of the fugitive emissions components designated unsafe-to-monitor. This written plan must be incorporated into the fugitive emissions monitoring plan required by paragraphs (b), (c), and (d) of this section.
 - (ii) The plan must include the identification and location of each fugitive emissions component designated as unsafe-to-monitor.
 - (iii) The plan must include an explanation of why each fugitive emissions component designated as unsafe-to-monitor is unsafe-to-monitor.
 - (iv) The plan must include a schedule for monitoring the fugitive emissions components designated as unsafe-to-monitor.
- (5) The requirements of paragraph (g)(2) of this section are waived for any collection of fugitive emissions components at a compressor station located within an area that has an average calendar month temperature below 0°Fahrenheit for two of three consecutive calendar months

of a quarterly monitoring period. The calendar month temperature average for each month within the quarterly monitoring period must be determined using historical monthly average temperatures over the previous three years as reported by a National Oceanic and Atmospheric Administration source or other source approved by the Administrator. The requirements of paragraph (g)(2) of this section shall not be waived for two consecutive quarterly monitoring periods.

- (h) Each identified source of fugitive emissions shall be repaired or replaced in accordance with paragraphs (h)(1) and (2) of this section. For fugitive emissions components also subject to the repair provisions of §§60.5416a(b)(9) through (12) and (c)(4) through (7), those provisions apply instead to those closed vent system and covers, and the repair provisions of paragraphs (h)(1) and (2) of this section do not apply to those closed vent systems and covers.
- (1) Each identified source of fugitive emissions shall be repaired or replaced as soon as practicable, but no later than 30 calendar days after detection of the fugitive emissions.
 - (2) If the repair or replacement is technically infeasible, would require a vent blowdown, a compressor station shutdown, a well shutdown or well shut-in, or would be unsafe to repair during operation of the unit, the repair or replacement must be completed during the next compressor station shutdown, well shutdown, well shut-in, after an unscheduled, planned or emergency vent blowdown or within 2 years, whichever is earlier.
 - (3) Each repaired or replaced fugitive emissions component must be resurveyed as soon as practicable, but no later than 30 days after being repaired, to ensure that there are no fugitive emissions.
 - (i) For repairs that cannot be made during the monitoring survey when the fugitive emissions are initially found, the operator may resurvey the repaired fugitive emissions components using either Method 21 or optical gas imaging within 30 days of finding such fugitive emissions.
 - (ii) For each repair that cannot be made during the monitoring survey when the fugitive emissions are initially found, a digital photograph must be taken of that component or the component must be tagged for identification purposes. The digital photograph must include the date that the photograph was taken, must clearly identify the component by location within the site (e.g., the latitude and longitude of the component or by other descriptive landmarks visible in the picture).
 - (iii) Operators that use Method 21 to resurvey the repaired fugitive emissions components are subject to the resurvey provisions specified in paragraphs (h)(3)(iii)(A) and (B) of this section.
 - (A) A fugitive emissions component is repaired when the Method 21 instrument indicates a concentration of less than 500 ppm above background or when no soap bubbles are observed when the alternative screening procedures specified in section 8.3.3 of Method 21 are used.
 - (B) Operators must use the Method 21 monitoring requirements specified in paragraph (c)(8)(ii) of this section or the alternative screening procedures specified in section 8.3.3 of Method 21.
 - (iv) Operators that use optical gas imaging to resurvey the repaired fugitive emissions components, are subject to the resurvey provisions specified in paragraphs (h)(3)(iv)(A) and (B) of this section.
 - (A) A fugitive emissions component is repaired when the optical gas imaging instrument shows no indication of visible emissions.

(B) Operators must use the optical gas imaging monitoring requirements specified in paragraph (c)(7) of this section.

- (i) Records for each monitoring survey shall be maintained as specified §60.5420a(c)(15).
- (j) Annual reports shall be submitted for each collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station that include the information specified in §60.5420a(b)(7). Multiple collection of fugitive emissions components at a well site or at a compressor station may be included in a single annual report.

12.2. Initial Compliance Demonstration

12.2.1. You must determine initial compliance with the standards for each affected facility using the requirements in paragraphs (a) through (j) of this section. The initial compliance period begins on August 2, 2016, or upon initial startup, whichever is later, and ends no later than 1 year after the initial startup date for your affected facility or no later than 1 year after August 2, 2016. The initial compliance period may be less than one full year.

[40 C.F.R. § 60.5410a]

12.2.2. To achieve initial compliance with the fugitive emission standards for each collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station, you must comply with paragraphs (j)(1) through (5) of this section.

- (1) You must develop a fugitive emissions monitoring plan as required in §60.5397a(b)(c), and (d).
- (2) You must conduct an initial monitoring survey as required in §60.5397a(f).
- (3) You must maintain the records specified in §60.5420a(c)(15).
- (4) You must repair each identified source of fugitive emissions for each affected facility as required in §60.5397a(h).
- (5) You must submit the initial annual report for each collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station as required in §60.5420a(b)(1) and (7).

[40 C.F.R. § 60.5410a(j)]

12.3. Continuous Compliance Demonstration

12.3.1. For each collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station, you must demonstrate continuous compliance with the fugitive emission standards specified in §60.5397a according to paragraphs (h)(1) through (4) of this section.

- (1) You must conduct periodic monitoring surveys as required in §60.5397a(g).
- (2) You must repair or replace each identified source of fugitive emissions as required in §60.5397a(h).
- (3) You must maintain records as specified in §60.5420a(c)(15).

- (4) You must submit annual reports for collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station as required in §60.5420a(b)(1) and (7).

[40 C.F.R. § 60.5415a(h)]

12.4. Notification, Recordkeeping and Reporting Requirements

- 12.4.1. You must submit the notifications according to paragraphs (a)(1) and (2) of this section if you own or operate one or more of the affected facilities specified in §60.5365a that was constructed, modified or reconstructed during the reporting period.

- (1) If you own or operate an affected facility that is the group of all equipment within a process unit at an onshore natural gas processing plant, or a sweetening unit at an onshore natural gas processing plant, you must submit the notifications required in §60.7(a)(1), (3), and (4). If you own or operate a well, centrifugal compressor, reciprocating compressor, pneumatic controller, pneumatic pump, storage vessel, or collection of fugitive emissions components at a well site or collection of fugitive emissions components at a compressor station, you are not required to submit the notifications required in §60.7(a)(1), (3), and (4).

[40 C.F.R. § 60.5420a(a)]

- 12.4.2. *Reporting requirements.* You must submit annual reports containing the information specified in paragraphs (b)(1) through (8) and (12) of this section and performance test reports as specified in paragraph (b)(9) or (10) of this section, if applicable. You must submit annual reports following the procedure specified in paragraph (b)(11) of this section. The initial annual report is due no later than 90 days after the end of the initial compliance period as determined according to §60.5410a. Subsequent annual reports are due no later than same date each year as the initial annual report. If you own or operate more than one affected facility, you may submit one report for multiple affected facilities provided the report contains all of the information required as specified in paragraphs (b)(1) through (8) of this section. Annual reports may coincide with title V reports as long as all the required elements of the annual report are included. You may arrange with the Administrator a common schedule on which reports required by this part may be submitted as long as the schedule does not extend the reporting period.

- (1) The general information specified in paragraphs (b)(1)(i) through (iv) of this section for all reports.

- (i) The company name, facility site name associated with the affected facility, US Well ID or US Well ID associated with the affected facility, if applicable, and address of the affected facility. If an address is not available for the site, include a description of the site location and provide the latitude and longitude coordinates of the site in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983.

- (ii) An identification of each affected facility being included in the annual report.

- (iii) Beginning and ending dates of the reporting period.

- (iv) A certification by a certifying official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

- (7) For the collection of fugitive emissions components at each well site and the collection of fugitive emissions components at each compressor station within the company-defined area, the records of each monitoring survey including the information specified in paragraphs (b)(7)(i) through (xii) of this section. For the collection of fugitive emissions components at a compressor station, if a monitoring survey is waived under §60.5397a(g)(5), you must include

in your annual report the fact that a monitoring survey was waived and the calendar months that make up the quarterly monitoring period for which the monitoring survey was waived.

- (i) Date of the survey.
- (ii) Beginning and end time of the survey.
- (iii) Name of operator(s) performing survey. If the survey is performed by optical gas imaging, you must note the training and experience of the operator.
- (iv) Ambient temperature, sky conditions, and maximum wind speed at the time of the survey.
- (v) Monitoring instrument used.
- (vi) Any deviations from the monitoring plan or a statement that there were no deviations from the monitoring plan.
- (vii) Number and type of components for which fugitive emissions were detected.
- (viii) Number and type of fugitive emissions components that were not repaired as required in §60.5397a(h).
- (ix) Number and type of difficult-to-monitor and unsafe-to-monitor fugitive emission components monitored.
- (x) The date of successful repair of the fugitive emissions component.
- (xi) Number and type of fugitive emission components placed on delay of repair and explanation for each delay of repair.
- (xii) Type of instrument used to resurvey a repaired fugitive emissions component that could not be repaired during the initial fugitive emissions finding.

[40 C.F.R. § 60.5420a(b)]

12.4.3. *Recordkeeping requirements.* You must maintain the records identified as specified in §60.7(f) and in paragraphs (c)(1) through (16) of this section. All records required by this subpart must be maintained either onsite or at the nearest local field office for at least 5 years. Any records required to be maintained by this subpart that are submitted electronically via the EPA's CDX may be maintained in electronic format.

- (15) For each collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station, the records identified in paragraphs (c)(15)(i) through (iii) of this section.
 - (i) The fugitive emissions monitoring plan as required in §60.5397a(b), (c), and (d).
 - (ii) The records of each monitoring survey as specified in paragraphs (c)(15)(ii)(A) through (I) of this section.
 - (A) Date of the survey.
 - (B) Beginning and end time of the survey.
 - (C) Name of operator(s) performing survey. You must note the training and experience of the operator.
 - (D) Monitoring instrument used.
 - (E) When optical gas imaging is used to perform the survey, one or more digital photographs or videos, captured from the optical gas imaging instrument used for conduct of monitoring, of each required monitoring survey being performed. The digital photograph must include the date the photograph was taken and the latitude and longitude of the collection of fugitive emissions components at a well site or collection of fugitive emissions components at a compressor station imbedded within or stored with the digital file. As an alternative to imbedded latitude and longitude within the digital file, the digital photograph or video may consist of an image of the monitoring survey being performed

with a separately operating GPS device within the same digital picture or video, provided the latitude and longitude output of the GPS unit can be clearly read in the digital image.

- (F) Fugitive emissions component identification when Method 21 is used to perform the monitoring survey.
- (G) Ambient temperature, sky conditions, and maximum wind speed at the time of the survey.
- (H) Any deviations from the monitoring plan or a statement that there were no deviations from the monitoring plan.
- (I) Documentation of each fugitive emission, including the information specified in paragraphs (c)(15)(ii)(I)(1) through (12) of this section.
 - (1) Location.
 - (2) Any deviations from the monitoring plan or a statement that there were no deviations from the monitoring plan.
 - (3) Number and type of components for which fugitive emissions were detected.
 - (4) Number and type of difficult-to-monitor and unsafe-to-monitor fugitive emission components monitored.
 - (5) Instrument reading of each fugitive emissions component that requires repair when Method 21 is used for monitoring.
 - (6) Number and type of fugitive emissions components that were not repaired as required in §60.5397a(h).
 - (7) Number and type of components that were tagged as a result of not being repaired during the monitoring survey when the fugitive emissions were initially found as required in §60.5397a(h)(3)(ii).
 - (8) If a fugitive emissions component is not tagged, a digital photograph or video of each fugitive emissions component that could not be repaired during the monitoring survey when the fugitive emissions were initially found as required in §60.5397a(h)(3)(ii). The digital photograph or video must clearly identify the location of the component that must be repaired. Any digital photograph or video required under this paragraph can also be used to meet the requirements under paragraph (c)(15)(ii)(E) of this section, as long as the photograph or video is taken with the optical gas imaging instrument, includes the date and the latitude and longitude are either imbedded or visible in the picture.
 - (9) Repair methods applied in each attempt to repair the fugitive emissions components.
 - (10) Number and type of fugitive emission components placed on delay of repair and explanation for each delay of repair.
 - (11) The date of successful repair of the fugitive emissions component.
 - (12) Instrumentation used to resurvey a repaired fugitive emissions component that could not be repaired during the initial fugitive emissions finding.
- (iii) For the collection of fugitive emissions components at a compressor station, if a monitoring survey is waived under §60.5397a(g)(5), you must maintain records of the average calendar

month temperature, including the source of the information, for each calendar month of the quarterly monitoring period for which the monitoring survey was waived.
[40 C.F.R. § 60.5420a(c)]

13.0. Source-Specific Requirements (40CFR63 Subpart ZZZZ Requirements, C-100 – C-1800, GEN2, GEN3)

13.1. Limitations and Standards

13.1.1. The permittee must comply with the applicable operating limitations in this section no later than October 19, 2013.
[40 C.F.R. § 63.6595(a)]

13.1.2. *Stationary RICE subject to Regulation under 40 CFR Part 60.* An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

The permittee meets the criteria of paragraph (c)(1), which is for a new or reconstructed stationary RICE located at an area source. The permittee must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart JJJJ.
[40 C.F.R. § 63.6590(c)]

14.0. Source-Specific Requirements (Blowdown, Compressor Startup and Pigging Operations)

14.1. Limitations and Standards

14.1.1. The maximum number of blowdown events per year shall not exceed 1,404, with an estimated 3,195,504 scf per year. Compliance shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the blowdown events at any given time during the previous twelve consecutive calendar months.

14.1.2. The maximum number of compressor startup events per year shall not exceed 1,404, with an estimated 1,474,200 scf per year. Compliance shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the blowdown events at any given time during the previous twelve consecutive calendar months.

14.1.3. The maximum number of low pressure pigging events per year shall not exceed 593, with an estimated 269,222 scf per year. Compliance shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the low pressure pigging events at any given time during the previous twelve consecutive calendar months.

14.1.4. The maximum number of high pressure pigging events per year shall not exceed 780, with an estimated 2,506,140 scf per year. Compliance shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the high pressure pigging events at any given time during the previous twelve consecutive calendar months.

14.2. Recordkeeping Requirements

14.2.1. All records required under section 14.2 of this permit shall be kept in accordance with permit condition 3.4.1.

- 14.2.2. To demonstrate compliance with permit conditions 14.1.1 – 14.1.4, the permittee shall maintain a record of the blowdown, startup, and pigging events and estimated volume per event (scf) on a monthly and rolling twelve month total.

14.3. Reporting Requirements

- 14.3.1. Any exceedance of permit conditions 14.1.1 – 14.1.4 must be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the date of the exceedance, the estimate of VOC emissions released to the atmosphere as a result of the exceedance and any corrective measures taken or planned.

CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature¹ _____
(please use blue ink) Responsible Official or Authorized Representative Date

Name & Title _____
(please print or type) Name Title

Telephone No. _____ Fax No. _____

¹ This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

- a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:
 - (i) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), or
 - (ii) the delegation of authority to such representative is approved in advance by the Director;
- b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;
- c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of U.S. EPA); or
- d. The designated representative delegated with such authority and approved in advance by the Director.



Tipane, Frederick <frederick.tipane@wv.gov>

Completeness Determination, Middlebourne V CS, Application No.: R30-09500087-2021

1 message

Tipane, Frederick <Frederick.Tipane@wv.gov>

Wed, May 5, 2021 at 1:33 PM

To: "Robert Krcek (rkrcek@anteroresources.com)" <rkrcek@anteroresources.com>

Cc: "Jena Resnick (jresnick@anteroresources.com)" <jresnick@anteroresources.com>

Your Title V application for a permit to operate the above referenced facility was received by this Division on May 4, 2021. After review of said application, it has been determined that the application is administratively complete as submitted. Therefore, the above referenced facility qualifies for an Application Shield.

The applicant has the duty to supplement or correct the application. Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to release of a draft permit.

The submittal of a complete application shall not affect the requirement that any source have all **preconstruction permits** required under the rules of the Division.

If during the processing of this application it is determined that additional information is necessary to evaluate or take final action on this application, a request for such information will be made in writing with a reasonable deadline for a response. Until which time as your renewal permit is issued or denied, please continue to operate this facility in accordance with 45CSR30, section 6.3.c. which states: *If the Secretary fails to take final action to deny or approve a timely and complete permit application before the end of the term of the previous permit, the permit shall not expire until the renewal permit has been issued or denied, and any permit shield granted for the permit shall continue in effect during that time.* This protection shall cease to apply if, subsequent to the completeness determination made pursuant to paragraph 6.1.d. of 45CSR30 and as required by paragraph 4.1.b., the applicant fails to submit by the deadline specified in writing any additional information identified as being needed to process the application.

Please remember, **failure of the applicant to timely submit information required or requested to process the application may cause the Application Shield to be revoked.** Should you have any questions regarding this determination, please contact me.

Sincerely,

Frederick Tipane

WVDEP/Division of Air Quality

[601 57th Street, SE](#)

[Charleston, WV 25304](#)

[Office: \(304\) 414-1910](#)

[Fax: \(304\) 926-0479](#)

[E-mail: frederick.tipane@wv.gov](mailto:frederick.tipane@wv.gov)



Tipane, Frederick <frederick.tipane@wv.gov>

[External] Read: Completeness Determination, Middlebourne V CS, Application No.: R30-09500087-2021

1 message

Jena Resnick <jresnick@anteroresources.com>
To: "Tipane, Frederick" <Frederick.Tipane@wv.gov>

Wed, May 5, 2021 at 1:48 PM

CAUTION: External email. Do not click links or open attachments unless you verify sender.

----- Forwarded message -----

From: Jena Resnick <jresnick@anteroresources.com>
To: "Tipane, Frederick" <Frederick.Tipane@wv.gov>
Cc:
Bcc:
Date: Wed, 5 May 2021 17:48:06 +0000
Subject: [External] Read: Completeness Determination, Middlebourne V CS, Application No.: R30-09500087-2021
Your message

To: Jena Resnick
Subject: Completeness Determination, Middlebourne V CS, Application No.: R30-09500087-2021
Sent: Wednesday, May 5, 2021 11:33:43 AM (UTC-07:00) Mountain Time (US & Canada)

was read on Wednesday, May 5, 2021 11:48:03 AM (UTC-07:00) Mountain Time (US & Canada).



Tipane, Frederick <frederick.tipane@wv.gov>

[External] Read: Completeness Determination, Middlebourne V CS, Application No.: R30-09500087-2021

1 message

Bob Krcek <rkrcek@anteroresources.com>
To: "Tipane, Frederick" <Frederick.Tipane@wv.gov>

Wed, May 5, 2021 at 3:09 PM

CAUTION: External email. Do not click links or open attachments unless you verify sender.

----- Forwarded message -----

From: Bob Krcek <rkrcek@anteroresources.com>
To: "Tipane, Frederick" <Frederick.Tipane@wv.gov>
Cc:
Bcc:
Date: Wed, 5 May 2021 19:09:47 +0000
Subject: [External] Read: Completeness Determination, Middlebourne V CS, Application No.: R30-09500087-2021
Your message

To: Bob Krcek
Subject: Completeness Determination, Middlebourne V CS, Application No.: R30-09500087-2021
Sent: Wednesday, May 5, 2021 11:33:43 AM (UTC-07:00) Mountain Time (US & Canada)

was read on Wednesday, May 5, 2021 1:09:47 PM (UTC-07:00) Mountain Time (US & Canada).



Tipane, Frederick <frederick.tipane@wv.gov>

WV DAQ Title V Permit Application Status for Antero Midstream LLC; Middlebourne V Compressor Station

1 message

Mink, Stephanie R <Stephanie.R.Mink@wv.gov>

Tue, May 4, 2021 at 2:44 PM

To: "rkrcek@anteroresources.com" <rkrcek@anteroresources.com>, "jresnick@anteroresources.com" <jresnick@anteroresources.com>, "meszaros@pinyon-env.com" <meszaros@pinyon-env.com>, "nneyrey@spiritenv.com" <nneyrey@spiritenv.com>

Cc: "Tipane, Frederick" <Frederick.Tipane@wv.gov>, "McCumbers, Carrie" <Carrie.McCumbers@wv.gov>

RE: Application Status**Antero Midstream LLC****Middlebourne V Compressor Station****Facility ID No. 095-00087****Application No. R30-09500087-2021**

Dear Mr. Krcek,

Your application for a Title V Initial Permit for Antero Midstream LLC's Middlebourne V Compressor Station was received by this Division on May 4, 2021, and was assigned to Frederick Tipane.

Should you have any questions, please contact the assigned permit writer, Should you have any questions, please contact the assigned permit writer, Frederick Tipane, at 304-926-0499, extension 41910, or Frederick.Tipane@wv.gov.

Stephanie Mink

Secretary 2

West Virginia Department of Environmental Protection

Division of Air Quality, Title V Permitting

601 57th Street SE

Charleston, WV 25304

Phone: 304-926-0499 x41281

Received
May 4, 2021
WV DEP/Div of Air Quality

Division of Air Quality Permit Application Submittal

Please find attached a permit application for :
[Company Name; Facility Location]

- DAQ Facility ID (for existing facilities only):
- Current 45CSR13 and 45CSR30 (Title V) permits associated with this process (for existing facilities only):

• Type of NSR Application (check all that apply):

- Construction
- Modification
- Class I Administrative Update
- Class II Administrative Update
- Relocation
- Temporary
- Permit Determination

• Type of 45CSR30 (TITLE V) Application:

- Title V Initial
- Title V Renewal
- Administrative Amendment**
- Minor Modification**
- Significant Modification**
- Off Permit Change

****If the box above is checked, include the Title V revision information as ATTACHMENT S to the combined NSR/Title V application.**

• Payment Type: **N/A Title V Initial**

- Credit Card (Instructions to pay by credit card will be sent in the Application Status email.)
- Check (Make checks payable to: WVDEP – Division of Air Quality)

Mail checks to:
WVDEP – DAQ – Permitting
Attn: NSR Permitting Secretary
601 57th Street, SE
Charleston, WV 25304

Please wait until DAQ emails you the Facility ID Number and Permit Application Number. Please add these identifiers to your check or cover letter with your check.

• If the permit writer has any questions, please contact (all that apply):

- Responsible Official/Authorized Representative

- Name:
- Email:
- Phone Number:

Company Contact

- Name:
- Email:
- Phone Number:

Consultant

- Name:
- Email:
- Phone Number:



VIA Email DEPAirQualityPermitting@wv.gov

May 4, 2021

Laura M. Crowder
Director
WV Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304

RE: Initial Operating Permit Application
Middlebourne V Compressor Station
Tyler County, West Virginia
Plant ID No. 095-00087

Dear Ms. Crowder,

Antero Midstream LLC ("Antero") is submitting one (1) electronic copy of an Initial Operating Permit Application for the existing Middlebourne V Compressor Station authorized by Permit No. 13-3394F. This operating permit application is being submitted within 12 months of the commencement of the operation of the authorized sources, as required in Permit 13-3394F.

If you have any questions or require further information, please do not hesitate to contact me at (303) 357-7344 or jresnick@anteroresources.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Jena Resnick".

Jena Resnick
Sr. Manager, Environmental & Regulatory Compliance

Enclosures

cc: Nicki Neyrey, Project Manager, Spirit Environmental, nneyrey@spiritenv.com



Initial Operating Permit Application

Middlebourne V Compressor Station

Tyler County, West Virginia

May 2021

PREPARED FOR:

Antero Midstream LLC

Denver, Colorado

SPIRIT PROJECT: 21255.00A

FOR SPIRIT ENVIRONMENTAL:

Handwritten signature of Nicole Neyrey in cursive.

Nicole Neyrey

Handwritten signature of Holli Williamson in cursive.

Holli Williamson

OFFICE: 720-500-3710
FAX: 281-664-2491

1626 Wazee St, Suite 2A
Denver, CO 80202

spiritenv.com

Table of Contents

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1.0 Introduction

1.1 Project Overview

Antero Midstream LLC (“Antero”) owns and operates the Middlebourne V Compressor Station (“the Site”) in Tyler County, West Virginia, authorized under Permit No. R13-3394F. The total site-wide potential to emit (“PTE”) for volatile organic compounds (“VOCs”) and nitrogen oxides (“NOx”) exceed 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 V 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 13-3394F.

1.2 Site Location

The Middlebourne V Compressor Station is located at 3406 Elk Fork Road in Tyler County, less than four (4) miles northeast of Middlebourne, West Virginia. Latitude / Longitude: 39.51774° / -80.84175°.

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 18 compressor engines (Unit IDs: C-100 through C-1800). The 18 compressor engines consist of 18 2,500 horsepower (“hp”) Caterpillar G3608 lean burn compressor engines (Unit IDs: C-100 through C-1800) controlled with oxidation catalysts (Unit IDs: 1C through 12C and 18C through 23C). Fuel gas for the compressor engines is treated prior to the engines by a fuel conditioning skid with one (1) 0.5 million British Thermal Units per hour (“MMBtu/hr”) heater (Unit ID: FUEL1) and one (1) 0.75 MMBtu/hr heater (Unit ID: FUEL2) to allow more complete combustion. Produced fluids are routed to the settling tank, and compressed gas is routed to the contact towers and then diverted to one (1) of the three (3) triethylene glycol (“TEG”) dehydrator regeneration systems.

The first contact tower diverts flow to two (2) TEG dehydrator regeneration systems which each consist of 260 million standard cubic feet per day (MMscf/day) regenerators (Unit IDs: DEHY1 and DEHY2), 260 MMscf/day flash gas tanks (Unit IDs: DFLSH1 and DFLSH2), and 1.5 MMbtu/hr reboilers (Unit IDs: DREB1 and DREB2). The second contact tower diverts flow to a third TEG dehydrator regeneration system which consists of a 130 million standard cubic feet per day (MMscf/day) regenerator (Unit ID: DEHY3), 130 MMscf/day flash gas tank (Unit ID: DFLSH3), and 1.5 MMbtu/hr reboiler (Unit ID: DREB3). Primarily, vent gas from the flash gas tank is routed to the unit's reboilers (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 is routed to the dedicated thermal oxidizer (Unit IDs: TO-1, TO-2, and TO-3). The vent gas off of the regenerator is routed to the dedicated thermal oxidizer (Unit IDs: TO-1, TO-2, and TO-3). The thermal oxidizers each have a control efficiency of 98%. Emissions from the reboilers are routed to the atmosphere.

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 five (5) 400 bbl produced water tanks (Unit IDs: T05 through T07 and T10 through T11) and the condensate goes to five (5) 400 bbl condensate tanks (Unit IDs: T01 through T03 and T08 through T09). Flashing mostly occurs at the settling tank as the fluids stabilize in the settling tank before going to the other storage tanks. All eleven (11) tanks are connected to two (2) VRUs (Unit IDs: VRU-100 and VRU-200) where tank vapors are collected and recycled back into the gas system right before the initial filter scrubber. A third VRU (Unit ID: VRU-300) is also connected to the tanks as a backup unit. The produced fluids are trucked out via tanker trucks as needed (Unit ID: LDOUT1). Truck loading vapors are captured by a vapor balance system and sent to thermal oxidizers for the dehydration system (Unit IDs: TO-1, TO-2, or TO-3). The combined capture and control efficiency of the truck loading vapors is 93.1%. The production is 450 bbls per day of condensate and 135 bbls per day of produced water.

Two (2) certified natural gas generators (Unit IDs: GEN2 and GEN3) rated at 649 hp PSI Industrial 21.9L are used at the facility for power generation support. The generators are permitted at 1,000 hours per year of operation.

Fugitive emissions from component leaks (Unit ID: FUG) and venting emissions from pigging, compressor startups, compressor blowdowns, scheduled plant shutdown events, and vessel cleaning and maintenance (Unit ID: VENT1) occur. There are also insignificant auxiliary storage tanks located at the facility (Unit IDs: TK-100 through TK-111).

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.*

<input checked="" type="checkbox"/>	A signed copy of the application (“Certification” page must be signed and dated by a Responsible Official as defined in 45CSR30)
<input checked="" type="checkbox"/>	*Table of Contents (needs to be included but not for administrative completeness)
<input checked="" type="checkbox"/>	Facility information
<input checked="" type="checkbox"/>	Description of process and products, including NAICS and SIC codes, and including alternative operating scenarios
<input checked="" type="checkbox"/>	Area map showing plant location
<input checked="" type="checkbox"/>	Plot plan showing buildings and process areas
<input checked="" type="checkbox"/>	Process flow diagram(s), showing all emission units, control equipment, emission points, and their relationships
<input checked="" type="checkbox"/>	Identification of all applicable requirements with a description of the compliance status, the methods used for demonstrating compliance, and a Schedule of Compliance Form (ATTACHMENT F) for all requirements for which the source is not in compliance
<input checked="" type="checkbox"/>	Listing of all active permits and consent orders (if applicable)
<input checked="" type="checkbox"/>	Facility-wide emissions summary
<input checked="" type="checkbox"/>	Identification of Insignificant Activities
<input checked="" type="checkbox"/>	ATTACHMENT D – Title V Equipment Table completed for all emission units at the facility except those designated as insignificant activities
<input checked="" type="checkbox"/>	ATTACHMENT E – Emission Unit Form completed for each emission unit listed in the Title V Equipment Table (ATTACHMENT D) and a Schedule of Compliance Form (ATTACHMENT F) for all requirements for which the emission unit is not in compliance
<input checked="" type="checkbox"/>	ATTACHMENT G – Air Pollution Control Device Form completed for each control device listed in the Title V Equipment Table (ATTACHMENT D)
<input type="checkbox"/>	ATTACHMENT H – Compliance Assurance Monitoring (CAM) Plan Form completed for each control device for which the “Is the device subject to CAM?” question is answered “Yes” on the Air Pollution Control Device Form (ATTACHMENT G)
<input checked="" type="checkbox"/>	General Application Forms signed by a Responsible Official
<input type="checkbox"/>	Confidential Information submitted in accordance with 45CSR31



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

Received
May 4, 2021
WV DEP/Div of Air Quality

INITIAL/RENEWAL TITLE V PERMIT APPLICATION - GENERAL FORMS

Section 1: General Information

Form with 10 sections: 1. Name of Applicant (Antero Midstream LLC), 2. Facility Name (Middlebourne V Compressor Station), 3. DAQ Plant ID No. (095-00087), 4. Federal Employer ID No. (46-5517375), 5. Permit Application Type (Initial Permit), 6. Type of Business Entity (LLC), 7. Is the Applicant the: (Both), 8. Number of onsite employees (0), 9. Governmental Code (Privately owned and operated; 0), 10. Business Confidentiality Claims.

11. Mailing Address		
Street or P.O. Box: 1615 Wynkoop Street		
City: Denver	State: CO	Zip: 80202
Telephone Number: (303) 357-7310	Fax Number:	

12. Facility Location		
Street: 3406 Elk Fork Road	City: Middlebourne	County: Tyler
UTM Easting: 513.603 km	UTM Northing: 4374.245 km	Zone: <input checked="" type="checkbox"/> 17 or <input type="checkbox"/> 18
Directions: From Middlebourne, WV, drive northeast on WV-18N/ Main St. toward Court St / Dodd St. Drive 3.8 miles and turn right toward Elk Fork. Continue onto Elk Fork for 0.4 miles. Turn right only Elk Fork Rd and drive for 3.2 miles. The facility entrance will be on the right.		
Portable Source? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Is facility located within a nonattainment area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, for what air pollutants?	
Is facility located within 50 miles of another state? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, name the affected state(s). Ohio and Pennsylvania	
Is facility located within 100 km of a Class I Area¹? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, name the area(s).	
If no, do emissions impact a Class I Area¹? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
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: (303) 357-7315
E-mail address: rkrcek@anteroresources.com		
Environmental Contact: Jena Resnick		Title: Sr. Regulatory & Environmental Manager
Street or P.O. Box: 1615 Wynkoop Street		
City: Denver	State: CO	Zip: 80202
Telephone Number: (303) 357-7344		Fax Number: (303) 357-7315
E-mail address: jresnick@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 Transmission	Pipeline Transportation of Natural Gas	486210	4922

Provide a general description of operations.

The Middlebourne V Compressor Station separates, compresses, and dries gas off the inlet pipeline stream. The station includes eighteen (18) compressor engines with oxidation catalysts, two (2) natural gas generators, two (2) 260 MMscfd dehydrators with two (2) reboilers, one (1) 130 MMscfd dehydrator with one (1) reboiler, five (5) 400-bbl condensate tanks, five (5) 400-bbl produced water tanks, one (1) 500-bbl settling tank, one (1) 0.5 MMBtu/hr fuel conditioning heater, one (1) 0.75 MMBtu/hr fuel conditioning heater, three (3) thermal oxidizers, three (3) 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.	
<input checked="" type="checkbox"/> SIP	<input type="checkbox"/> FIP
<input checked="" type="checkbox"/> Minor source NSR (45CSR13)	<input type="checkbox"/> PSD (45CSR14)
<input checked="" type="checkbox"/> NESHAP (45CSR34) – HH and ZZZZ	<input type="checkbox"/> Nonattainment NSR (45CSR19)
<input checked="" type="checkbox"/> Section 111 NSPS – JJJJ and OOOOa	<input type="checkbox"/> Section 112(d) MACT standards
<input type="checkbox"/> Section 112(g) Case-by-case MACT	<input type="checkbox"/> 112(r) RMP
<input type="checkbox"/> Section 112(i) Early reduction of HAP	<input type="checkbox"/> Consumer/commercial prod. reqts., section 183(e)
<input type="checkbox"/> Section 129 Standards/Reqts.	<input type="checkbox"/> Stratospheric ozone (Title VI)
<input type="checkbox"/> Tank vessel reqt., section 183(f)	<input type="checkbox"/> Emissions cap 45CSR§30-2.6.1
<input type="checkbox"/> NAAQS, increments or visibility (temp. sources)	<input type="checkbox"/> 45CSR27 State enforceable only rule
<input type="checkbox"/> 45CSR4 State enforceable only rule - Odors	<input type="checkbox"/> Acid Rain (Title IV, 45CSR33)
<input type="checkbox"/> Emissions Trading and Banking (45CSR28)	<input type="checkbox"/> Compliance Assurance Monitoring (40CFR64)
<input type="checkbox"/> CAIR NO _x Annual Trading Program (45CSR39)	<input type="checkbox"/> CAIR NO _x Ozone Season Trading Program (45CSR40)
<input type="checkbox"/> CAIR SO ₂ Trading Program (45CSR41)	

19. Non Applicability Determinations
<p>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.</p> <p>Please reference SUPPLEMENT S1-Regulatory Discussion for details on negative applicability.</p>
<input checked="" type="checkbox"/> 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 R13-3394F 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§6-3.1.] – open burning of refuse is prohibited except 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 Hazardous Air Pollutants (HAP) – HAP emissions from the facility shall be less than 10 tons/year of any single HAP or 25 tons/year 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 WVDEP-DAQ Permit R13-3394F 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 R13-3394F 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
- 6.4.5** Maintain records of PTE HAP calculations for the entire affected facility, including compressor engines and ancillary equipment to demonstrate compliance with sections 6.1.4 and 6.1.5.

**Please Reference WVDEP-DAQ Permit R13-3394F 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 (<i>if any</i>)
R13-3394F	12/16/2020	N/A

22. Inactive Permits/Obsolete Permit Conditions		
Permit Number	Date of Issuance	Permit Condition Number
R13-3394E	10/20/2020	N/A
R13-3394D	7/17/2020	N/A
R13-3394C	1/23/2020	N/A
R13-3394B	9/23/2019	N/A
R13-3394A	7/29/2019	N/A
R13-3394	3/27/2018	N/A

Section 3: Facility-Wide Emissions

23. Facility-Wide Emissions Summary [Tons per Year]	
Criteria Pollutants	Potential Emissions (including fugitives)
Carbon Monoxide (CO)	99.75
Nitrogen Oxides (NO_x)	140.6
Lead (Pb)	N/A
Particulate Matter (PM_{2.5})¹	14.32
Particulate Matter (PM₁₀)¹	14.32
Total Particulate Matter (TSP)	16.14
Sulfur Dioxide (SO₂)	0.82
Volatile Organic Compounds (VOC)	230.5
Hazardous Air Pollutants ²	Potential Emissions (including fugitives)
Benzene	0.69
Toluene	1.76
Ethylbenzene	0.17
Xylenes	0.60
n-Hexane	4.10
Acetaldehyde	1.43
Acrolein	3.69
Methanol	1.81
Formaldehyde	8.81
Total HAPs	24.23
Regulated Pollutants other than Criteria and HAP	Potential Emissions (including fugitives)
CO_{2e}	239,769
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)	
<input checked="" type="checkbox"/>	1. Air compressors and pneumatically operated equipment, including hand tools.
<input checked="" type="checkbox"/>	2. Air contaminant detectors or recorders, combustion controllers or shutoffs.
<input checked="" type="checkbox"/>	3. Any consumer product used in the same manner as in normal consumer use, provided the use results in a duration and frequency of exposure which are not greater than those experienced by consumer, and which may include, but not be limited to, personal use items; janitorial cleaning supplies, office supplies and supplies to maintain copying equipment.
<input type="checkbox"/>	4. Bathroom/toilet vent emissions.
<input type="checkbox"/>	5. Batteries and battery charging stations, except at battery manufacturing plants.
<input type="checkbox"/>	6. Bench-scale laboratory equipment used for physical or chemical analysis, but not lab fume hoods or vents. Many lab fume hoods or vents might qualify for treatment as insignificant (depending on the applicable SIP) or be grouped together for purposes of description.
<input type="checkbox"/>	7. Blacksmith forges.
<input type="checkbox"/>	8. Boiler water treatment operations, not including cooling towers.
<input checked="" type="checkbox"/>	9. Brazing, soldering or welding equipment used as an auxiliary to the principal equipment at the source.
<input type="checkbox"/>	10. CO ₂ lasers, used only on metals and other materials which do not emit HAP in the process.
<input checked="" type="checkbox"/>	11. Combustion emissions from propulsion of mobile sources, except for vessel emissions from Outer Continental Shelf sources.
<input type="checkbox"/>	12. Combustion units designed and used exclusively for comfort heating that use liquid petroleum gas or natural gas as fuel.
<input checked="" type="checkbox"/>	13. Comfort air conditioning or ventilation systems not used to remove air contaminants generated by or released from specific units of equipment.
<input type="checkbox"/>	14. Demineralized water tanks and demineralizer vents.
<input type="checkbox"/>	15. Drop hammers or hydraulic presses for forging or metalworking.
<input type="checkbox"/>	16. Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substances being processed in the ovens or autoclaves or the boilers delivering the steam.
<input type="checkbox"/>	17. Emergency (backup) electrical generators at residential locations.
<input type="checkbox"/>	18. Emergency road flares.
<input checked="" type="checkbox"/>	<p>19. Emission units which do not have any applicable requirements and which emit criteria pollutants (CO, NO_x, SO₂, 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.</p> <p>Please specify all emission units for which this exemption applies along with the quantity of criteria pollutants emitted on an hourly and annual basis:</p> <p>Two (2) 3,000-gallon Compressor Skid Oily Water Tanks</p> <p>Two (2) 3,000-gallon TEG Make-up Tanks</p> <p>Two (2) 1,000-gallon Compressor Coolant Tanks</p> <p>Two (2) 3,000-gallon Engine Lube Oil Tanks</p> <p>Two (2) 3,000-gallon Compressor Lube Oil Tanks</p> <p>Total criteria pollutant emissions for the sources above are < 1 lb/hr and 10,000 lbs/year</p>

24. Insignificant Activities (Check all that apply)	
<input checked="" type="checkbox"/>	<p>20. Emission units which do not have any applicable requirements and which emit hazardous air pollutants into the atmosphere at a rate of less than 0.1 pounds per hour and less than 1,000 pounds per year aggregate total for all HAPs from all emission sources. This limitation cannot be used for any source which emits dioxin/furans nor for toxic air pollutants as per 45CSR27.</p> <p>Please specify all emission units for which this exemption applies along with the quantity of hazardous air pollutants emitted on an hourly and annual basis:</p> <p>Two (2) 3,000-gallon Compressor Skid Oily Water Tanks Two (2) 3,000-gallon TEG Make-up Tanks Two (2) 1,000-gallon Compressor Coolant Tanks Two (2) 3,000-gallon Engine Lube Oil Tanks Two (2) 3,000-gallon Compressor Lube Oil Tanks</p> <p>Total HAP emissions for the sources above are < 0.1 lb/hr and 1,000 lbs/year</p>
<input type="checkbox"/>	21. Environmental chambers not using hazardous air pollutant (HAP) gases.
<input type="checkbox"/>	22. Equipment on the premises of industrial and manufacturing operations used solely for the purpose of preparing food for human consumption.
<input type="checkbox"/>	23. Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.
<input checked="" type="checkbox"/>	24. Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis.
<input checked="" type="checkbox"/>	25. Equipment used for surface coating, painting, dipping or spray operations, except those that will emit VOC or HAP.
<input checked="" type="checkbox"/>	26. Fire suppression systems.
<input type="checkbox"/>	27. Firefighting equipment and the equipment used to train firefighters.
<input type="checkbox"/>	28. Flares used solely to indicate danger to the public.
<input type="checkbox"/>	29. Fugitive emission related to movement of passenger vehicle provided the emissions are not counted for applicability purposes and any required fugitive dust control plan or its equivalent is submitted.
<input type="checkbox"/>	30. Hand-held applicator equipment for hot melt adhesives with no VOC in the adhesive formulation.
<input checked="" type="checkbox"/>	31. Hand-held equipment for buffing, polishing, cutting, drilling, sawing, grinding, turning or machining wood, metal or plastic.
<input type="checkbox"/>	32. Humidity chambers.
<input type="checkbox"/>	33. Hydraulic and hydrostatic testing equipment.
<input type="checkbox"/>	34. Indoor or outdoor kerosene heaters.
<input checked="" type="checkbox"/>	35. Internal combustion engines used for landscaping purposes.
<input type="checkbox"/>	36. Laser trimmers using dust collection to prevent fugitive emissions.
<input type="checkbox"/>	37. Laundry activities, except for dry-cleaning and steam boilers.
<input type="checkbox"/>	38. Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.
<input type="checkbox"/>	39. Oxygen scavenging (de-aeration) of water.
<input type="checkbox"/>	40. Ozone generators.

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

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

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**

Received
May 4, 2021
WV DEP/Div of Air Quality

Responsible official's signature:

Signature:  Signature Date: 05/03/2021
(Must be signed and dated in blue ink)

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

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

All of the required forms and additional information can be found and downloaded from, the DEP website at www.dep.wv.gov/dag, 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





Service Layer Credits: World Imagery; Maxar

Tyler County, West Virginia

Legend

- ★ Middlebourne V Compressor Station

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

 **SPIRIT**
 ENVIRONMENTAL
 20465 State Highway 249, Suite 300
 Houston, TX 77070

Drawing No.: 1
Date: 4/12/2021
Project No.: 21255.00A
Drawn By: AHasse
Note: This is not a Property Boundary Survey



Legend

-  Middlebourne V Compressor Station
-  USA Topo Maps

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



20465 State Highway 249, Suite 300
 Houston, TX 77070

Drawing No.: 2

Date: 4/12/2021

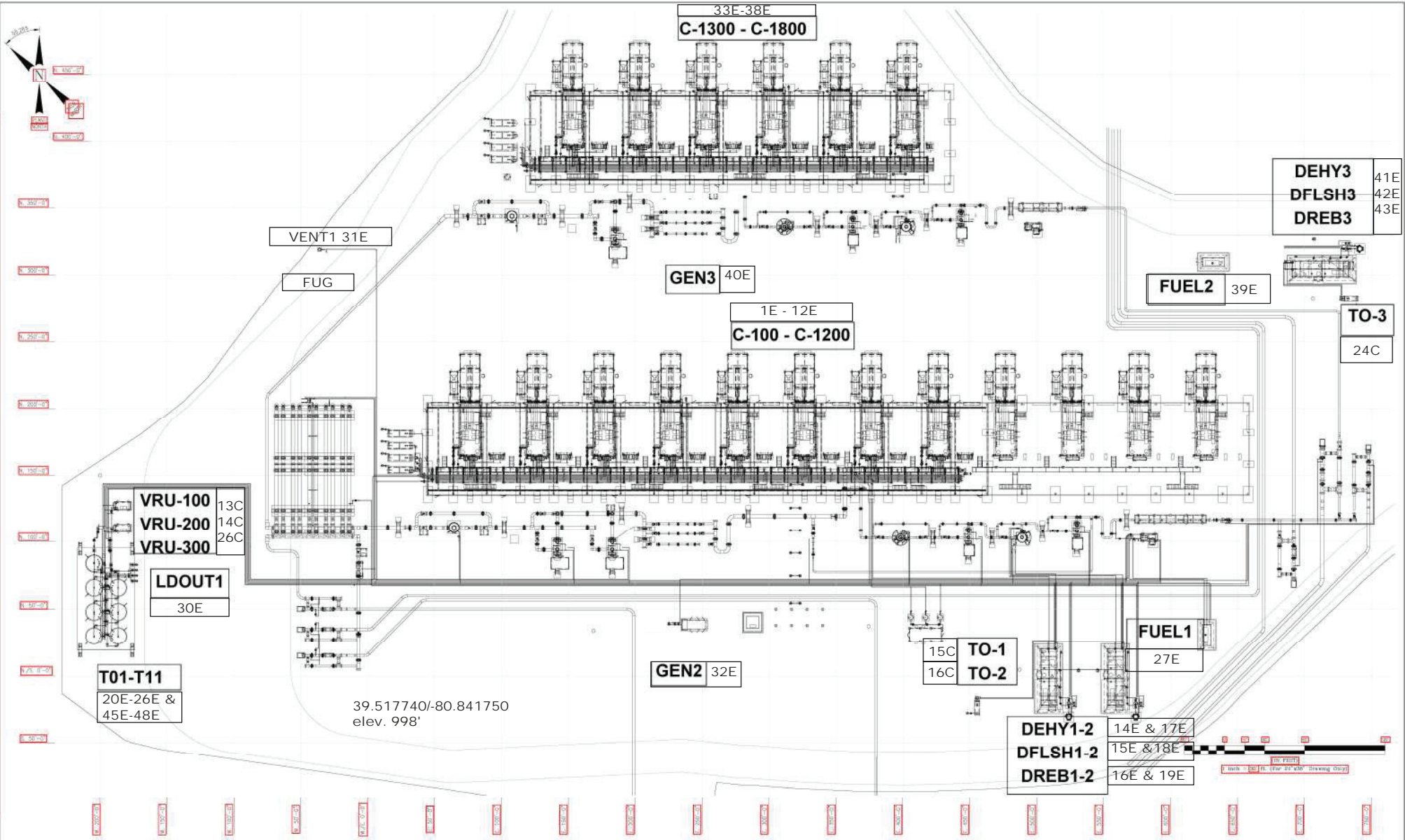
Project No.: 21255.00A

Drawn By: AHasse

Note: This is not a
 Property Boundary Survey

ATTACHMENT B

Plot Plan

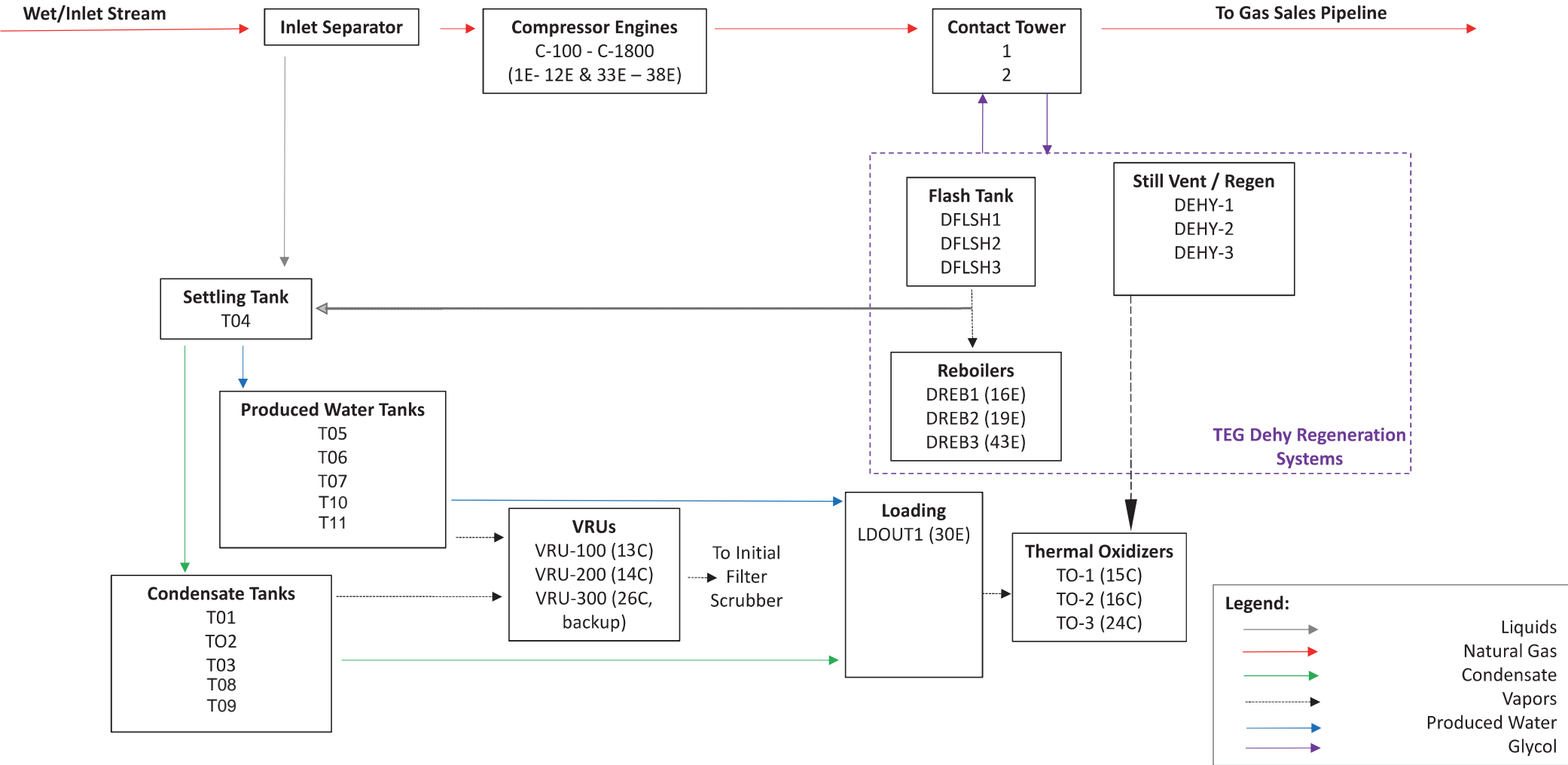


<p>39.517740/-80.841750 elev. 998'</p>		<p>15C TO-1 16C TO-2</p>		<p>DEHY1-2 14E & 17E DFLSH1-2 15E & 18E DREB1-2 16E & 19E</p>		<p>Antero Midstream Partners of</p> <p>Middlebourne V Compressor Station TYLER COUNTY, WEST VIRGINIA</p> <p>110815-PIP-DPL-1000A</p>	<p>WOOD GROUP</p> <p>EQUIPMENT GENERAL ARRANGEMENT PLOT PLAN</p> <p>110815-PIP-DPL-1000A</p>
<p>VRU-100 13C VRU-200 14C VRU-300 26C</p> <p>LDOUT1 30E</p> <p>T01-T11 20E-26E & 45E-48E</p>		<p>GEN2 32E</p>		<p>FUEL1 27E</p>			

ATTACHMENT C

Process Flow Diagram

Generalized Conceptual Summary Process Flow Diagram



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	Compressor Engine #1	2,500 hp	2019
2E	Ox Cat (2C)	C-200	Compressor Engine #2	2,500 hp	2019
3E	Ox Cat (3C)	C-300	Compressor Engine #3	2,500 hp	2019
4E	Ox Cat (4C)	C-400	Compressor Engine #4	2,500 hp	2019
5E	Ox Cat (5C)	C-500	Compressor Engine #5	2,500 hp	2019
6E	Ox Cat (6C)	C-600	Compressor Engine #6	2,500 hp	2019
7E	Ox Cat (7C)	C-700	Compressor Engine #7	2,500 hp	2019
8E	Ox Cat (8C)	C-800	Compressor Engine #8	2,500 hp	2019
9E	Ox Cat (9C)	C-900	Compressor Engine #9	2,500 hp	2019
10E	Ox Cat (10C)	C-1000	Compressor Engine #10	2,500 hp	2019
11E	Ox Cat (11C)	C-1100	Compressor Engine #11	2,500 hp	2019
12E	Ox Cat (12C)	C-1200	Compressor Engine #12	2,500 hp	2019
33E	Ox Cat (18C)	C-1300	Compressor Engine #13	2,500 hp	2019
34E	Ox Cat (19C)	C-1400	Compressor Engine #14	2,500 hp	2019
35E	Ox Cat (20C)	C-1500	Compressor Engine #15	2,500 hp	2019
36E	Ox Cat (21C)	C-1600	Compressor Engine #16	2,500 hp	2019
37E	Ox Cat (22C)	C-1700	Compressor Engine #17	2,500 hp	2019
38E	Ox Cat (23C)	C-1800	Compressor Engine #18	2,500 hp	2019
32E	None	GEN2	Natural Gas PSI Generator #2	649 hp	2020
40E	None	GEN3	Natural Gas PSI Generator #3	649 hp	2020
14E	TO-1 (15C)	DEHY1	TEG Dehydration Unit Still Vent #1	260 MMscfd	2020
15E	DREB1 (16E) or TO-1 (15C)	DFLSH1	Dehydrator Flash Tank #1	260 MMscfd	2020
16E	None	DREB1	Dehydration Reboiler #1	1.5 MMBtu/hr	2019
17E	TOC-2 (16C)	DEHY2	Dehydrator Still Vent #2	260 MMscfd	2020
18E	DREB2 (19E) or TO-2 (16C)	DFLSH2	Dehydrator Flash Tank #2	260 MMscfd	2020
19E	None	DREB2	Dehydration Reboiler #2	1.5 MMBtu/hr	2019

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
41E	TO-3 (24C)	DEHY3	Dehydrator Still Vent #3	130 MMscfd	2020
42E	DREB3 (43E) or TO-3 (24C)	DFLSH3	Dehydrator Flash Tank #3	130 MMscfd	2020
43E	None	DREB3	Dehydration Reboiler #3	1.5 MMBtu/hr	2019
20E	VRU-100 to VRU-300 (13C, 14C, 26C) ^a	T01	Condensate Storage Tank #1	400 bbl (16,800 gal)	2019
21E	VRU-100 to VRU-300 (14C, 15C, 26C) ^a	T02	Condensate Storage Tank #2	400 bbl (16,800 gal)	2019
22E	VRU-100 to VRU-300 (14C, 15C, 26C) ^a	T03	Condensate Storage Tank #3	400 bbl (16,800 gal)	2019
23E	VRU-100 to VRU-300 (14C, 15C, 26C) ^a	T04	Condensate/Produced Water Settling Tank	500 bbl (21,000 gal)	2019
24E	VRU-100 to VRU-300 (14C, 15C, 26C) ^a	T05	Produced Water Storage Tank #1	400 bbl (16,800 gal)	2019
25E	VRU-100 to VRU-300 (14C, 15C, 26C) ^a	T06	Produced Water Storage Tank #2	400 bbl (16,800 gal)	2019
26E	VRU-100 to VRU-300 (14C, 15C, 26C) ^a	T07	Produced Water Storage Tank #3	400 bbl (16,800 gal)	2019
45E	VRU-100 to VRU-300 (14C, 15C, 26C) ^a	T08	Condensate Storage Tank #4	400 bbl (16,800 gal)	2019
46E	VRU-100 to VRU-300 (14C, 15C, 26C) ^a	T09	Condensate Storage Tank #5	400 bbl (16,800 gal)	2019
47E	VRU-100 to VRU-300 (14C, 15C, 26C) ^a	T10	Produced Water Storage Tank #4	400 bbl (16,800 gal)	2019
48E	VRU-100 to VRU-300 (14C, 15C, 26C) ^a	T11	Produced Water Storage Tank #5	400 bbl (16,800 gal)	2019

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
27E	None	FUEL1	Fuel Conditioning Heater	0.5 MMBtu/hr	2019
39E	None	FUEL2	Fuel Conditioning Heater	0.75 MMBtu/hr	2019
30E	TO-1 to TO-3 (15C, 16C, 24C) or DREB1 to DREB-3 (16E, 19E, 43E)	LDOUT1	Production Liquids Truck Loadout	585 bbl/day ^b	2019
28E	15C	TO-1	Thermal Oxidizer #1	6.0 MMBtu/hr	2020
29E	16C	TO-2	Thermal Oxidizer #2	6.0 MMBtu/hr	2020
44E	24C	TO-3	Thermal Oxidizer #3	6.0 MMBtu/hr	2019
31E	None	VENT1	Venting Episodes	Variable	2020
N/A	None	FUG	Fugitives	Variable	2019
TK-100	None	TK-100	Compressor Skid Oily Water Tank	3,000 gal	2019
TK-102	None	TK-102	TEG Make-up Tank	3,000 gal	2019
TK-103	None	TK-103	Compressor Coolant Tank	1,000 gal	2019
TK-104	None	TK-104	Engine Lube Oil Tank	3,000 gal	2019
TK-105	None	TK-105	Compressor Lube Oil Tank	3,000 gal	2019
TK-106	None	TK-106	Compressor Skid Oily Water Tank	3,000 gal	2019
TK-108	None	TK-108	TEG Make-up Tank	3,000 gal	2019
TK-109	None	TK-109	Compressor Coolant Tank	1,000 gal	2019
TK-110	None	TK-110	Engine Lube Oil Tank	3,000 gal	2019
TK-111	None	TK-111	Compressor Lube Oil Tank	3,000 gal	2019

¹For 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] 450 bbl/day Condensate and 135 bbl/day Produced Water

ATTACHMENT E

Emission Unit Forms

- 2,500 hp Caterpillar G3608 LB Compressor Engines (C-100 through C-1800)
- 649 hp PSI Industrial 21.9L Natural Gas Generators (GEN2 and GEN3)
- Dehydrator Still Vents (DEHY1, DEHY2, DEHY3)
- Dehydrator Flash Tanks (DFLSH1, DFLSH2, DFLSH3)
- Dehydrator Reboiler (DREB1, DREB2, DREB3)
- Condensate Storage Tanks (T01, T02, T03, T08, T09)
- Condensate/Produced Water Settling Tank (T04)
- Produced Water Storage Tanks (T05, T06, T07, T10, T11)
- Fuel Conditioning Heaters (FUEL1, FUEL2)
- Liquid Loadout (LDOUT1)
- Venting Episodes (VENT1)
- Fugitives (FUG)

ATTACHMENT E - Emission Unit Form

Emission Unit Description- Compressor Engines C-100 through C-1800 (each)

Emission unit ID number: C-100 through C-1800 (each)	Emission unit name: Compressor Engine #1 through #18 (each)	List any control devices associated with this emission unit: Oxidation Catalyst (1C through 12C, 18C through 23C 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	Serial number: N/A
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Construction date: After 7/1/2007	Installation date: 2020	Modification date(s): N/A
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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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, is it? <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> 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 144.5 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	1,264 Btu/scf

Emissions Data		C-100 through C-1800 (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	1.76	7.72	
Hazardous Air Pollutants	Potential Emissions		
	PPH	TPY	
1,3-Butadiene ²	< 0.01	0.011	
2-Methylnaphthalene ²	< 0.01	< 0.01	
2,2,4-Trimethylpentane ²	< 0.01	0.01	
Acenaphthene ²	< 0.01	< 0.01	
Acenaphthylene ²	< 0.01	< 0.01	
Acetaldehyde ²	0.018	0.078	
Acrolein ²	0.047	0.20	
Benzene ²	< 0.01	0.017	
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	< 0.01	
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	0.023	0.01	
Methylene Chloride ²	< 0.01	< 0.01	
n-Hexane ²	0.010	0.044	
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	0.016
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	17.80	77.97
N ₂ O ³	<0.01	0.017
CO ₂ e ⁴	2,811	12,311
<p>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.).</p> <ol style="list-style-type: none"> 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-1800 (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 R13-3394F Requirements:

- 5.1.1** Maximum hourly and annual emission limits. Please reference Emissions Data above for exact limits.
- 5.1.3** Emissions limits in section 5.1.1 apply at all times except during periods of MSS that are < 30 minutes per occurrence. Operate engines in a manner consistent with good air pollution control practices, including periods of MSS. Comply with Subpart JJJJ and ZZZZ.
- 5.1.4.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.
- 5.1.4.c** A written operation and maintenance (“O&M”) plan is required
- 5.1.4.d** No person shall knowingly: remove, bypass, defeat or render inoperative any air pollution control device subject to the requirements of this permit
- 10.1** The units must meet requirements in NSPS JJJJ
- 10.2** Maximum emission standards for NSPS JJJJ
- 10.4.4** Propane fuel can be used in emergency operations up to 100 hours per year
- 11.1** The units must meet requirements in NSPS Subpart OOOOa for reciprocating compressors
- 13.1** The units must meet the requirements of MACT ZZZZ by meeting the requirements of NSPS JJJJ

**Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT
S1-Regulatory Discussion for more details.**

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 R13-3394F Requirements:

- 5.1.3** Engine MSS emissions shall be included in the 12-month rolling total emissions.
- 5.1.4.b** Monitor the inlet catalyst temperature in accordance with manufacturer’s specifications. If the engine shuts off due to high temperature, check for thermal deactivation of the catalyst before normal operations resume.
- 5.1.4.c** 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 applicable testing requirements as outlined in Section 3.3, 10.5, 11.2, and 11.3 of the permit.
- 5.4.1.** Maintain maintenance records for the catalytic reduction device for five (5) years to demonstrate compliance with 5.1.4
- 5.5.1** Follow reporting requirements as outlined in Section 3.5, 10.6, and 11.4 of this permit.

Section 10: NSPS JJJJ

10.4.1.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.

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

10.4.6 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.

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

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

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

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

Section 11: NSPS OOOOa

11.1.1a Replace rod packing on or before the compressor has operated for 26,000 hours or 36 months

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

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

11.1.1.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.

11.1, 11.2 & 11.3 Continuously monitor the hours of operation or number of months since last rod packing replacement

11.1, 11.2, 11.3, & 11.4 Submit Initial and Annual Reports in accordance with 40 CFR §60.5420a(b)(1), (4), and (9)

11.1, 11.2, 11.3, & 11.4 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

11.4.1 No requirements according to 40 CFR §60.5420a(a)(1)

11.4.3 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 WVDEP-DAQ Permit R13-3394F and SUPPLEMENT
S1-Regulatory Discussion for more details.**

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		Generators GEN2, GEN3 (each)	
Emission unit ID number: GEN2 and GEN3 (each)	Emission unit name: NG Generator PSI #1 and #2 (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.): Natural Gas-Fired Generator Engine			
Manufacturer: PSI	Model number: Industrial 21.9L	Serial number: N/A	
Construction date: After 7/1/2007	Installation date: 2020	Modification date(s): N/A	
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 649 horsepower			
Maximum Hourly Throughput: N/A	Maximum Annual Throughput: N/A	Maximum Operating Schedule: 1,000 hr/yr	
Fuel Usage Data (fill out all applicable fields)			
Does this emission unit combust fuel? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If yes, is it? <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired	
Maximum design heat input and/or maximum horsepower rating: 649 horsepower		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 4,490 scf/hr 4.49 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	1,264 BTU/scf

<i>Emissions Data</i>		GEN2, GEN3 (each)	
Criteria Pollutants	Potential Emissions		
	PPH	TPY	
Carbon Monoxide (CO) ¹	2.86	1.43	
Nitrogen Oxides (NO _x) ¹	1.43	0.72	
Lead (Pb)	N/A	N/A	
Particulate Matter (PM _{2.5} /PM ₁₀) ²	0.11	0.055	
Total Particulate Matter (TSP) ²	0.11	0.055	
Sulfur Dioxide (SO ₂) ²	< 0.01	<0.01	
Volatile Organic Compounds (VOC) ¹	1.00	0.50	
Hazardous Air Pollutants	Potential Emissions		
	PPH	TPY	
1,1,2,2-Tetrachloroethane ²	< 0.01	< 0.01	
1,3-Butadiene ²	< 0.01	<0.01	
Acetaldehyde ²	0.016	<0.01	
Acrolein ²	0.015	<0.01	
Benzene ²	< 0.01	<0.01	
Ethylbenzene ²	< 0.01	< 0.01	
Formaldehyde ²	0.116	0.058	
Methanol ²	0.017	<0.01	
Methylene Chloride ²	< 0.01	< 0.01	
PAH ²	< 0.01	< 0.01	
Toluene ²	< 0.01	<0.01	
Xylenes ²	< 0.01	< 0.01	
Other HAPs ²	< 0.01	< 0.01	
Regulated Pollutants other than Criteria and HAP	Potential Emissions		
	PPH	TPY	
CO ₂ ³	665.3	332.6	
CH ₄ ⁴	0.013	<0.01	
N ₂ O ⁴	< 0.01	< 0.01	
CO ₂ e ⁵	665.9	333	

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. Emissions Certification

2. AP-42, Chapter 3.2, Table 3.2-3
3. 40 CFR Part 98, Subpart C, Table C-1
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

GEN2, GEN3

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 R13-3394F Requirements:

- 5.1.2** Maximum hourly and annual emission limits. Please reference Emissions Data above for exact limits.
- 5.1.3** Emissions limits in section 5.1.2 apply at all times except during periods of MSS that are < 30 minutes per occurrence. Operate engines in a manner consistent with good air pollution control practices, including periods of MSS. Comply with Subpart JJJJ and ZZZZ.
- 5.1.5** Maximum yearly operation limitation of each generator shall not exceed 1,000 hours per year.
- 10.1** The units must meet requirements in NSPS JJJJ
- 10.2** Maximum emission standards for NSPS JJJJ
- 10.4.4** Propane fuel can be used in emergency operations up to 100 hours per year
- 13.1** The units must meet the requirements of MACT ZZZZ by meeting the requirements of NSPS JJJJ

Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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 R13-3394F Requirements:

- 5.1.3** Engine MSS emissions shall be included in the 12-month rolling total emissions.
- 5.1.5** Engine operating hours shall be included in the 12-month rolling total emissions.
- 5.3.1** Follow applicable testing requirements as outlined in Section 3.3 and 10.5 of the permit
- 5.4.2** Maintain records of the hours of operation of the generators for five (5) years to demonstrate compliance with 5.1.5.
- 5.5.1** Follow reporting requirements as outlined in Section 3.5 and 10.6 of this permit

Section 10: NSPS JJJJ

- 10.4.1.a.** The certified engines must demonstrate compliance per 40 CFR §60.4243(a).
- 10.4.4** Maintain records of propane fuel use. These engines are certified and are not subject to performance testing requirements.
- 10.5.1** Performance tests must be conducted in accordance with 40 CFR §60.4244
- 10.6.1.a.** Maintain records of notifications, maintenance, and documentation the engine meets the certified emission standards
- 10.6.1.c.** Submit initial notification in accordance with 40 CFR §60.4245(c)
- 10.6.1.d.** Submit performance tests within sixty (60) days per 40 CFR §60.4245(d)

Please Reference WVDEP-DAQ Permit R13-3394F

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- <i>TEG Dehydrator Unit Still Vents DEHY1, DEHY2 (each)</i>			
Emission unit ID number: DEHY1, DEHY2 (each)	Emission unit name: TEG Dehydrator Unit Still Vents (each)	List any control devices associated with this emission unit: Thermal Oxidizer (15C, 16C)	
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 thermal oxidizer with at least 98% control efficiency.			
Manufacturer: TBD	Model number: TBD	Serial number: N/A	
Construction date: TBD	Installation date: 2020	Modification date(s): N/A	
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 260 MMscfd, each			
Maximum Hourly Throughput: N/A	Maximum Annual Throughput: 94,900 MMscf, each	Maximum Operating Schedule: 8,760 hr/yr	
Fuel Usage Data (fill out all applicable fields)			
Does this emission unit combust fuel? ___ Yes <u> X </u> 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			

<i>Emissions Data</i>	<i>DEHY1, DEHY2 (each)</i>	
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	1.50	6.55
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Benzene ¹	0.03	0.11
Ethylbenzene ¹	0.010	0.042
n-Hexane ¹	0.062	0.27
Toluene ¹	0.10	0.45
Xylenes ¹	0.033	0.14
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO ₂ ¹	1.53	6.70
CH ₄ ¹	2.06	9.02
CO ₂ e ²	53.03	232.3
<p>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.).</p> <ol style="list-style-type: none"> GRI-GLYCalc Output 40 CFR Part 98, Subpart A, Table A-1, effective January 2014 		

Applicable Requirements

DEHY1, DEHY2 (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 R13-3394F Requirements:

- 6.1.1 Dehydrator maximum daily throughput limit
- 6.1.3 The thermal oxidizers shall be designed and operated in accordance with this section
- 6.1.4 Thermal oxidizer maximum hourly and annual emission limits
- 6.2.1 The pilot shall be equipped with an alarm or remote alarm when the pilot is out

Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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 R13-3394F Requirements:

- 6.1.1 Dehydrator throughput shall be determined using a 12-month rolling total.
- 6.2.1 Continuously monitor the pilot flame, using a thermocouple or equivalent device, to show compliance with section 6.1.3.b
- 6.2.2 Monitor the throughput of dry natural gas to the dehydration system on a monthly basis for each unit
- 6.3.2 At the Director's request, demonstrate compliance with the HAP emission thresholds using GLYCalc
- 6.3.3 & 6.4.7 Determine actual average benzene emissions to demonstrate compliance with the one (1) tpy emission limit. Maintain records.
- 6.4.1 Maintain records of the times and duration of all periods which the pilot flame was absent to demonstrate compliance with section 6.1.3.b and 6.2.1
- 6.4.2 Maintain records of testing conducted in accordance with permit condition 6.3.2.
- 6.4.3 Document and maintain records required by sections 6.2 (monitoring) and 6.3 (testing)
- 6.4.4 Maintain records of the visible emissions opacity tests conducted in accordance with 6.3.1 to demonstrate compliance with section 6.1.3.f
- 6.4.5 Maintain records of PTE HAP calculations for the entire affected facility, including compressor engines and ancillary equipment to demonstrate compliance with section 6.1.4
- 6.4.6 Maintain records of dry natural gas throughput through the dehydration system to demonstrate compliance with section 6.1.1
- 6.4.8 Maintain all records required by section 6.4 for a period of five (5) years
- 6.5.1 If required by the Director to comply with section 6.3.3, 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
- 6.5.2 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

6.5.3 If deviations from the thermal oxidizer design and operation criteria in section 6.1.3 occur, report to the Director within ten (10) calendar days of such deviation

Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		TEG Dehydrator Unit Still Vent DEHY3	
Emission unit ID number: DEHY3	Emission unit name: TEG Dehydrator Unit Still Vent	List any control devices associated with this emission unit: Thermal Oxidizer (24C)	
Provide a description of the emission unit (type, method of operation, design parameters, etc.): The TEG Dehydrator Unit: The dehydrator still vent is controlled by a thermal oxidizer with at least 98% control efficiency.			
Manufacturer: TBD	Model number: TBD	Serial number: N/A	
Construction date: TBD	Installation date: 2020	Modification date(s): N/A	
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 130 MMscfd			
Maximum Hourly Throughput: N/A	Maximum Annual Throughput: 47,450 MMscf	Maximum Operating Schedule: 8,760 hr/yr	
Fuel Usage Data (fill out all applicable fields)			
Does this emission unit combust fuel? ___ Yes <u> X </u> 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			

<i>Emissions Data</i>		<i>DEHY3</i>	
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	1.55	6.77	
Hazardous Air Pollutants	Potential Emissions		
	PPH	TPY	
Benzene ¹	0.03	0.12	
Ethylbenzene ¹	0.010	0.045	
n-Hexane ¹	0.065	0.29	
Toluene ¹	0.11	0.47	
Xylenes ¹	0.034	0.15	
Regulated Pollutants other than Criteria and HAP	Potential Emissions		
	PPH	TPY	
CO ₂ ¹	1.53	6.70	
CH ₄ ¹	2.06	9.03	
CO ₂ e ²	53.07	232.5	
<p>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.).</p> <ol style="list-style-type: none"> 1. GRI-GLYCalc Output 2. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014 			

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 R13-3394F Requirements:

- 6.1.1 Dehydrator maximum daily throughput limit
- 6.1.3 The thermal oxidizers shall be designed and operated in accordance with this section
- 6.1.5 Thermal oxidizer maximum hourly and annual emission limits
- 6.2.1 The pilot shall be equipped with an alarm or remote alarm when the pilot is out

**Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT
S1-Regulatory Discussion for more details.**

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 R13-3394F Requirements:

- 6.1.1 Dehydrator throughput shall be determined using a 12-month rolling total.
- 6.2.1 Continuously monitor the pilot flame, using a thermocouple or equivalent device, to show compliance with section 6.1.3.b
- 6.2.2 Monitor the throughput of dry natural gas to the dehydration system on a monthly basis for each unit
- 6.3.2 At the Director's request, demonstrate compliance with the HAP emission thresholds using GLYCalc
- 6.3.3 & 6.4.7 Determine actual average benzene emissions to demonstrate compliance with the one (1) tpy emission limit. Maintain records.
- 6.4.1 Maintain records of the times and duration of all periods which the pilot flame was absent to demonstrate compliance with section 6.1.3.b and 6.2.1
- 6.4.2 Maintain records of testing conducted in accordance with permit condition 6.3.2.
- 6.4.3 Document and maintain records required by sections 6.2 (monitoring) and 6.3 (testing)
- 6.4.4 Maintain records of the visible emissions opacity tests conducted in accordance with 6.3.1 to demonstrate compliance with section 6.1.3.f
- 6.4.5 Maintain records of PTE HAP calculations for the entire affected facility, including compressor engines and ancillary equipment to demonstrate compliance with section 6.1.5
- 6.4.6 Maintain records of dry natural gas throughput through the dehydration system to demonstrate compliance with section 6.1.1
- 6.4.8 Maintain all records required by section 6.4 for a period of five (5) years
- 6.5.1 If required by the Director to comply with section 6.3.3, 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
- 6.5.2 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

6.5.3 If deviations from the thermal oxidizer design and operation criteria in section 6.1.3 occur, report to the Director within ten (10) calendar days of such deviation

Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description- *TEG Dehydrator Flash Tanks DFLSH1, DFLSH2 (each)*

Emission unit ID number: DFLSH1, DFLSH2 (each)	Emission unit name: Dehydrator Flash Tanks (each)	List any control devices associated with this emission unit: Reboiler (16E, 19E) or TOs (15C, 16C) as backup
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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 thermal oxidizer.

Manufacturer: TBD	Model number: TBD	Serial number: N/A
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Construction date: TBD	Installation date: 2020	Modification date(s): N/A
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Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
260 MMscfd, each

Maximum Hourly Throughput: N/A	Maximum Annual Throughput: 94,900 MMscf, each	Maximum Operating Schedule: 8,760 hr/yr
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Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? ___ Yes <u> X </u> 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			

<i>Emissions Data</i>		<i>DFLSH1, DFLSH2 (each)</i>	
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	0.44	1.91	
Hazardous Air Pollutants	Potential Emissions		
	PPH	TPY	
Benzene ¹	< 0.01	< 0.01	
Ethylbenzene ¹	< 0.01	< 0.01	
n-Hexane ¹	< 0.01	0.041	
Toluene ¹	< 0.01	< 0.01	
Xylenes ¹	< 0.01	< 0.01	
Regulated Pollutants other than Criteria and HAP	Potential Emissions		
	PPH	TPY	
CO ₂ ¹	0.96	4.20	
CH ₄ ¹	0.60	2.63	
CO ₂ e ²	15.99	70.02	
<p>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.).</p> <ol style="list-style-type: none"> GRI-GLYCalc Output 40 CFR Part 98, Subpart A, Table A-1, effective January 2014 			

Applicable Requirements

DFLSH1, DFLSH2 (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 R13-3394F Requirements:

- 6.1.1 Dehydrator maximum daily throughput limit.
- 6.1.2 The recycled reboilers shall be designed and operated in accordance with this section
- 6.1.3 The thermal oxidizers shall be designed and operated in accordance with this section
- 6.1.4 Thermal oxidizer maximum hourly and annual emission limits
- 6.2.1 The pilot shall be equipped with an alarm or remote alarm when the pilot is out

**Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT
S1-Regulatory Discussion for more details.**

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 R13-3394F Requirements:

- 6.1.1 Dehydrator throughput shall be determined using a 12-month rolling total.
- 6.2.2 Monitor the throughput of dry natural gas to the dehydration system on a monthly basis for each unit
- 6.3.2 At the Director's request, demonstrate compliance with the HAP emission thresholds using GLYCalc
- 6.3.3 & 6.4.7 Determine actual average benzene emissions to demonstrate compliance with the one (1) tpy emission limit. Maintain records.
- 6.4.1 Maintain records of the times and duration of all periods which the pilot flame was absent to demonstrate compliance with section 6.1.3.b and 6.2.1
- 6.4.2 Maintain records of testing conducted in accordance with permit condition 6.3.2.
- 6.4.3 Document and maintain records required by sections 6.2 (monitoring) and 6.3 (testing)
- 6.4.4 Maintain records of the visible emissions opacity tests conducted in accordance with 6.3.1 to demonstrate compliance with section 6.1.3.f
- 6.4.5 Maintain records of PTE HAP calculations for the entire affected facility, including compressor engines and ancillary equipment to demonstrate compliance with section 6.1.4
- 6.4.6 Maintain records of dry natural gas throughput through the dehydration system to demonstrate compliance with section 6.1.1
- 6.4.8 Maintain all records required by section 6.4 for a period of five (5) years
- 6.5.2 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
- 6.5.3 If deviations from the thermal oxidizer design and operation criteria in section 6.1.3 occur, report to the Director within ten (10) calendar days of such deviation

**Please Reference WVDEP-DAQ Permit R13-3394F
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 DFLSH3	
Emission unit ID number: DFLSH3	Emission unit name: Dehydrator Flash Tank	List any control devices associated with this emission unit: Reboiler (43E) or TO (24C) 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 thermal oxidizer.			
Manufacturer: TBD	Model number: TBD	Serial number: N/A	
Construction date: TBD	Installation date: 2020	Modification date(s): N/A	
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 130 MMscfd, each			
Maximum Hourly Throughput: N/A	Maximum Annual Throughput: 47,450 MMscf	Maximum Operating Schedule: 8,760 hr/yr	
Fuel Usage Data (fill out all applicable fields)			
Does this emission unit combust fuel? ___ Yes <input checked="" type="checkbox"/> 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			

<i>Emissions Data</i>		<i>DFLSH3</i>	
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	0.46	2.00	
Hazardous Air Pollutants	Potential Emissions		
	PPH	TPY	
Benzene ¹	< 0.01	< 0.01	
Ethylbenzene ¹	< 0.01	< 0.01	
n-Hexane ¹	< 0.01	0.042	
Toluene ¹	< 0.01	< 0.01	
Xylenes ¹	< 0.01	< 0.01	
Regulated Pollutants other than Criteria and HAP	Potential Emissions		
	PPH	TPY	
CO ₂ ¹	1.00	4.37	
CH ₄ ¹	0.64	2.82	
CO ₂ e ²	17.10	74.91	
<p>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.).</p> <ol style="list-style-type: none"> GRI-GLYCalc Output 40 CFR Part 98, Subpart A, Table A-1, effective January 2014 			

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 R13-3394F Requirements:

- 6.1.1 Dehydrator maximum daily throughput limit.
- 6.1.2 The recycled reboilers shall be designed and operated in accordance with this section
- 6.1.3 The thermal oxidizers shall be designed and operated in accordance with this section
- 6.1.5 Thermal oxidizer maximum hourly and annual emission limits
- 6.2.1 The pilot shall be equipped with an alarm or remote alarm when the pilot is out

Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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 R13-3394F Requirements:

- 6.1.1 Dehydrator throughput shall be determined using a 12-month rolling total.
- 6.2.2 Monitor the throughput of dry natural gas to the dehydration system on a monthly basis for each unit
- 6.3.2 At the Director's request, demonstrate compliance with the HAP emission thresholds using GLYCalc
- 6.3.3 & 6.4.7 Determine actual average benzene emissions to demonstrate compliance with the one (1) tpy emission limit. Maintain records.
- 6.4.1 Maintain records of the times and duration of all periods which the pilot flame was absent to demonstrate compliance with section 6.1.3.b and 6.2.1
- 6.4.2 Maintain records of testing conducted in accordance with permit condition 6.3.2.
- 6.4.3 Document and maintain records required by sections 6.2 (monitoring) and 6.3 (testing)
- 6.4.4 Maintain records of the visible emissions opacity tests conducted in accordance with 6.3.1 to demonstrate compliance with section 6.1.3.f
- 6.4.5 Maintain records of PTE HAP calculations for the entire affected facility, including compressor engines and ancillary equipment to demonstrate compliance with section 6.1.5
- 6.4.6 Maintain records of dry natural gas throughput through the dehydration system to demonstrate compliance with section 6.1.1
- 6.4.8 Maintain all records required by section 6.4 for a period of five (5) years
- 6.5.2 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
- 6.5.3 If deviations from the thermal oxidizer design and operation criteria in section 6.1.3 occur, report to the Director within ten (10) calendar days of such deviation

**Please Reference WVDEP-DAQ Permit R13-3394F
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.							
Manufacturer: TBD		Model number: TBD		Serial number: N/A			
Construction date: TBD		Installation date: 2019		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: 10.4 MMscf/yr (each)		Maximum Operating Schedule: 8,760 hr/yr			
Fuel Usage Data (fill out all applicable fields)							
Does this emission unit combust fuel? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				If yes, is it? <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> 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 10.4 MMscf/yr, each							
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		1,264 Btu/scf	

<i>Emissions Data</i>		<i>DREB1, DREB2, DREB3 (each)</i>	
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 ₂ O ⁵	< 0.01	< 0.01	
CO ₂ e ⁶	176.1	771.2	
<p>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.).</p> <ol style="list-style-type: none"> 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 R13-3394F Requirements:

7.1.1 Maximum design heat input of reboilers. Please reference data above for exact limits.

7.1.2 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 WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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 R13-3394F Requirements:

7.2.1 At such reasonable times as the Secretary may designate, conduct Method 9 emission observations to demonstrate compliance with section 7.1.2

7.3.1 When requested by the Secretary, conduct Method 9 tests or utilize measurements from continuous opacity monitoring systems approved by the Director to demonstrate compliance with section 7.1.2 [45CSR§2-3.2.]

7.4.1 Maintain records of all monitoring data required by section 7.2.1

7.5.1 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 WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description- *Storage Tanks T01 - T11*

Emission unit ID number: T01, T02, T03, T04, T05, T06, T07, T08, T09, T10, and T11	Emission unit name: Storage Tanks (each)	List any control devices associated with this emission unit: VRU (13C/14C/26C)
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Provide a description of the emission unit (type, method of operation, design parameters, etc.):
Produced fluids are routed to the 500 barrel settling tank (T04) where the fluids settle out as either condensate or produced water. The produced water goes to five (5) 400 bbl produced water tanks (T05 - T07 and T10 - T11) and the condensate goes to five (5) 400 bbl condensate tanks (T01 - T03 and T08 - T09). All eleven (11) tanks are controlled with a VRU and recycled back into the process.

Manufacturer: TBD	Model number: TBD	Serial number: N/A
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Construction date: TBD	Installation date: 2019	Modification date(s): N/A
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Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
400 barrels, each (T01-T03 and T05-T11)
500 barrels (T04)

Maximum Hourly Throughput: N/A	Maximum Annual Throughput: (gal/yr) 6,898,500 (T01,T02,T03,T08,T09) 8,968,050 (T04) 2,069,550 (T05,T06,T07,T10,T11)	Maximum Operating Schedule: 8,760 hr/yr
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Fuel Usage Data (fill out all applicable fields)

Does this emission unit combust fuel? ___ Yes <u> X </u> 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
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List the primary fuel type(s) and if applicable, the secondary fuel type(s). For each fuel type listed, provide the maximum hourly and annual fuel usage for each.

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			

<i>Emissions Data</i>		<i>Storage Tanks T01 - T11</i>	
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	1.55	6.80	
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	0.028	0.12	
Regulated Pollutants other than Criteria and HAP	Potential Emissions		
	PPH	TPY	
CH ₄ ¹	N/A	2.01	
CO ₂ e ²	N/A	51	
<p>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.).</p> <ol style="list-style-type: none"> 1. Promax 4.0 Software Model Output 2. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014 			

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 R13-3394F Requirements:

- 8.1.1 Route all VOC and HAP emissions from the tanks to a VRU System with at least 98% efficiency
- 8.1.2 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§13-5.10.]
- 8.1.3 Maximum annual throughput limits from the tanks combined. Please reference data above for exact limits.
- 8.1.4 Maximum hourly and annual emission limits for the storage tank battery
- 8.1.5 *Additional VRU Requirements* – three (3) of the four (4) options must be utilized: install run status sensing equipment, install an automatic by-pass recycle system, install blanket gas with automatic throttling, and/or install a compressor with a variable drive
- 8.1.6 The VRUs shall be designed and operated in accordance with this section [45CSR§13-5.10]
- 8.1.7 The closed vent system shall be designed and operated in accordance with this section [45CSR§13-5.10]

**Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT
S1-Regulatory Discussion for more details.**

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 R13-3394F Requirements:

- 8.2.1 Monitor throughput to the storage vessels on a monthly basis
- 8.2.2 Monitor the VRUs in accordance with the plans and specifications and manufacturer's recommendations to demonstrate compliance with section 8.1.1
- 8.2.3a Conduct Initial AVO within 180 days of start-up, repair leaks as soon as practicable, grease requirements, delay of repair requirements
- 8.2.3b&c Conduct Annual AVO inspections (with visual bypass inspection) within 365 calendar days from date of previous inspection, repair leaks as soon as practicable, grease requirements, delay of repair requirements
- 8.2.3d&e Maintain a written plan for unsafe or difficult to inspect requirements that determines frequency of inspections [45CSR§13-5.10]
- 8.3.1. Maintain all records required by section 8.3 for five (5) years.
- 8.3.2 Maintain records of VRU equipment inspections and/or preventative maintenance procedures.
- 8.3.3 Maintain records according to this section of any malfunction or operational shutdown of the VRU during which excess emissions occur.
- 8.3.4 Maintain records of the aggregate throughput for the storage tanks on a monthly and 12-month rolling total for a period of five (5) years to demonstrate compliance with 8.1.3 and 8.1.4
- 8.3.5 Maintain a copy of all design records of the process, maintenance records of equipment and any downtime hours associated with the VRUs.
- 8.3.6 Maintain records of the additional monitoring required in section 8.1.5 to demonstrate compliance with the 98% control efficiency in section 8.1.1
- 8.3.7 Maintain initial compliance records, annual visual inspections, bypass inspections or each time the key is

checked out or each time the alarm is sounded, each occurrence that the control device was bypassed, and unsafe or difficult to inspect designations to demonstrate compliance with the closed vent system monitoring requirements. [45CSR§13-5.10]

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

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

Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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

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

ATTACHMENT E - Emission Unit Form

<i>Emission Unit Description-</i>		<i>Fuel Conditioning Heater FUEL1</i>	
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: 2019	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: 4.68 MMscf/yr	Maximum Operating Schedule: 8,760 hr/yr	
Fuel Usage Data (fill out all applicable fields)			
Does this emission unit combust fuel? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If yes, is it? <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> 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 4.68 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	1,264 Btu/scf

<i>Emissions Data</i>		<i>FUELI</i>	
Criteria Pollutants	Potential Emissions		
	PPH	TPY	
Carbon Monoxide (CO) ¹	0.056	0.24	
Nitrogen Oxides (NO _x) ¹	0.066	0.29	
Lead (Pb)	N/A	N/A	
Particulate Matter (PM _{2.5} /PM ₁₀) ²	< 0.01	0.022	
Total Particulate Matter (TSP) ²	< 0.01	0.022	
Sulfur Dioxide (SO ₂) ²	< 0.01	< 0.01	
Volatile Organic Compounds (VOC) ²	< 0.01	0.016	
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	59	257	
CH ₄ ⁵	< 0.01	< 0.01	
N ₂ O ⁵	< 0.01	< 0.01	
CO ₂ e ⁶	59	257	
<p>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.).</p> <ol style="list-style-type: none"> 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

FUELI

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 R13-3394F Requirements:

7.1.1 Maximum design heat input. Please reference data above for exact limits.

7.1.2 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 WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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 R13-3394F Requirements:

7.2.1 At such reasonable times as the Secretary may designate, conduct Method 9 emission observations to demonstrate compliance with section 7.1.2

7.3.1 When requested by the Secretary, conduct Method 9 tests or utilize measurements from continuous opacity monitoring systems approved by the director to demonstrate compliance with section 7.1.2 [45CSR§2-3.2.]

7.4.1 Maintain all monitoring data required by permit condition 7.2.1.

7.5.1 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 WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		Fuel Conditioning Heater FUEL2	
Emission unit ID number: FUEL2	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 0.75 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: 2019	Modification date(s): N/A	
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 0.75 MMBtu/hr			
Maximum Hourly Throughput: N/A	Maximum Annual Throughput: 7.16 MMscf/yr	Maximum Operating Schedule: 8,760 hr/yr	
Fuel Usage Data (fill out all applicable fields)			
Does this emission unit combust fuel? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If yes, is it? <input type="checkbox"/> Indirect Fired <input checked="" type="checkbox"/> Direct Fired	
Maximum design heat input and/or maximum horsepower rating: 0.75 MMBtu/hr		Type and Btu/hr rating of burners: 0.75 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 7.16 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	1,264 Btu/scf

<i>Emissions Data</i>		<i>FUEL2</i>	
Criteria Pollutants	Potential Emissions		
	PPH	TPY	
Carbon Monoxide (CO) ¹	0.085	0.37	
Nitrogen Oxides (NO _x) ¹	0.10	0.44	
Lead (Pb)	N/A	N/A	
Particulate Matter (PM _{2.5} /PM ₁₀) ²	< 0.01	0.034	
Total Particulate Matter (TSP) ²	< 0.01	0.034	
Sulfur Dioxide (SO ₂) ²	< 0.01	< 0.01	
Volatile Organic Compounds (VOC) ²	< 0.01	0.024	
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	88	385	
CH ₄ ⁵	< 0.01	< 0.01	
N ₂ O ⁵	< 0.01	< 0.01	
CO ₂ e ⁶	88	386	
<p>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.).</p> <ol style="list-style-type: none"> 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 			

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 R13-3394F Requirements:

7.1.1 Maximum design heat input. Please reference data above for exact limits.

7.1.2 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 WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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 R13-3394F Requirements:

7.2.1 At such reasonable times as the Secretary may designate, conduct Method 9 emission observations to demonstrate compliance with section 7.1.2

7.3.1 When requested by the Secretary, conduct Method 9 tests or utilize measurements from continuous opacity monitoring systems approved by the director to demonstrate compliance with section 7.1.2 [45CSR§2-3.2.]

7.4.1 Maintain all monitoring data required by permit condition 7.2.1.

7.5.1 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 WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		Liquid Loadout LDOUT1	
Emission unit ID number: LDOUT1	Emission unit name: Production Liquids Truck Loadout	List any control devices associated with this emission unit: Thermal Oxidizer (15C, 16C, 24C) or Reboiler (16E, 19E, 43E)	
Provide a description of the emission unit (type, method of operation, design parameters, etc.): Loadout of condensate and produced water from storage tanks captured by the vapor balance system and sent to the thermal oxidizers or reboilers as backup.			
Manufacturer: N/A	Model number: N/A	Serial number: N/A	
Construction date: TBD	Installation date: 2019	Modification date(s): N/A	
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): 6,898,500 gal/yr of condensate and 2,069,550 gal/yr of produced water			
Maximum Hourly Throughput: 10,920 gal/hour condensate 10,920 gal/hour produced water	Maximum Annual Throughput: 8,968,050 gal/yr	Maximum Operating Schedule: 8,760 hr/yr	
Fuel Usage Data (fill out all applicable fields)			
Does this emission unit combust fuel? ___ Yes <u> X </u> 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			

<i>Emissions Data</i>		<i>LDOUT1</i>	
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	4.24	1.33	
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	0.076	0.024	
Regulated Pollutants other than Criteria and HAP	Potential Emissions		
	PPH	TPY	
CO ₂ e ¹	34	11	
<p>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.).</p> <p>1. AP-42 Table 5.2-1</p>			

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 R13-3394F Requirements:

9.1.1 All VOC and HAP emissions from truck loadout must be captured by a vapor balance system and routed to the reboilers or thermal oxidizers and controlled with at least 93.1% capture and control efficiency for VOC and HAPs.

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

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

9.1.4 The loadout racks shall be installed, maintained, and operated in accordance with this section

9.1.5 The produced water and condensate truck loading shall be operated in accordance with the plans and specifications filed in Permit Application R13-3394A, liquid loadout trucks will use the submerged-fill method.

9.1.6 Maximum VOC and HAP emissions from the product loadout rack (Unit ID: LDOUT1). Please reference data above for exact limits.

9.1.7 The control devices shall be designed and operated in accordance with this section

9.2.2 The pilot shall be equipped with an alarm or remote alarm when the pilot is out

Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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 R13-3394F Requirements:

9.2.1 Follow monitoring requirements as outlined in Section 3.2 of this permit

9.2.2 Continuously monitor the pilot flame, using a thermocouple or equivalent device to show compliance with section 6.1.3.b, and equip the pilot with an alarm that sounds when unlit

9.3.1 Conduct Method 22 test for at least two hours within one (1) year of initial startup to demonstrate compliance with section 6.1.3.f.

9.4.1 Maintain records required by section 9.3 for a period of five (5) years

9.4.2 Maintain records of the aggregate throughput for the product loadout rack on a monthly and rolling 12-month total

9.4.3 Maintain records of the times and duration of all periods which the pilot flame was absent

9.4.4 Document and maintain record required by sections 9.2 (monitoring) and 9.3 (testing)

9.4.5 Maintain all records required by section 9.4 for a period of five (5) years

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

9.5.2 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

9.5.3 If deviations from the thermal oxidizer design and operation criteria in section 6.1.3 occur, report to the Director within ten (10) calendar days of such deviation

Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description- *Venting Episodes VENT1*

Emission unit ID number: VENT1	Emission unit name: Venting Episodes	List any control devices associated with this emission unit: None
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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
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Construction date: TBD	Installation date: 2020	Modification date(s): N/A
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Design Capacity (examples: furnaces - tons/hr, tanks - gallons):
 Estimated Events per Year:
 Compressor Blowdowns ~ 1,404 events/year
 Compressor Startups ~ 1,404 events/year
 Plant Shutdown ~ 2 events/year
 Low Pressure Pigging ~ 593 events/year
 High Pressure Pigging ~ 780 events/year

Maximum Hourly Throughput: N/A	Maximum Annual Throughput: N/A	Maximum Operating Schedule: 8,760 hr/yr
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Fuel Usage Data (fill out all applicable fields)

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

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			

<i>Emissions Data</i>		<i>VENTI</i>	
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	42.88	
Hazardous Air Pollutants	Potential Emissions		
	PPH	TPY	
Benzene ¹	N/A	0.018	
Toluene ¹	N/A	0.062	
Ethylbenzene ¹	N/A	<0.01	
Xylenes ¹	N/A	0.012	
n-Hexane ¹	N/A	1.73	
Regulated Pollutants other than Criteria and HAP	Potential Emissions		
	PPH	TPY	
CO ₂ ¹	N/A	0.66	
CH ₄ ¹	N/A	124	
CO ₂ e ²	N/A	3,107	
<p>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.).</p> <ol style="list-style-type: none"> 1. Engineering Estimates 2. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014 			

Applicable Requirements

VENTI

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 R13-3394F Requirements:

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

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

14.1.3 Annual low-pressure pigging event limits. Please reference data above for exact limits.

14.1.4 Annual high-pressure pigging event limits. Please reference data above for exact limits.

Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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 R13-3394F Requirements:

14.2.1 Maintain records required by this section for a period of five (5) years

14.2.2 Maintain records of compressor blowdown, startup, and pigging events and estimated volume per event on a monthly and 12-month rolling total to demonstrate compliance with sections 14.1.1 – 14.1.4 of this permit

14.3.1 If deviations from the permit conditions 14.1.1 – 14.1.4 occur, report to the Director within ten (10) calendar days of such deviation

Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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

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

ATTACHMENT E - Emission Unit Form

Emission Unit Description-		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: 2019	Modification date(s): N/A	
Design Capacity (examples: furnaces - tons/hr, tanks - gallons): Estimated Events per Year: 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 <u> X </u> 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			

<i>Emissions Data</i>		<i>FUG</i>
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	0.11	0.46
Total Particulate Matter (TSP) ¹	0.42	1.82
Sulfur Dioxide (SO ₂)	N/A	N/A
Volatile Organic Compounds (VOC) ¹	3.10	13.58
Hazardous Air Pollutants	Potential Emissions	
	PPH	TPY
Benzene ¹	<0.01	<0.01
Toluene ¹	<0.01	0.018
Ethylbenzene ¹	<0.01	<0.01
Xylenes ¹	<0.01	<0.01
n-Hexane ¹	0.11	0.48
Regulated Pollutants other than Criteria and HAP	Potential Emissions	
	PPH	TPY
CO ₂ ¹	N/A	0.30
CH ₄ ¹	N/A	10
CO ₂ e ²	N/A	245
<p>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.).</p> <p>1. Engineering Estimates 2. 40 CFR Part 98, Subpart A, Table A-1, effective January 2014</p>		

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 R13-3394F Requirements:

12.1.1 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 WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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 R13-3394F Requirements:

12.1.1 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)

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

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

12.4.1 Notification Requirements – No requirements according to 40 CFR §60.5420a(a)(1)

12.4.2 Submit annual reports as outlined in this section

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

Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

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

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

ATTACHMENT 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?

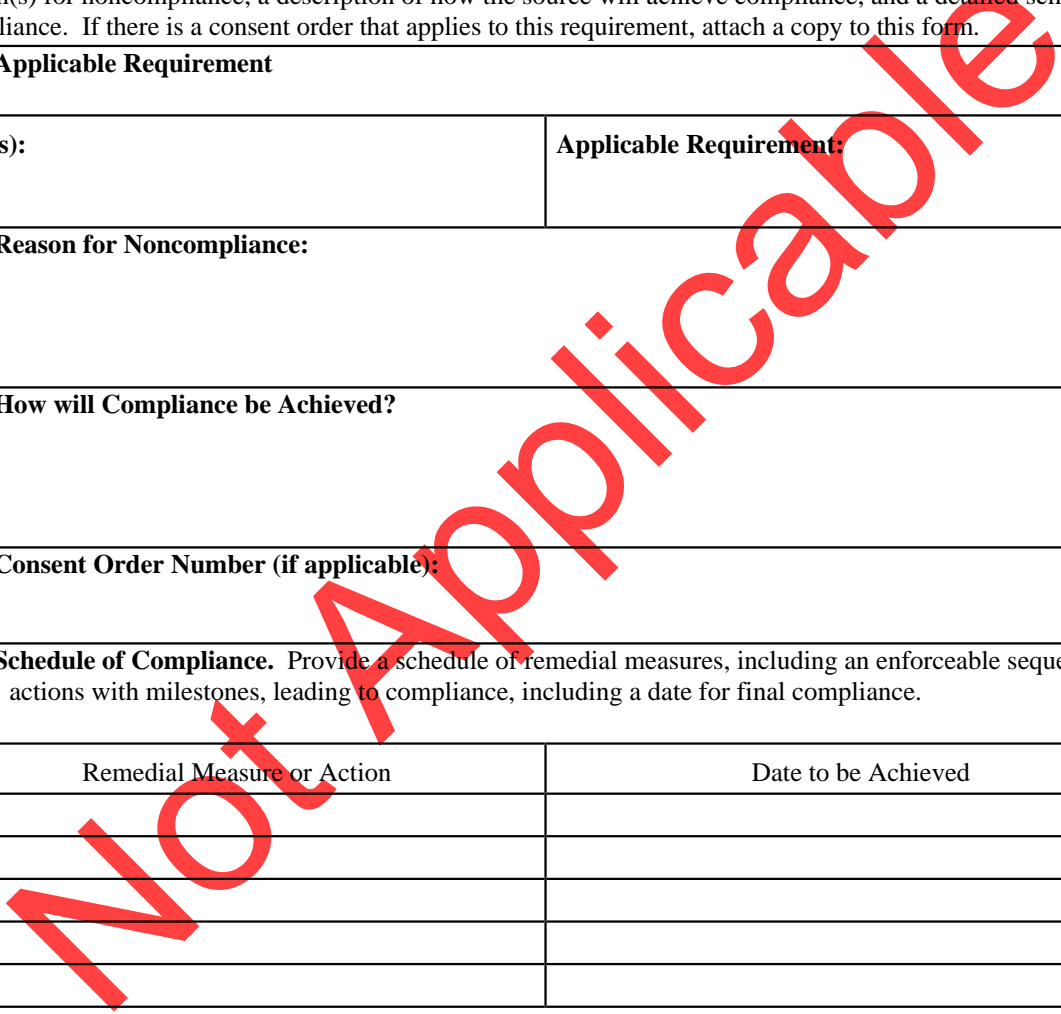
4. Consent Order Number (if applicable):

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, 18C through 23C)
- Thermal Oxidizers (15C, 16C, and 24C)
- Dehydrator Reboilers (16E, 19E, and 43E)
- VRUs (13C, 14C, and 26C)

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: Oxidation Catalysts: 1C through 12C and 18C through 23C	List all emission units associated with this control device. Compressor Engine #1 through #18: C-100 through C-1800 (1E through 12E and 33E through 40E)	
Manufacturer: Emit Technologies	Model number: RT-3615-H	Installation date: 2019

Type of Air Pollution Control Device:

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

List the pollutants for which this device is intended to control and the capture and control efficiencies.		
Pollutant	Capture Efficiency	Control Efficiency
CO	N/A	94%
VOC (includes formaldehyde)	N/A	44%
HCHO	N/A	88%

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

Permit R13-3394F Requirements:

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

Please Reference WVDEP-DAQ Permit R13-3394F 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 R13-3394F Requirements:

5.1.4.b Monitor the temperature of the inlet catalyst and in accordance with manufacture specifications; a high temperature alarm shall shut off the engine before thermal deactivation of the catalyst occurs

5.1.4.c 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

5.4.1 Maintain maintenance records for the catalytic reduction device to demonstrate compliance with 5.1.4 of the permit.

Please Reference WVDEP-DAQ Permit R13-3394F and SUPPLEMENT S1-Regulatory Discussion for more details.

ATTACHMENT G - Air Pollution Control Device Form

Control device ID number: Thermal Oxidizer: TO-1 through TO-3 (15C, 16C, and 24C)	List all emission units associated with this control device. TEG Dehydrator Still Vents: DEHY1, DEHY2, DEHY3 Production Liquids Truck Loadout: LDOUT1	
Manufacturer: TBD	Model number: TBD	Installation date: 2020 (TO-1 and TO-2), 2019 (TO-3)

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

List the pollutants for which this device is intended to control and the capture and control efficiencies.		
Pollutant	Capture Efficiency	Control Efficiency
VOC	100% - DEHY1, DEHY2, DEHY3 95% - LDOUT1	98% - DEHY1, DEHY2, DEHY3 98% - LDOUT1
HAPs	100% - DEHY1, DEHY2, DEHY3 95% - LDOUT1	98% - DEHY1, DEHY2, DEHY3 98% - LDOUT1

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

Permit R13-3394F Requirements:

6.1.3 The thermal oxidizers shall be designed and operated in accordance with this section – all vapors that are being controlled by thermal oxidizer shall be routed there at all times, flame shall be present at all times, residence time and chamber temperature requirements, operating whenever emissions are vented to them, no visible emissions (except for periods not to exceed 5 minutes during any 2 consecutive hours)

6.1.4 & 6.1.5 Thermal oxidizer maximum hourly and annual emission limits

6.2.1 & 9.2.2 The pilot shall be equipped with an alarm or remote alarm when the pilot is out

**Please Reference WVDEP-DAQ Permit R13-3394F 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 R13-3394F Requirements:

6.2.1 & 9.2.2 Continuously monitor the pilot flame, using a thermocouple or equivalent device, to show compliance with section 6.1.3.b

6.3.1, 6.4.4, & 9.3.1 Conduct Method 22 test for at least two hours within one (1) year of initial startup to demonstrate compliance with section 6.1.3.f. Maintain records of opacity tests.

6.4.1 & 9.4.3 Maintain records of the times and duration of all periods which the pilot flame was absent to demonstrate compliance with section 6.1.3.b and 6.2.1

6.4.2 Maintain records of testing conducted in accordance with 6.3.2 to demonstrate compliance with section 6.1.3 and 6.3.2

6.4.3 Document and maintain records required by sections 6.2 (monitoring) and 6.3 (testing)

6.4.8 Maintain all records required by section 6.4 for a period of five (5) years

6.5.2 & 9.5.2 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

6.5.3 & 9.5.3 If deviations from the thermal oxidizer design and operation criteria in section 6.1.3 occur, report to the Director within ten (10) calendar days of such deviation

**Please Reference WCDEP-DAQ Permit R13-3394F
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(43E)	List all emission units associated with this control device. Dehydrator Flash Tanks: DFLSH1, DFLSH2, DFLSH3 Production Liquids Truck Loadout: LDOUT1	
Manufacturer: TBD	Model number: TBD	Installation date: 2019

Type of Air Pollution Control Device:		
<input type="checkbox"/> Baghouse/Fabric Filter	<input type="checkbox"/> Venturi Scrubber	<input type="checkbox"/> Multiclone
<input type="checkbox"/> Carbon Bed Adsorber	<input type="checkbox"/> Packed Tower Scrubber	<input type="checkbox"/> Single Cyclone
<input type="checkbox"/> Carbon Drum(s)	<input type="checkbox"/> Other Wet Scrubber	<input type="checkbox"/> Cyclone Bank
<input type="checkbox"/> Catalytic Incinerator	<input type="checkbox"/> Condenser	<input type="checkbox"/> Settling Chamber
<input type="checkbox"/> Thermal Incinerator	<input type="checkbox"/> Flare	<input checked="" type="checkbox"/> Other: Reboiler
<input type="checkbox"/> Wet Plate Electrostatic Precipitator	<input type="checkbox"/> Dry Plate Electrostatic Precipitator	

List the pollutants for which this device is intended to control and the capture and control efficiencies.		
Pollutant	Capture Efficiency	Control Efficiency
VOC	100% - DEHY1, DEHY2, DEHY3 95% - LDOUT1	98% - DEHY1, DEHY2, DEHY3 98% - LDOUT1
HAPs	100% - DEHY1, DEHY2, DEHY3 95% - LDOUT1	98% - DEHY1, DEHY2, DEHY3 98% - LDOUT1

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

Permit R13-3394F Requirements:

6.1.2 The recycled reboilers shall be designed and operated in accordance with this section – vapors/overheads from the flash tanks shall be routed through a closed vent system to the reboiler at all times when there is a potential that vapors can be generated from the flash tank, reboiler shall only be fired with vapors from the flash tank (natural gas may be used as supplemental fuel), vapors shall be introduced to the flame zone of the reboiler, and when offline gas shall be sent to the VRUs via the storage tanks.

7.1.1 Maximum design heat input of reboilers.

7.1.2 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.]

9.1.7 Recycled Reboilers shall be designed and operated in accordance with this section – product loadout rack vapors routed through a closed vent system to the reboiler at all times when there is potential for vapors to be generated from the flash tank, vapors shall be introduced to the flame zone of the reboiler, and when offline gas shall be sent to the thermal oxidizers

**Please Reference WVDEP-DAQ Permit R13-3394F 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 R13-3394F Requirements:

7.2.1 At such reasonable times as the Secretary may designate, conduct Method 9 emission observations to demonstrate compliance with section 7.1.2

7.3.1 When requested by the Secretary, conduct Method 9 tests or utilize measurements from continuous opacity monitoring systems approved by the Director to demonstrate compliance with section 7.1.2

[45CSR§2-3.2.]**7.4.1** Maintain records of all monitoring data required by section 7.2.1

7.5.1 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 WVDEP-DAQ Permit R13-3394F 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), VRU-300(26C)	List all emission units associated with this control device. Hydrocarbon/Produced Water Tanks (T01 through T11)	
Manufacturer: TBD	Model number: TBD	Installation date: 2019

Type of Air Pollution Control Device:

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

List the pollutants for which this device is intended to control and the capture and control efficiencies.		
Pollutant	Capture Efficiency	Control Efficiency
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.).

All eleven (11) tanks are connected to two (2) vapor recovery units (VRU-100 and VRU-200) where tank vapors are collected and recycled back into the gas system right before the initial filter scrubber. A third vapor recovery unit (VRU-300) is also connected to the tanks as a backup unit. A 98% capture efficiency was permitted.

Permit R13-3394F Requirements:

8.1.1 Route all VOC and HAP emissions from the tanks (Unit IDs: T01 - T11) to a VRU System with at least 98% efficiency

8.1.2 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§13-5.10.]

8.1.5 Additional VRU Requirements – three (3) of the four (4) options must be utilized: install run status sensing equipment, install an automatic by-pass recycle system, install blanket gas with automatic throttling, and/or install a compressor with a variable drive

8.1.6 The VRUs shall be designed and operated in accordance with this section [45CSR§13-5.10]

8.1.7 The closed vent system shall be designed and operated in accordance with this section [45CSR§13-5.10]

Please Reference WVDEP-DAQ Permit R13-3394F 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 R13-3394F Requirements:

8.2.2 Monitor the VRUs in accordance with the plans and specifications and manufacturer's recommendations to demonstrate compliance with section 8.1.1

8.2.3a Conduct Initial AVO within 180 days of start-up, repair leaks as soon as practicable, grease requirements, delay of repair requirements

8.2.3b&c Conduct Annual AVO inspections (with visual bypass inspection) within 365 calendar days from date of previous inspection, repair leaks as soon as practicable, grease requirements, delay of repair requirements

8.2.3d&e Maintain a written plan for unsafe or difficult to inspect requirements that determines frequency of inspections[45CSR§13-5.10]

8.3.1. Maintain all records required by section 8.3.

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

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

8.3.5 Maintain a copy of all design records of the process, maintenance records of equipment and any downtime hours associated with the VRUs.

8.3.6 Maintain records of the additional monitoring required in section 8.1.5 to demonstrate compliance with the 98% control efficiency in section 8.1.1

8.3.7 Maintain initial compliance records, annual visual inspections, bypass inspections or each time the key is checked out or each time the alarm is sounded, each occurrence that the control device was bypassed, and unsafe or difficult to inspect designations to demonstrate compliance with the closed vent system monitoring requirements. [45CSR§13-5.11]

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

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

Please Reference WVDEP-DAQ Permit R13-3394F

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	There are no gas turbines located at the site; therefore, 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 and was constructed after August 23, 2011; 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, does not operate an affected facility, 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-1800, GEN2 through GEN3) 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	There are no gas turbines located at the site; therefore, 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	<p>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:</p> <ul style="list-style-type: none"> • <u>Well affected facility:</u> 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. • <u>Reciprocating compressors:</u> The on-site reciprocating compressors are an affected facility in compliance with the applicable requirements of this subpart. • <u>Pneumatic controller:</u> All on-site pneumatic controllers are electric or powered by compressed air, not natural gas-driven powered by pressurized natural gas; therefore, they are not affected facilities. • <u>Storage vessel with PTE > 6 tpy VOC:</u> Each storage tank at this site has PTE VOC emissions < 6 tpy as determined in accordance with this rule; therefore, they are not affected facilities. • <u>Pneumatic pump:</u> A pneumatic pump affected facility is a single natural gas-driven diaphragm pump. This site does not include any pneumatic pump affected facilities. • <u>The collection of fugitive emissions components at a compressor station is an affected facility:</u> 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. <p>• All other potentially affected facilities listed in this rule are exempt if not located at an onshore natural gas processing plant. This site is not an onshore natural gas processing plant, as defined in §60.5430; therefore, there are no further requirements under this subpart.</p>

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 as defined by this rule 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: <ul style="list-style-type: none"> • §63.764(e)(ii) – Actual annual average emissions of benzene from the glycol dehydration process vent to atmosphere are < 1.0 tpy. Records will be maintained according to 63.764(d)(1)
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 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	There are no stationary combustion turbines located at the site; therefore, this subpart does not apply.
EEEE	National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)	N	This site is defined by this subpart as an oil and natural gas production facility and is exempt from this subpart per §63.2334(c)(1).
ZZZZ	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	Y	The engines (Unit IDs: C-100 through C-1800, GEN2 through GEN3) 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 as defined by this rule; 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	<p>§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.</p> <p>§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.</p>
6	Control of Air Pollution from Combustion of Refuse	N/A	<p>§45-6-3.1 The open burning of refuse will not occur.</p>
10	Prevent and Control Air Pollution from the Emission of Sulfur Oxides	N	<p>§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.</p>
11	Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After 7/23/1984	Y	<p>§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.</p>
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	<p>The site has obtained a construction permit and will meet the requirements in this section.</p>
14	Permits for Construction and Major Modification of Major Stationary Sources for the Prevention of Significant Deterioration (PSD) of Air Quality	N	<p>§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 V 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 V 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.</p>
16	Standards of Performance for New Stationary Sources Pursuant to 40 CFR, Part 60	Y	<p>The site will meet the applicable NSPS requirements as adopted by West Virginia Department of Environmental Protection.</p>
19	Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution Which Cause or Contribute to Nonattainment	N	<p>The site is not a major source or modification for the purposes of 45 CSR 19.</p>

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 distribution 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	This rule does not apply. Antero does not choose to participate in the voluntarily statewide air pollutant emissions trading program.
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 VOC and NO _x from the Middlebourne V Compressor Station will be over 100 tons per year not including fugitive emissions, so the Middlebourne V Compressor Station is a major source as defined by this rule and applicable to 45CSR30. The Middlebourne V 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 Virginia 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 definitive 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

UNCONTROLLED POTENTIAL EMISSION SUMMARY

Source	NOx		CO		VOC		SO ₂		PM ₁₀ /PM _{2.5}		HAPs		Formaldehyde		CO _{2e}
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	ton/yr
Engines															
Compressor Engine 1	1.65	7.24	14.44	63.25	3.14	13.76	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	3.14	13.76	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	3.14	13.76	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	3.14	13.76	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	3.14	13.76	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	3.14	13.76	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	3.14	13.76	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	3.14	13.76	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	3.14	13.76	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	3.14	13.76	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	3.14	13.76	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	3.14	13.76	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 13	1.65	7.24	14.44	63.25	3.14	13.76	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 14	1.65	7.24	14.44	63.25	3.14	13.76	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 15	1.65	7.24	14.44	63.25	3.14	13.76	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 16	1.65	7.24	14.44	63.25	3.14	13.76	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 17	1.65	7.24	14.44	63.25	3.14	13.76	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Compressor Engine 18	1.65	7.24	14.44	63.25	3.14	13.76	0.010	0.044	0.17	0.75	1.21	5.32	0.88	3.86	12,311
Fuel Conditioning Heater 1	0.066	0.29	0.056	0.24	0.0036	0.016	0.00040	0.0017	0.0050	0.022	0.0012	0.0055	0.000050	0.00022	257
Fuel Conditioning Heater 2	0.101	0.44	0.085	0.37	0.0056	0.024	0.00061	0.0027	0.0077	0.034	0.0019	0.0083	0.000076	0.00033	386
Generators															
Natural Gas Generator - PSI 1	1.43	0.72	2.86	1.43	1.00	0.50	0.0033	0.0017	0.11	0.055	0.18	0.092	0.12	0.058	333
Natural Gas Generator - PSI 2	1.43	0.72	2.86	1.43	1.00	0.50	0.0033	0.0017	0.11	0.055	0.18	0.092	0.12	0.058	333
Dehydrator															
TEG Dehydrator 1	---	---	---	---	96.59	423.1	---	---	---	---	12.16	53.27	---	---	14,580
TEG Dehydrator 2	---	---	---	---	96.59	423.1	---	---	---	---	12.16	53.27	---	---	14,580
TEG Dehydrator 3	---	---	---	---	100.09	438.4	---	---	---	---	12.73	55.77	---	---	14,826
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	---	---	---	---	61.39	19.21	---	---	---	---	1.30	0.41	---	---	155
Venting Emissions															
Compressor Blowdown Emissions	---	---	---	---	---	17.73	---	---	---	---	---	0.75	---	---	1,284
Startup and Shutdown Emissions	---	---	---	---	---	9.29	---	---	---	---	---	0.40	---	---	673
Pigging Emissions	---	---	---	---	---	15.39	---	---	---	---	---	0.66	---	---	1,115
Vessel Cleaning/Maintenance Emissions	---	---	---	---	---	0.47	---	---	---	---	---	0.020	---	---	34
Fugitive Emissions															
Component Leak Emissions	---	---	---	---	3.10	13.58	---	---	---	---	0.117	0.51	---	---	245
Haul Road Dust Emissions	---	---	---	---	---	---	---	---	0.11	0.46	---	---	---	---	---
Storage Tanks															
Storage Tank Battery - 11 tanks	---	---	---	---	77.61	339.9	---	---	---	---	1.66	7.25	---	---	2,508
Total Facility PTE =	33.2	134.5	266.2	1,144	493.9	1,949	0.19	0.81	3.45	14.26	62.37	268.3	16.11	69.64	275,215

Emissions Summary Total

CONTROLLED POTENTIAL EMISSION SUMMARY

Source	NOx		CO		VOC		SO ₂		PM ₁₀ /PM _{2.5}		HAPs		Formaldehyde		CO ₂ e
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	ton/yr
Engines															
Compressor Engine 1	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 2	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 3	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 4	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 5	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 6	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 7	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 8	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 9	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 10	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 11	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 12	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 13	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 14	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 15	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 16	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 17	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Compressor Engine 18	1.65	7.24	0.88	3.86	1.76	7.72	0.010	0.044	0.17	0.75	0.23	1.01	0.11	0.48	12,311
Fuel Conditioning Heater 1	0.066	0.29	0.056	0.24	0.0036	0.016	0.00040	0.0017	0.0050	0.022	0.0012	0.0055	0.000050	0.00022	257
Fuel Conditioning Heater 2	0.10	0.44	0.085	0.37	0.0056	0.024	0.00061	0.0027	0.0077	0.034	0.0019	0.0083	0.000076	0.00033	386
Generators															
Natural Gas Generator - PSI 1	1.43	0.72	2.86	1.43	1.00	0.50	0.0033	0.0017	0.11	0.055	0.18	0.092	0.12	0.058	333
Natural Gas Generator - PSI 2	1.43	0.72	2.86	1.43	1.00	0.50	0.0033	0.0017	0.11	0.055	0.18	0.092	0.12	0.058	333
Dehydrator															
TEG Dehydrator 1	---	---	---	---	1.93	8.46	---	---	---	---	0.24	1.07	---	---	302
TEG Dehydrator 2	---	---	---	---	1.93	8.46	---	---	---	---	0.24	1.07	---	---	302
TEG Dehydrator 3	---	---	---	---	2.00	8.77	---	---	---	---	0.25	1.12	---	---	307
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	2.06	1.91	8.37	0.0034	0.015	0.00037	0.0016	0.0047	0.021	0.0012	0.0051	---	---	3,410
Thermal Oxidizer 2	0.47	2.06	1.91	8.37	0.0034	0.015	0.00037	0.0016	0.0047	0.021	0.0012	0.0051	---	---	3,410
Thermal Oxidizer 3	0.47	2.06	1.91	8.37	0.0034	0.015	0.00037	0.0016	0.0047	0.021	0.0012	0.0051	---	---	3,410
Hydrocarbon Loading															
Truck Loadout	---	---	---	---	4.24	1.33	---	---	---	---	0.090	0.028	---	---	11
Venting Emissions															
Compressor Blowdown Emissions	---	---	---	---	---	17.73	---	---	---	---	---	0.75	---	---	1,284
Startup and Shutdown Emissions	---	---	---	---	---	9.29	---	---	---	---	---	0.40	---	---	673
Pigging Emissions	---	---	---	---	---	15.39	---	---	---	---	---	0.66	---	---	1,115
Vessel Cleaning/Maintenance Emissions	---	---	---	---	---	0.47	---	---	---	---	---	0.02	---	---	34
Fugitive Emissions															
Component Leak Emissions	---	---	---	---	3.10	13.58	---	---	---	---	0.12	0.51	---	---	245
Haul Road Dust Emissions	---	---	---	---	---	---	---	---	0.11	0.46	---	---	---	---	---
Storage Tanks															
Storage Tank Battery - 11 tanks	---	---	---	---	1.55	6.80	---	---	---	---	0.033	0.15	---	---	51
Total Facility PTE =	34.64	140.6	27.84	99.75	48.55	230.5	0.19	0.82	3.47	14.32	5.52	24.23	2.22	8.81	239,769

HAP Emissions Summary Total

CONTROLLED POTENTIAL EMISSION SUMMARY

Source	Benzene		Toluene		Ethylbenzene		Xylenes		n-Hexane		Acetaldehyde		Acrolein		Methanol	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Engines																
Compressor Engine 1	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 2	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 3	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 4	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 5	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 6	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 7	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 8	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 9	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 10	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 11	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 12	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 13	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 14	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 15	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 16	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 17	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Compressor Engine 18	0.0040	0.017	0.0037	0.016	0.00036	0.0016	0.0017	0.0073	0.010	0.044	0.018	0.078	0.047	0.20	0.023	0.10
Fuel Conditioning Heater 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fuel Conditioning Heater 2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Generators																
Natural Gas Generator - PSI 1	0.0090	0.0045	0.0032	0.0016	0.00014	0.000070	0.0011	0.00055	---	---	0.016	0.0079	0.015	0.0075	0.017	0.0087
Natural Gas Generator - PSI 2	0.0090	0.0045	0.0032	0.0016	0.00014	0.000070	0.0011	0.00055	---	---	0.016	0.0079	0.015	0.0075	0.017	0.0087
Dehydrator																
TEG Dehydrator 1	0.026	0.11	0.10	0.45	0.010	0.043	0.033	0.14	0.071	0.31	---	---	---	---	---	---
TEG Dehydrator 2	0.026	0.11	0.10	0.45	0.010	0.043	0.033	0.14	0.071	0.31	---	---	---	---	---	---
TEG Dehydrator 3	0.027	0.12	0.11	0.48	0.010	0.045	0.034	0.15	0.075	0.33	---	---	---	---	---	---
Reboiler 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Reboiler 2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Reboiler 3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Thermal Oxidizers																
Thermal Oxidizer 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Thermal Oxidizer 2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Thermal Oxidizer 3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hydrocarbon Loading																
Truck Loadout	0.0014	0.00044	0.0040	0.0012	0.0023	0.00073	0.0060	0.0019	0.076	0.024	---	---	---	---	---	---
Venting Emissions																
Compressor Blowdown Emissions	---	0.0076	---	0.026	---	0.0020	---	0.0051	---	0.71	---	---	---	---	---	---
Startup and Shutdown Emissions	---	0.0040	---	0.013	---	0.0011	---	0.0027	---	0.37	---	---	---	---	---	---
Pigging Emissions	---	0.0066	---	0.022	---	0.0017	---	0.0045	---	0.62	---	---	---	---	---	---
Vessel Cleaning/Maintenance Emissions	---	0.00020	---	0.00068	---	0.000053	---	0.00014	---	0.019	---	---	---	---	---	---
Fugitive Emissions																
Component Leak Emissions	0.0013	0.0055	0.0041	0.018	0.00066	0.0029	0.00168	0.0074	0.11	0.48	---	---	---	---	---	---
Haul Road Dust Emissions	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Storage Tanks																
Storage Tank Battery - 11 tanks	0.00050	0.0022	0.0014	0.0063	0.00086	0.0037	0.0022	0.010	0.028	0.12	---	---	---	---	---	---
Total Facility PTE =	0.17	0.69	0.40	1.76	0.040	0.17	0.14	0.60	0.61	4.10	0.35	1.43	0.87	3.69	0.44	1.81