



Permit / Application Information Sheet
Division of Environmental Protection
West Virginia Office of Air Quality

Company:	Antero Midstream LLC	Facility:	West Mountain Statio
Region:	8	Plant ID:	085-00039
Engineer:	Kessler, Joe	Application #:	13-3215A
Physical Address:	WV-74 Pennsboro WV 26415	Category:	SIC: [4923] ELECTRIC, GAS AND SANITARY SERVICES - GAS TRANSMISSION AND DISTRIBUTION NAICS: [221210] Natural Gas Distribution
County:	Ritchie		
Other Parties:	Consultant - Steyskal, Michele 719-632-3593 VICE PRES - McNeilly, Ward 303-357-6822 ENV_MGR - Schatz, Barry 303-357-7276		

Information Needed for Database and AIRS
 1. Need valid physical West Virginia address with zip

Regulated Pollutants		
CO	Carbon Monoxide	69.370 TPY
PM10	Particulate Matter < 10 um	14.250 TPY
SO2	Sulfur Dioxide	0.500 TPY
VOC	Volatile Organic Compounds (Reactive organic gases)	49.210 TPY
PM2.5	Particulate Matter < 2.5 um	14.250 TPY
PT	Total Particulate Matter	14.250 TPY
VHAP	VOLATILE ORGANIC HAZARDOUS AIR POLLUTANT	11.150 TPY
NOX	Nitrogen Oxides (including NO, NO2, NO3, N2O3, N2O4, and N2O5)	65.050 TPY

Summary from this Permit 13-3215A		
Air Programs	Applicable Regulations	
MACT		
NSPS		
SIP		
Fee Program	Fee	Application Type
8D	\$4,500.00	MODIFICATION

Notes from Database
 Permit Note: Modification primarily to: (1) Update compressor engine emissions to reflect catalyst data based on a new catalyst design from the manufacturer, (2) Installation of a fuel conditioning heater, (3) Increase the Glycol Dehydrator Units throughput each to 72.5 mmscf/day, and (4) Revision of the dehydrator flash tank control efficiency.

Activity Dates

APPLICATION RECEIVED	06/14/2016
APPLICATION FEE PAID	06/15/2016
ASSIGNED DATE	06/15/2016
APPLICANT PUBLISHED LEGAL AD	06/22/2016
APPLICATION DEEMED COMPLETE	07/14/2016

NOTICE

NON-CONFIDENTIAL

Please note, this information sheet is not a substitute for file research and is limited to data entered into the AIRTRAX database.

Company ID: 085-00039
 Company: Antero Midstream LLC
 Printed: 08/29/2016
 Engineer: Kessler, Joe

AIR QUALITY PERMIT NOTICE

Notice of Intent to Approve

On June 14, 2016, Antero Midstream LLC applied to the WV Department of Environmental Protection, Division of Air Quality (DAQ) for a permit to modify the West Mountain Compressor Station located approximately 2.6 miles north-northwest of Pennsboro, and west of Pullman Road (County Route 74), in Ritchie County, WV at latitude 39.32104 and longitude -80.97843. A preliminary evaluation has determined that all State and Federal air quality requirements will be met by the modified facility. The DAQ is providing notice to the public of its preliminary determination to issue the permit as R13-3215A.

The following change in potential emissions will be authorized by this permit action: Particulate Matter less than 2.5 microns, 1.35 tons per year (TPY); Particulate Matter less than 10 microns, 1.35 TPY; Particulate Matter, 1.35 TPY; Sulfur Dioxide, 0.04 TPY; Oxides of Nitrogen, -26.27 TPY; Carbon Monoxide, -24.75 TPY; Volatile Organic Compounds, -29.23 TPY; Hazardous Air Pollutants, -0.49 TPY.

Written comments or requests for a public meeting must be received by the DAQ before 5:00 p.m. on **XXXXXX**. A public meeting may be held if the Director of the DAQ determines that significant public interest has been expressed, in writing, or when the Director deems it appropriate.

The purpose of the DAQ's permitting process is to make a preliminary determination if the proposed modification will meet all State and Federal air quality requirements. The purpose of the public review process is to accept public comments on air quality issues relevant to this determination. Only written comments received at the address noted below within the specified time frame, or comments presented orally at a scheduled public meeting, will be considered prior to final action on the permit. All such comments will become part of the public record.

Joe Kessler, PE
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Telephone: 304/926-0499, ext. 1219
FAX: 304/926-0478

Entire Document
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Additional information, including copies of the draft permit, application and all other supporting materials relevant to the permit decision may be obtained by contacting the engineer listed above. The draft permit and engineering evaluation can be downloaded at:

www.dep.wv.gov/daq/Pages/NSRPermitsforReview.aspx

Kessler, Joseph R

From: Adkins, Sandra K
Sent: Thursday, September 08, 2016 12:32 PM
To: wentworth.paul@epa.gov; bradley.megan@epa.gov; Elizabeth McLaughlin
Cc: Durham, William F; McKeone, Beverly D; McCumbers, Carrie; Hammonds, Stephanie E; Kessler, Joseph R; Taylor, Danielle R; Rice, Jennifer L
Subject: WV Draft Permit R13-3215A for Antero Midstream LLC; West Mountain Compressor Station
Attachments: 3215A.pdf; Eval3215A.pdf; AttachmentA.pdf; notice.pdf

Please find attached the Draft Permit R13-3215A, Engineering Evaluation, Attachment A, and Public Notice for Antero Midstream LLC's West Mountain Compressor Station located in Ritchie County.

The notice will be published in *The Pennsboro News* on Wednesday, September 14, 2016, and the thirty day comment period will end on Friday, October 14, 2016.

Should you have any questions or comments, please contact the permit writer, Joe Kessler, at 304 926-0499 x1219.

Kessler, Joseph R

From: Adkins, Sandra K
Sent: Thursday, September 08, 2016 12:33 PM
To: Gillenwater, Kelley J; Glance, Jacob P
Cc: Kessler, Joseph R; Hammonds, Stephanie E
Subject: DAQ Public Notice

Please see below the Public Notice for Draft Permit R13-3215A for Antero Midstream LLC's West Mountain Compressor Station located in Ritchie County.

The notice will be published in *The Pennsboro News* on Wednesday, September 14, 2016, and the thirty day comment period will end on Friday, October 14, 2016.

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Joe Kessler, PE

WV Department of Environmental Protection

Division of Air Quality

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Charleston, WV 25304

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FAX: 304/926-0478

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www.dep.wv.gov/daq/Pages/NSRPermitsforReview.aspx

Kessler, Joseph R

From: Adkins, Sandra K
Sent: Tuesday, September 06, 2016 2:44 PM
To: news@ritchiecountynews.com
Cc: Kessler, Joseph R
Subject: Publication of Class I Legal Ad for the WV Division of Air Quality

Please publish the information below as a Class I legal advertisement (one time only) in the Wednesday, September 14, 2016, issue of *The Pennsboro News*. Please let me know that this has been received and will be published as requested. Thank you.

Send the invoice for payment and affidavit of publication to:

Sandie Adkins

**WV Department of Environmental Protection
DIVISION OF AIR QUALITY**

601- 57th Street

Charleston, WV 25304

Thank you for your assistance. Should you have any questions, please contact me at 304-926-0499 x1250.

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West Virginia Department of Environmental Protection
Earl Ray Tomblin
Governor

Division of Air Quality

Randy C. Huffman
Cabinet Secretary

Permit to Modify



Entire Document
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R13-3215A

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
West Mountain Compressor Station
085-00039

DRAFT

William F. Durham
Director

Issued: DRAFT

This permit supercedes and replaces R13-3215 issued on May 26, 2016.

Facility Location: WV-74, Pennsboro, Ritchie County, West Virginia
Mailing Address: 1615 Wynkoop Street, Denver, CO 80202
Facility Description: Natural gas compressor station
SIC/NAICS Codes: 49/23/221210
UTM Coordinates: 501.859 km Easting • 4,352.404 km Northing • Zone 17
Latitude/Longitude: 39.32104/-80.97843
Permit Type: Modification
Description of Change: Modification primarily to: (1) Update compressor engine emissions to reflect catalyst data based on a new catalyst design from the manufacturer, (2) Installation of a fuel conditioning heater, (3) Increase the Glycol Dehydrator Units throughput each to 72.5 MMscfd, and (4) Revision of the dehydrator flash tank control efficiency.

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 not subject to 45CSR30.

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1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
C-2100	1E	Waukesha L7044 GSI Compressor Engine	2015	1,680 HP	1C
C-2110	2E	Waukesha L7044 GSI Compressor Engine	2015	1,680 HP	2C
C-2120	3E	Waukesha L7044 GSI Compressor Engine	2015	1,680 HP	3C
C-2130	4E	Waukesha L7044 GSI Compressor Engine	2015	1,680 HP	4C
C-2140	5E	Waukesha L7044 GSI Compressor Engine	2015	1,680 HP	5C
C-2150	6E	Waukesha L7044 GSI Compressor Engine	2015	1,680 HP	6C
C-2160	7E	Waukesha L7044 GSI Compressor Engine	2015	1,680 HP	7C
C-2170	8E	Waukesha L7044 GSI Compressor Engine	2015	1,680 HP	8C
C-2180	9E	Waukesha L7044 GSI Compressor Engine	2015	1,680 HP	9C
C-2190	10E	Waukesha L7044 GSI Compressor Engine	2015	1,680 HP	10C
C-2200	11E	Waukesha L7044 GSI Compressor Engine	2015	1,680 HP	11C
G-8000	12E	Capstone C200 NG Microturbine Generator	2015	200 kWe	None
G-8100	13E	Capstone C200 NG Microturbine Generator	2015	200 kWe	None
G-8200	28E	Capstone C200 NG Microturbine Generator	2015	200 kWe	None
V-3110	14E	TEG Dehydration Unit Still Vent #1 (Valerus)	2015	72.5 mmscfd	12C
V-3120	15E	TEG Dehydrator Flash Tank #1	2015	72.5 mmscfd	Reboiler #1
F-3100	16E	TEG Dehydration Unit Reboiler #1	2015	1.5 MMBtu/hr	None
V-3210	17E	TEG Dehydration Unit Still Vent #2 (Valerus)	2015	72.5 mmscfd	12C
V-3220	18E	TEG Dehydrator Flash Tank #2	2015	72.5 mmscfd	Reboiler #2
F-3200	19E	TEG Dehydration Unit Reboiler	2015	1.5 MMBtu/hr	None
TK-9000	20E	Settling Tank	2015	500 bbl (21,000 gal)	13C, 14C
TK-9200	21E	Condensate Storage Tank 1	2015	400 bbl (16,800 gal)	13C, 14C
TK-9210	22E	Condensate Storage Tank 2	2015	400 bbl (16,800 gal)	13C, 14C
TK-9100	23E	Produced Water Storage Tank 1	2015	400 bbl (16,800 gal)	13C, 14C
TK-9110	24E	Produced Water Storage Tank 2	2015	400 bbl (16,800 gal)	13C, 14C
LDOUT1	29E	Produced Fluids Truck Load Out	2015	2.99 MMgal/yr	None
FL-8300	26E	Shielded Flare (Superior Fabrication)	2015	4.8 MMBtu/hr	12C

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
CATHT1	27E	Catalytic Heater for Generator Fuel (Bruest HotCat; Model 8000)	2015	0.024 MMBtu/hr	None
FUEL1	30E	Fuel Conditioning Heater	2016	0.50 MMBtu/hr	None
TK-9300	n/a	Compressor Skid Oily Water Tank	2015	500 gal.	None
TK-9320	n/a	Compressor Skid Oily Water Tank	2015	500 gal.	None
TK-9310	n/a	Used Oil Storage Tank	2015	500 gal.	None
TK-9330	n/a	Used Oil Storage Tank	2015	500 gal.	None
TK-9400	n/a	Compressor Waste Oil Tank	2015	4,200 gal.	None
TK-9410	n/a	TEG Make-Up Tank	2015	1,000 gal.	None
TK-9420	n/a	Compressor Coolant Tank	2015	2,000 gal.	None
TK-9430	n/a	Engine Oil Tank	2015	2,000 gal.	None
TK-9440	n/a	Compressor Lube Oil Tank	2015	2,000 gal.	None

1.1. Control Devices

Control Device ID	Control Device Description	Emission Unit	Pollutant	Control Efficiency
1C- 11C	NSCR Catalyst (Emit Technologies RT-3615-T)	1,680 hp Waukesha L7044GSI Compressor Engines	Nitrogen Oxides	97.5%
			Carbon Monoxide	97.5%
			Volatile Organic Compounds	84.0%
			Formaldehyde	90.0%
12C	Shielded Flare FL-8300 (Superior Fabrication)	TEG Dehydrator Still Vents	Volatile Organic Compounds	98%
			Hazardous Air Pollutants	98%
13C	Hybon Vapor Recovery Unit 6000 (30 hp)	Settling, Condensate, and Produced Water Tanks	Volatile Organic Compounds	98%
			Hazardous Air Pollutants	98%
			Methane	98%
14C	Hybon Vapor Recovery Unit 6100 (30 hp)	Settling, Condensate, and Produced Water Tanks	Volatile Organic Compounds	98%
			Hazardous Air Pollutants	98%
			Methane	98%
F-3100	Dehydrator Reboiler 1/VRU-6000/VRU-6100	Flash Tank #1	Volatile Organic Compounds	98%
			Hazardous Air Pollutants	98%
F-3200	Dehydrator Reboiler 2/ VRU-6000/VRU-6100	Flash Tank #2	Volatile Organic Compounds	98%
			Hazardous Air Pollutants	98%

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	Ppm_v or ppm_v	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 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 R13-3215, R13-3215A 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§§13-5.11 and -10.3.]**
- 2.5.2. This permit supercedes and replaces R13-3215. 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 with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

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

If to the US EPA:
Associate Director
Office of Air Enforcement and Compliance
Assistance
(3AP20)
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

- 3.5.4. **Operating Fee.** In accordance with 45CSR22 – Air Quality Management Fee Program, the permittee shall not operate nor cause to operate the permitted facility or other associated facilities on the same or contiguous sites comprising the plant without first obtaining and having in current effect a Certificate to Operate (CTO). Such Certificate to Operate (CTO) shall be renewed annually, shall be maintained on the premises for which the certificate 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:
- The date, place as defined in this permit, and time of sampling or measurements;
 - The date(s) analyses were performed;
 - The company or entity that performed the analyses;
 - The analytical techniques or methods used;
 - The results of the analyses; and
 - The operating conditions existing at the time of sampling or measurement.
- 4.1.2. **Minor Source of Hazardous Air Pollutants (HAP).** The permittee shall not emit or have the potential to emit, in the aggregate, 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 according to 45CSR30 §2.26.a.1.
- 4.1.3. **Minor Source of Regulated Pollutants.** The permittee shall not emit or have the potential to emit 100 tons per year or more of any regulated air pollutant. The fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of 45CSR30 §2.26.b. Compliance with this Section shall ensure that the facility is a minor source of regulated air pollutants.
- 4.1.4. **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§13-5.11.]
- 4.1.5. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in the General Permit Registration, the registrant shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures specifically required in this permit.
- 4.1.6. **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:
- The equipment involved.
 - Steps taken to minimize emissions during the event.
 - The duration of the event.
 - The estimated increase in emissions during the event.

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

- The cause of the malfunction.
- Steps taken to correct the malfunction.

- g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.
- 4.1.7. 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.
- 4.1.8. In accordance with the information filed in Permit Application R13-3215A, the equipment/processes identified under Table 1.0 of this permit shall be installed, maintained, and operated so as to minimize any fugitive escape of pollutants, shall not exceed the listed maximum design capacities, and shall use the specified control devices.
- 4.1.9. **Records of Minor Source Status.** To demonstrate compliance with 4.1.2 and 4.1.3, the permittee shall maintain facility wide records on a twelve month rolling total demonstrating that the annual actual and annual potential emissions do not exceed major source status.

5.0. Source-Specific Requirements: Compressor Engines and Microturbine Generators (C-2100, C-2110, C-2120, C-2130, C-2140, C-2150, C-2160, C-2170, C-2180, C-2190, C-2200, G-8000, G-8100, G-8200)

5.1. Limitations and Standards

- 5.1.1. Each Waukesha 7044 GSI 4SRB 1,680 hp compressor engine shall only be fired by pipeline-quality natural gas. As the annual emissions limits given under 5.1.2. are based on 8,760 hours of operation, there is no annual limit on hours of operation or natural gas combusted on an annual basis.
- 5.1.2. The maximum emissions from the eleven (11) 1,680 hp natural gas fired reciprocating engines equipped with NSCR, Waukesha 7044 GSI (C-2100 – C-2200) shall not exceed the following limits:

Emission Point ID	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
1E – 11E (Total)	Nitrogen Oxides	1.26	5.52
	Carbon Monoxide	1.19	5.19
	Volatile Organic Compounds	0.24	1.06
	Formaldehyde	0.02	0.08
	Total Hazardous Air Pollutants	0.18	0.81

- 5.1.3. *[Revised]*
- 5.1.4. Notwithstanding the provisions of subsection 2.19 of 45CSR13, any natural gas compressor which is equipped with a catalytic converter which is integral to the unit shall have its potential to emit determined taking into consideration reductions achieved by the catalytic converter. Said catalytic converter must be interlocked in such a way as to not allow operation of the engine without operation of the catalytic converter. The catalytic converter shall have the catalyst replaced every 45,000 hours of operation or every ten (10) years, whichever is earlier, as established by records kept by the source, unless the Secretary approves an alternative method of verifying catalyst effectiveness. **[45CSR13-2.19.a]**
- 5.1.5. Each Capstone C600 NG 600kWe (output) Microturbine, shall not exceed a rated MDHI of 6.18 mmBtu/hr, and shall only be fired by pipeline-quality natural gas. As the annual emissions limits given under 5.1.6. are based on 8,760 hours of operation, there is no annual limit on hours of operation or natural gas combusted on an annual basis.
- 5.1.6. Maximum emissions from the 200 kWe natural gas fired microturbine generators, Capstone C200 (G-800, -8100, -8200) shall not exceed the following limits (total for three generators):

Emission Point ID	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
12E, 13E, and 28E (Total)	Nitrogen Oxides	0.24	1.05
	Carbon Monoxide	0.66	2.88
	Volatile Organic Compounds	0.06	0.27

- 5.1.7. The reciprocating internal combustion engines shall be operated and maintained as follows:
- a. in accordance with the manufacturer's recommendations and specifications or in accordance with a site specific maintenance plan;
 - b. in a manner consistent with good operating practices; and
 - c. shall only burn natural gas.
- 5.1.8. Requirements for Use of Catalytic Reduction Devices (NSCR for C-2100 – C-2200)
- a. Rich-burn natural gas compressor engines (C-2100 – C-2200) equipped with non-selective catalytic reduction (NSCR) air pollution control device shall be fitted with a closed-loop, automatic air/fuel ratio controller to ensure emissions of regulated pollutants do not exceed the potential to emit for any engine/NSCR combination under varying load. The closed-loop, automatic air/fuel ratio controller shall control a fuel metering valve to deliver additional fuel when required to ensure a fuel-rich mixture and a resultant exhaust oxygen content of less than or equal to 0.5%. The automatic air/fuel ratio controller shall also incorporate dual-point exhaust gas temperature and oxygen sensors which provide temperature and exhaust oxygen content differential feedback. Such controls shall ensure proper and efficient operation of the engine and NSCR air pollution control device;
 - b. The automatic air/fuel ratio controller or closed-loop automatic feedback controller shall provide a warning or indication to the operator and/or be interlocked with the engine ignition system to cease engine operation in case of a masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element; and
 - c. 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.
- 5.1.9. The compressor engines (C-2100 – C-2200) are subject to the applicable requirements of 40CFR60, Subpart JJJJ Standards and 40CFR63, Subpart ZZZZ Standards provided in section 10.0 of this permit and to the applicable 40CFR60, Subpart OOOOa Standards provided in section 11.0 of this permit.

5.2. Monitoring Requirements

- 5.2.1. Catalytic Oxidizer Control Devices (NSCR C-2100 – C-2200)
- 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.

5.4. Recordkeeping Requirements

- 5.4.1. *[Revised]*
- 5.4.2. To demonstrate compliance with 5.1.4, the permittee shall maintain records of the catalyst changes, including the hours of operation since the last catalyst change. The records shall also indicate the date of the last catalyst change. If an alternate method previously approved by the Secretary is used, then the corresponding records shall be maintained to demonstrate compliance.
- 5.4.3. To demonstrate compliance with section 5.1.7 and 5.1.8, the permittee shall maintain records of all engine and 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.

5.5. Reporting Requirements

- 5.5.1. See Facility-Wide Reporting Requirements Section 3.5.

6.0. Source-Specific Hazardous Air Pollutant Requirements (Natural Gas TEG Dehydration Units with exemption from § 63.764(d) and being controlled by a Flare)

6.1. Limitations and Standards

6.1.1. *Maximum Throughput Limitation.* The maximum wet natural gas throughput to the TEG dehydration units/still columns (V-3110 and V-3210) shall not exceed 72.5 million standard cubic feet per day (mmscfd) or 26.463 mmscfy for each unit. 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. *Emission Limits.* The controlled maximum emissions from each unit (both Glycol Dehydrator Regeneration Still Vent and Flash Tank), shall not exceed the limits given in the following table:

Pollutant	Still Vent		Flash Tank	
	lbs/hr	tons/year	lbs/hr	tons/year
VOC	0.47	2.06	0.94	4.10
<i>n-Hexane</i>	0.02	0.08	0.04	0.17
<i>Benzene</i>	0.02	0.08	0.01	0.01
<i>Toluene</i>	0.04	0.18	0.01	0.01
<i>Xylene</i>	0.01	0.05	0.01	0.01
Total HAPs	0.09	0.39	0.04	0.18

6.1.3. *Emission Calculations.*

- a. For purposes of determining potential HAP emissions, the methods specified in 40 CFR 63, Subpart HH (i.e. excluding compressor engines from HAP PTE) shall be used.
- b. For the purposes of determining actual annual average natural gas throughput or actual average benzene emissions, the methods specified in § 63.772(b) of 40 CFR 63, Subpart HH shall be used because the registrant is exempt from § 63.764(d).

6.1.4. *Shielded Flare.* The permittee shall comply with the design and operating requirements below:

- a. Vapors from the dehydration still vents that are being controlled by the shielded flare shall be routed to the control device at all times when vapors may be present.
- b. The shielded flare shall be operated with a flame present at all times whenever emissions may be vented to them.
- c. The shielded flare shall be designed for and operated with no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
- d. The gas heating value must range between 200 Btu/scf and 3,500 Btu/scf.
- e. The flare tip velocity shall not exceed 10 ft/s.

- f. The inlet pressure must range between 2 ounces and 25 ounces.
- g. The permittee shall operate and maintain the shielded flare according to the manufacturer's specifications for operating and maintenance requirements to maintain the guaranteed control efficiency listed in the Control Device Table 1.1.

6.1.5. *Condensers.*

- a. Vapors that are being controlled by the condensers shall be routed through a closed vent system to the condensers at all times when there is a potential that vapors (emissions) can be generated from the glycol dehydration still columns.
- b. The condensers shall be designed, operated, and maintained according to good engineering practices or manufacturer's recommendations.

6.1.6. *Glycol Dehydration Units Recycling Back to Flame Zone of the Reboiler.* 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. Vapors from each Glycol Dehydrator Flash Tank shall be captured and sent either to the flame zone of the reboiler as fuel or, when the reboiler is not operating, automatically re-routed to the storage tanks using a closed vent system that meets the requirements given under 8.1.7. Flash tank gases shall not be released directly into the atmosphere. As vapors from the storage tanks are controlled, captured, and recycled back into the system using a VRU/VRU system, the flash tank gases are estimated to be controlled at a minimum of 98%.

6.1.7. The permittee is subject to the area source National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities requirements that are provided in Section 12.0 of this permit.

6.2. Monitoring Requirements

- 6.2.1. In order to demonstrate compliance with 6.1.1, the permittee shall monitor the throughput of wet natural gas fed to the dehydration system on a monthly basis for each glycol dehydration unit.
- 6.2.2. In order to demonstrate compliance with 6.1.2 and upon request by the Director, the permittee shall have obtained and analyzed a wet gas analysis sample of the dehydration unit in accordance with the testing requirements in section 6.3.3.
- 6.2.3. To demonstrate compliance with section 6.1.3.b, the following parameters shall be measured at a minimum frequency of once per quarter, with the exception of wet gas composition, in order to define annual average values or, if monitoring is not practical, some parameters may be assigned default values as listed below.

- a. Natural Gas Flowrate;
- b. Number of days operated per year;
- c. Annual daily average (MMscf/day);
- d. Maximum design capacity (MMscf/day)
- e. Absorber temperature and pressure;
- f. Lean glycol circulation rate;
- g. Glycol pump type;
- h. Flash tank temperature and pressure, if applicable;
- i. Stripping Gas flow rate, if applicable;
- j. Wet gas composition (upstream of the absorber – dehydration column);
- k. Wet gas water content can be assumed to be saturated
- l. Dry gas water content (lbs H₂O/MMscf) at a point directly after exiting the dehydration column and before any additional separation points, or assume pipeline quality at 7 lb H₂O / MMscf;
- m. Lean glycol water content if not directly measured may use the default value of 1.5 % water as established by GRI-GLYCalc; and
- n. Lean glycol circulation rate may be estimated using the TEG recirculation ratio of 3 gal TEG /lb H₂O removed.

- 6.2.4. In order to demonstrate compliance with the requirements of 6.1.4, the permittee shall monitor the presence or absence of a flare pilot flame using a thermocouple or any other equivalent device, to detect the presence of a flame when emissions are vented to it.

6.3. Testing Requirements

- 6.3.1. To demonstrate compliance with the visible emission requirements of 6.1.4, at such reasonable times as the Secretary may designate, the operator of any incinerator shall be required to conduct or have conducted stack tests to determine the particulate matter loading, by using 40 CFR Part 60, Appendix A, Method 5 or other equivalent U.S. EPA approved method approved by the Secretary, in exhaust gases. Such tests shall be conducted in such manner as the Secretary may specify and be filed on forms and in a manner acceptable to the Secretary. The Secretary may, at the Secretary's option, witness or conduct such stack tests. Should the Secretary exercise his or her option to conduct such tests, the operator will provide all the 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. The Secretary may conduct such other tests as the Secretary may deem necessary to evaluate air pollution emissions other than those noted above. [45CSR6 §§7.1 and 7.2]
- 6.3.2. A control device that is certified through a performance test conducted by the manufacturer and operated in accordance with the parameter ranges covered under the performance test shall not require additional testing, unless at the request of the Director.
- 6.3.3. In order to demonstrate compliance with the minor source status of hazardous air pollutants required by 4.1.2, 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.

6.4. Recordkeeping Requirements

- 6.4.1. The permittee shall maintain a record of the wet natural gas throughput through the dehydration system to demonstrate compliance with section 6.1.1.

- 6.4.2. For the purpose of demonstrating compliance with 6.1.2 and 6.1.3, the permittee shall maintain records of all monitoring data, wet gas sampling, and GRI-GLYCalc™ emission estimates. Said records shall be maintained for a period of five (5) years on site or in a readily accessible off-site location maintained by the registrant. 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.
- 6.4.3. For the purpose of demonstrating compliance with the minor source status of hazardous air pollutants required by section 4.1.2, the permittee shall maintain a record of all potential to emit (PTE) HAP calculations for the entire affected facility.
- 6.4.4. 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 section 6.1.3.b of this permit, records of the actual average benzene emissions (in terms of benzene emissions per year) shall be maintained.
[§ 63.764(e)]
- 6.4.5. For the purpose of demonstrating compliance with section 6.1.4 and 6.2.4, the permittee shall maintain records of the times and duration of all periods which the pilot flame was absent.
- 6.4.6. For the purpose of demonstrating compliance with section 6.1.4 and 6.3.1, the permittee shall maintain visible emission records.
- 6.4.7. For the purpose of demonstrating compliance with section 6.1.4 and 6.3.2, the permittee shall maintain a record of the manufacturer's certified flare testing and maintain records of the operating and maintenance records of the flare to demonstrate compliance that the flare is being operated and maintained according to manufacturer's specifications.
- 6.4.8. 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. 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 section 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 flare design and operation criteria in Section 6.1.4 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 (F-3100, F-3200))

7.1. Limitations and Standards

- 7.1.1. Maximum Design Heat Input. The maximum design heat input for each TEG Dehydration Unit Reboiler (F-3100, F-3200) shall not exceed 1.5 MMBtu/hr. The quantity of natural gas that shall be consumed per unit shall not exceed 1,838 cubic feet per hour or 16.10×10^6 cubic feet per year.
- 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 Section 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 section 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 section 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. To demonstrate compliance with sections 7.1.1, the permittee shall maintain records of the amount of natural gas consumed in each of the reboilers (F-3100, F-3200). 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.
- 7.4.2. The permittee shall maintain records of all monitoring data required by Section 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 (TK-9000, TK-9200, TK-9210, TK-9100, TK-9110), VRU (VRU-6000, VRU-6100))

8.1. Limitations and Standards

- 8.1.1. The permittee shall route all VOC and HAP emissions from the Storage Tanks (TK-9000, TK-9200, TK-9210, TK-9100, and TK-9110) to a vapor recovery system (VRU-6000 or VRU-6100) 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 unit (13C, 14C) 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 unit (13C, 14C) 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§13-5.11.]
- 8.1.3. The maximum annual throughput of product to the storage tanks shall not exceed the limits in the table below. Compliance shall be determined on a 12-month rolling total basis. A twelve month rolling total shall mean the sum of the monthly throughput at any given time during the previous twelve consecutive calendar months.

Storage Tank ID	Product Stored	Maximum Annual Throughput (gal/yr)
TK-9100 and TK-9110	Produced Water	689,850
TK 9000	Settling Tank (Condensate/Produced Water)	2,989,350
TK-9200 and TK-9210	Condensate	2,299,500

- 8.1.4. Maximum emissions from the Settling Tank (TK-9000) shall not exceed the following limits:

Emission Point ID	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
20E	Volatile Organic Compounds	1.85	7.96
	Total HAP	0.14	0.63

- 8.1.5. In addition to the closed vent system requirements in 8.1.7, the permittee shall utilize three (3) of the following requirements for the VRU System (VRU-6000 (13C), VRU-6100(14C)):
 - a. Install additional sensing equipment to monitor the run status of the Vapor Recovery Units.
 - b. Install a by-pass system which operates automatically whereby discharge is re-routed back to the inlet of the Vapor Recovery Units 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. *Cover Requirements.* Emissions from the Storage Tanks (TK-9000, TK-9100, TK-9110, TK-9200, TK-9210) that are recovered and routed to the Vapor Recovery Unit (VRU-6000, VRU-6100) 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 Condensate Tank 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§13-5.11]
- 8.1.7. *Closed Vent System Requirements.* The permittee shall comply with the closed vent system requirements for the Storage Tanks (TK-9000, TK-9100, TK-9110, TK-9200, and TK-9210) 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 (TK-9000, TK-9100, TK-9110, TK-9200, and TK-9210) to the VRU (13C/ 14C).
 - 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§13-5.11]

- 8.1.8. *Affected facility determination.* The permittee shall determine the storage vessel affected facility status in accordance with the applicability determination of 40 CFR 60, Subpart OOOOa.
- 8.1.9. If the permittee determines that the settling tank [TK-9000] meets the definition of an affected facility as determined by permit requirement 8.1.8, the permittee is subject to the NSPS, Subpart OOOOa requirements for storage tanks provided in Section 13.0 of this permit.

8.2. Monitoring Requirements

- 8.2.1. The permittee shall monitor the throughput to the vapor recovery units (13C/14C) on a monthly and a 12-month rolling total basis.
- 8.2.2. To demonstrate compliance with section 8.1.1, the permittee shall monitor the vapor recovery unit (13C/14C) 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§13-5.11]

8.3. Testing Requirements

See facility-wide testing requirements 3.3.

8.4. Recordkeeping Requirements

- 8.4.1. 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.
- 8.4.2. *Record of Maintenance of VRU.* The permittee shall maintain accurate records of the vapor recovery unit (13C/ 14C) equipment inspection and/or preventative maintenance procedures.
- 8.4.3. *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 unit (13C/ 14C) 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.
- 8.4.4. 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 registrant 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.
- 8.4.5. 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 unit (13C/ 14C).
- 8.4.6. 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.
- 8.4.7. 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§13-5.11]
- 8.4.8. *Affected facility determination.* To determine compliance with 8.1.8, the permittee shall maintain records of each VOC emissions determination for each storage vessel affected facility made under 40 CFR 60, Subpart OOOOa including identification of the model or calculation methodology used to calculate the VOC emission rate.

8.5. Reporting Requirements

- 8.5.1. 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.

- 8.5.2. The permittee shall notify the Director of any downtime of the VRU-6000 that is not routed to back-up VRU-6100 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 (LDOUT1))

9.1. Limitations and Standards

- 9.1.1. The maximum quantity of condensate that shall be loaded shall not exceed 2.30 million gallons per year and the maximum quantity of produced water that shall be loaded shall not exceed 0.69 million 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 hours of operation at any given time during the previous twelve consecutive calendar months.

9.2. Monitoring Requirements

See Facility-Wide Monitoring Requirements Section 3.2.

9.3. Testing Requirements

See Facility-Wide Testing Requirements Section 3.3.

9.4. Recordkeeping Requirements

- 9.4.2. To demonstrate compliance with section 9.1.1, the permittee shall maintain a record of the aggregate condensate throughput at the produced fluid loadout (LDOUT) 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 registrant 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

See Facility-Wide Reporting Requirements Section 3.5.

10.0. Source-Specific Requirements (40CFR60, Subpart JJJJ and 40 CFR63, Subpart ZZZZ (C-2100 thru C-2200))

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)]
- 10.1.6. The permittee meets the criteria a new stationary RICE located at an area source. The permittee must meet the requirements of 40 C.F.R. § 63.6590(c) by meeting the requirements of 40 CFR part 60 subpart JJJJ. No further requirements apply for such engines under 40 CFR 63, Subpart ZZZZ. [40CFR§63.6590(c)]

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 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(e)]**
- 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:

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

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.

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

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.

$$C_{corr} = RF_i \times C_{meas} \quad (\text{Eq. 5})$$

Where:

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

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

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

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 Engines (C-2100 thru C-2200))**

11.1. Limitations and Standards

- 11.1.1. The permittee shall meet all requirements under 40 CFR 60, Subpart OOOOa applicable to the compressor engines identified as C-2100 through C-2200.

12.0. Source-Specific Requirements [Dehydration Units With Exemption from NESHAP Standard, Subpart HH § 63.764(d)]

12.1. Limitations and Standards

12.1.1. Facilities that are area sources of hazardous air pollutants (HAP) as defined in § 63.761. Emissions for major source determination purposes can be estimated using the maximum natural gas or hydrocarbon liquid throughput, as appropriate, calculated in paragraphs (1)(i) through (iii) of this section. As an alternative to calculating the maximum natural gas or hydrocarbon liquid throughput, the owner or operator of a new or existing source may use the facility's design maximum natural gas or hydrocarbon liquid throughput to estimate the maximum potential emissions. Other means to determine the facility's major source status are allowed, provided the information is documented and recorded to the Administrator's satisfaction in accordance with § 63.10(b)(3).

(i) If the owner or operator documents, to the Administrator's satisfaction, a decline in annual natural gas or hydrocarbon liquid throughput, as appropriate, each year for the 5 years prior to October 15, 2012, the owner or operator shall calculate the maximum natural gas or hydrocarbon liquid throughput used to determine maximum potential emissions according to the requirements specified in paragraph (1)(i)(A) of this section. In all other circumstances, the owner or operator shall calculate the maximum throughput used to determine whether a facility is a major source in accordance with the requirements specified in paragraph (1)(i)(B) of this section.

(A) The maximum natural gas or hydrocarbon liquid throughput is the average of the annual natural gas or hydrocarbon liquid throughput for the 3 years prior to October 15, 2012, multiplied by a factor of 1.2.

(B) The maximum natural gas or hydrocarbon liquid throughput is the highest annual natural gas or hydrocarbon liquid throughput over the 5 years prior to October 15, 2012, multiplied by a factor of 1.2.

(ii) The owner or operator shall maintain records of the annual facility natural gas or hydrocarbon liquid throughput each year and upon request submit such records to the Administrator. If the facility annual natural gas or hydrocarbon liquid throughput increases above the maximum natural gas or hydrocarbon liquid throughput calculated in paragraph (1)(i)(A) or (1)(i)(B) of this section, the maximum natural gas or hydrocarbon liquid throughput must be recalculated using the higher throughput multiplied by a factor of 1.2.

(iii) The owner or operator shall determine the maximum values for other parameters used to calculate emissions as the maximum for the period over which the maximum natural gas or hydrocarbon liquid throughput is determined in accordance with paragraph (1)(i)(A) or (B) of this section. Parameters, other than glycol circulation rate, shall be based on either highest measured values or annual average. For estimating maximum potential emissions from glycol dehydration units, the glycol circulation rate used in the calculation shall be the unit's maximum rate under its physical and operational design consistent with the definition of potential to emit in § 63.2.

[NESHAP, Subpart HH; § 63.760 (a)(1)]

12.1.2. For area sources, the affected source includes each triethylene glycol (TEG) dehydration unit located at a facility that meets the criteria specified in § 63.760(a).

[NESHAP, Subpart HH; § 63.760 (b)(2)]

- 12.1.3. Any source that determines it is not a major source but has actual emissions of 5 tons per year or more of a single HAP, or 12.5 tons per year or more of a combination of HAP (*i.e.*, 50 percent of the major source thresholds), shall update its major source determination within 1 year of the prior determination or October 15, 2012, whichever is later, and each year thereafter, using gas composition data measured during the preceding 12 months.
[NESHAP, Subpart HH; § 63.760 (c)]
- 12.1.4. The owner and operator of a facility that does not contain an affected source as specified in § 63.760 (b) are not subject to the requirements of this subpart.
[NESHAP, Subpart HH; § 63.760 (d)]
- 12.1.5. The owner or operator of an affected area source shall achieve compliance with the provisions of this subpart by the dates specified in paragraphs (3) through (6) of this section.
- (1) *Reserved.*
 - (2) *Reserved.*
 - (3) The owner or operator of an affected area source, located in an Urban-1 county, as defined in § 63.761, the construction or reconstruction of which commences before February 6, 1998, shall achieve compliance with the provisions of this subpart no later than the dates specified in paragraphs (f)(3)(i) or (ii) of this section, except as provided for in § 63.6(i).
 - (i) If the affected area source is located within any UA plus offset and UC boundary, as defined in § 63.761, the compliance date is January 4, 2010.
 - (ii) If the affected area source is not located within any UA plus offset and UC boundary, as defined in § 63.761, the compliance date is January 5, 2009.
 - (4) The owner or operator of an affected area source, located in an Urban-1 county, as defined in § 63.761, the construction or reconstruction of which commences on or after February 6, 1998, shall achieve compliance with the provisions of this subpart immediately upon initial startup or January 3, 2007, whichever date is later.
 - (5) The owner or operator of an affected area source that is not located in an Urban-1 county, as defined in § 63.761, the construction or reconstruction of which commences before July 8, 2005, shall achieve compliance with the provisions of this subpart no later than the dates specified in paragraphs (i) or (ii) of this section, except as provided for in § 63.6(i).
 - (i) If the affected area source is located within any UA plus offset and UC boundary, as defined in § 63.761, the compliance date is January 4, 2010.
 - (ii) If the affected area source is not located within any UA plus offset and UC boundary, as defined in § 63.761, the compliance date is January 5, 2009.
 - (6) The owner or operator of an affected area source that is not located in an Urban-1 county, as defined in § 63.761, the construction or reconstruction of which commences on or after July 8, 2005, shall achieve compliance with the provisions of this subpart immediately upon initial startup or January 3, 2007, whichever date is later.
[NESHAP, Subpart HH; § 63.760 (f)]
- 12.1.6. Unless otherwise required by law, the owner or operator of an area source subject to the provisions of this subpart is exempt from the permitting requirements established by 40 CFR part 70 or 40 CFR part 71. [NESHAP, Subpart HH; § 63.760 (h)]

- 12.1.7. *Exemptions.* (1) The owner or operator of an area source is exempt from the requirements of paragraph (d) of § 63.764 if the criteria listed in paragraph (1)(i) or (ii) of this section are met, except that the records of the determination of these criteria must be maintained as required in § 63.774(d)(1).
- (i) The actual annual average flowrate of natural gas to the glycol dehydration unit is less than 85 thousand standard cubic meters per day, as determined by the procedures specified in § 63.772(b)(1) of this subpart; or
 - (ii) The actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere are less than 0.90 megagram per year, as determined by the procedures specified in § 63.772(b)(2) of this subpart.
[NESHAP, Subpart HH; § 63.764 (e)]
- 12.1.8. Table 2 of this subpart specifies the provisions of subpart A (General Provisions) of this part that apply and those that do not apply to owners and operators of affected sources subject to this subpart. [NESHAP, Subpart HH; § 63.764 (a)]
- 12.1.9. *Affirmative defense for violations of emission standards during malfunction.*
- (a) The provisions set forth in this subpart shall apply at all times.
 - (b)-(c) *Reserved.*
 - (d) In response to an action to enforce the standards set forth in this subpart, you may assert an affirmative defense to a claim for civil penalties for violations of such standards that are caused by malfunction, as defined in 40 CFR 63.2. Appropriate penalties may be assessed; however, if you fail to meet your burden of proving all of the requirements in the affirmative defense, the affirmative defense shall not be available for claims for injunctive relief.
- (1) To establish the affirmative defense in any action to enforce such a standard, you must timely meet the reporting requirements in paragraph (d)(2) of this section, and must prove by a preponderance of evidence that:
- (i) The violation:
 - (A) Was caused by a sudden, infrequent, and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner; and
 - (B) Could not have been prevented through careful planning, proper design or better operation and maintenance practices; and
 - (C) Did not stem from any activity or event that could have been foreseen and avoided, or planned for; and
 - (D) Was not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and
 - (ii) Repairs were made as expeditiously as possible when a violation occurred. Off-shift and overtime labor were used, to the extent practicable to make these repairs; and
 - (iii) The frequency, amount and duration of the violation (including any bypass) were minimized to the maximum extent practicable; and
 - (iv) If the violation resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

- (v) All possible steps were taken to minimize the impact of the violation on ambient air quality, the environment, and human health; and
 - (vi) All emissions monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices; and
 - (vii) All of the actions in response to the violation were documented by properly signed, contemporaneous operating logs; and
 - (viii) At all times, the affected source was operated in a manner consistent with good practices for minimizing emissions; and
 - (ix) A written root cause analysis has been prepared, the purpose of which is to determine, correct, and eliminate the primary causes of the malfunction and the violation resulting from the malfunction event at issue. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of any emissions that were the result of the malfunction.
- (2) *Report.* The owner or operator seeking to assert an affirmative defense shall submit a written report to the Administrator with all necessary supporting documentation, that it has met the requirements set forth in paragraph (d)(1) of this section. This affirmative defense report shall be included in the first periodic compliance, deviation report or excess emission report otherwise required after the initial occurrence of the violation of the relevant standard (which may be the end of any applicable averaging period). If such compliance, deviation report or excess emission report is due less than 45 days after the initial occurrence of the violation, the affirmative defense report may be included in the second compliance, deviation report or excess emission report due after the initial occurrence of the violation of the relevant standard.
[NESHAP, Subpart HH; §63.762]

12.2. Monitoring Requirements

Reserved.

12.3. Testing Requirements

12.3.1. *Determination of glycol dehydration unit flowrate, benzene emissions, or BTEX emissions.* The procedures of this paragraph shall be used by an owner or operator to determine glycol dehydration unit natural gas flowrate, benzene emissions, or BTEX emissions.

- (1) The determination of actual flowrate of natural gas to a glycol dehydration unit shall be made using the procedures of either paragraph (1)(i) or (1)(ii) of this section.
 - (i) The owner or operator shall install and operate a monitoring instrument that directly measures natural gas flowrate to the glycol dehydration unit with an accuracy of plus or minus 2 percent or better. The owner or operator shall convert annual natural gas flowrate to a daily average by dividing the annual flowrate by the number of days per year the glycol dehydration unit processed natural gas.
 - (ii) The owner or operator shall document, to the Administrator's satisfaction, the actual annual average natural gas flowrate to the glycol dehydration unit.
- (2) The determination of actual average benzene or BTEX emissions from a glycol dehydration unit shall be made using the procedures of either paragraph (2)(i) or (ii) of this section. Emissions shall be determined either uncontrolled, or with federally enforceable controls in place.

- (i) 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); or
- (ii) The owner or operator shall determine an average mass rate of benzene or BTEX emissions in kilograms per hour through direct measurement using the methods in § 63.772(a)(1)(i) or (ii), or an alternative method according to § 63.7(f). Annual emissions in kilograms per year shall be determined by multiplying the mass rate by the number of hours the unit is operated per year. This result shall be converted to megagrams per year.
[NESHAP, Subpart HH; § 63.772 (b)]

12.4. Recordkeeping Requirements

- 12.4.1. The recordkeeping provisions of 40 CFR part 63, subpart A, that apply and those that do not apply to owners and operators of sources subject to this subpart are listed in Table 2 of this subpart.
[NESHAP, Subpart HH; § 63.774 (a)]
- 12.4.2. *Exemption Records.* An owner or operator of a glycol dehydration unit that meets the exemption criteria in § 63.764(e)(1)(i) or § 63.764(e)(1)(ii) shall maintain the records specified in paragraph (i) or paragraph (ii) of this section, as appropriate, for that glycol dehydration unit.
 - (i) The actual annual average natural gas throughput (in terms of natural gas flowrate to the glycol dehydration unit per day) as determined in accordance with § 63.772(b)(1), or
 - (ii) The actual average benzene emissions (in terms of benzene emissions per year) as determined in accordance with § 63.772(b)(2).
[NESHAP, Subpart HH; § 63.774 (d)(1)]

12.5. Reporting Requirements

- 12.5.1. All reports required under this subpart shall be sent to the Administrator at the appropriate address listed in § 63.13. Reports may be submitted on electronic media.
[NESHAP, Subpart HH; § 63.764 (b)]
- 12.5.2. The reporting provisions of subpart A of this part, that apply and those that do not apply to owners and operators of sources subject to this subpart are listed in Table 2 of this subpart.
[NESHAP, Subpart HH; § 63.775 (a)]
- 12.5.3. An owner or operator of a TEG dehydration unit located at an area source that meets the criteria in § 63.764(e)(1)(i) or § 63.764(e)(1)(ii) is exempt from the reporting requirements for area sources in paragraphs (c)(1) through (7) of this section, for that unit.
[NESHAP, Subpart HH; § 63.775 (c)(8)]
- 12.5.4. *Notification of Compliance Status Reports.*
Area sources that meet § 63.764(e) do not have to submit initial notifications.
[Table 2 to Subpart HH of Part 63; §63.9(b)(2)]

13.0. Source-Specific Requirements (40CFR60 Subpart OOOOa Requirements, Storage Vessel Affected Facilities)

13.1. Limitations and Standards

- 13.1.1. The permittee shall meet all requirements under 40 CFR 60, Subpart OOOOa applicable to the storage tanks identified as TK-9000 through TK-9110.

14.0. Source-Specific Requirements (40CFR60 Subpart OOOOa Requirements, Fugitive Emissions)

14.1. Limitations and Standards

- 14.1.1. The permittee shall meet all requirements under 40 CFR 60, Subpart OOOOa, Section §60.5497a applicable to the collection of fugitive emissions components located at the compressor station.

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.



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Randy C. Huffman, Cabinet Secretary
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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-3215A
Plant ID No.: 085-00039
Applicant: Antero Midstream LLC
Facility Name: West Mountain Compressor Station
Location: Near Pennsboro, Ritchie County
SIC/NAICS Code: 4923/221210
Application Type: Modification
Received Date: June 14, 2016
Engineer Assigned: Joe Kessler
Fee Amount: \$4,500
Date Received: June 16, 2016
Complete Date: July 14, 2016
Due Date: October 12, 2016
Applicant's Ad Date: June 22, 2016
Newspaper: *The Pennsboro News*
UTM's: 501.859 km Easting • 4,352.404 km Northing • Zone 17
Latitude/Longitude: 39.32104/-80.97843
Description: Modification primarily to: (1) Update compressor engine emissions to reflect catalyst data based on a new catalyst design from the manufacturer, (2) Installation of a fuel conditioning heater, (3) Increase the Glycol Dehydrator Units throughput each to 72.5 mmscf/day, and (4) Revision of the dehydrator flash tank control efficiency.

Entire Document
NON-CONFIDENTIAL

DESCRIPTION OF PROCESS/MODIFICATIONS

Existing Facility

On May 26, 2016, Antero Midstream LLC (Antero) received Permit Number R13-3215 for the construction of the West Mountain Compressor Station located approximately 2.6 miles north-northwest of Pennsboro, WV and west of Pullman Road (County Route 74). The West Mountain Compressor Station currently consists of eleven (11) Waukesha 7044 GSI 4-Stroke Rich Burn (4SRB) 1,680 horsepower (hp) compressor engines, three (3) Capstone C200 Standard 200kW

Microturbines, two (2) 60 mmscf/day triethylene glycol (TEG) dehydration units (GDUs), one (1) 0.024 mmBtu/hr Catalytic Heater, one (1) 4.8 mmBtu/hr enclosed flare, one (1) 21,000 gallon settling tank, two (2) 16,800 gallon condensate storage tanks, and two (2) 16,800 gallon produced liquids (condensate and water) storage tanks.

In the existing facility, natural gas produced in area wells enters into the facility and is compressed by the engines (C-2100 through C-2200). The compressed gas is sent through the GDUs (V-3110 and SV-3210) where it is dehydrated to the desired level. The compressor engines are each controlled (NO_x, CO, VOCs, and formaldehyde) by an EMIT Technologies RT-3615-T oxidation catalyst (1C through 11C).

Glycol dehydration is a liquid desiccant system used for the removal of water from natural gas. In each GDU, lean, water-free glycol is fed to the top of an absorber (known as a "contactor") where it is contacted with the wet natural gas stream. The glycol removes water from the natural gas by physical absorption and is carried out the bottom of the column. The dry natural gas leaves the top of the absorption column and is fed into a pipeline for transportation. The dehydrator still vent gases are each sent to the enclosed flare (12C) for destruction (@ 98% DRE). Additionally, each GDU contains several TEG storage tanks. However, the storage tanks are defined as *de minimis* sources under Table 45-13B of 45CSR13 as they are each less than 10,000 gallons and TEG has an extremely low vapor pressure (<0.01 mm Hg).

After leaving the absorber, each glycol stream - now referred to as "rich" glycol - is fed to a flash vessel (V-3120 and V-3220) where flashed hydrocarbon vapors are either sent to the reboiler as fuel or, if the reboiler is not in operation, automatically re-routed to the storage tanks where it is captured by the vapor recovery units (13C and 14C) and recycled back into the system prior to the inlet gas scrubber (this system is currently permitted at a control percentage of 95%). Any liquids removed in the flash tank are sent first to the settling tank (TK-9000) and then to either one of the condensate or produced liquid water storage tanks (TK-9100, TK-9110, TK-9200, and TK-9210). Vapors from the produced liquids storage tanks (working/breathing/flashing) are captured by the primary VRU (13C). In the event of downtime of the primary VRU, a backup VRU is employed (14C).

After leaving the flash vessel, in each unit, the rich glycol is fed to a Glycol Regenerator Column. Each Regenerator Column consists of a column, an overhead condenser, and the reboiler. The glycol is thermally regenerated to remove excess water and regain high purity. The heat for the regeneration is provided by two (2) 1.50 mmBtu/hr natural gas-fired reboilers (R-3110 and R3210). The hot, lean glycol is cooled by a heat-exchanger and is then fed to a pump where it is sent to the glycol absorber for reuse. Liquids produced in the regeneration process are sent to one of the facility storage tanks.

A portion of the gas is withdrawn after dehydration but before the station outlet metering and sent to the fuel gas system. The fuel gas is directed through a fuel gas scrubber and metering before being directed to the compressor engines and other gas-powered equipment.

Additionally, the facility utilizes an uncontrolled truck loadout (LDOUT1) to remove condensate and produced water from the site (estimated to be a maximum of 2,300,000 gallons/year of condensate and 690,000 gallons/year of produced water). Three (3) 200 kW_e uncontrolled

Microturbines (G-8000 through G-8200) are used to produce primary power for the facility. One (1) 0.024 mmBtu/hr natural gas-fired catalytic heater (CATH1) is used in the fuel gas system (providing gas to the microturbine) to prevent the formation of hydrates and to minimize condensate dropout from the pressure reduction.

Proposed Modifications

Antero is now proposing to modify the existing facility by:

- Updating the compressor engine emission limits based on a new catalyst specification sheet provided from the manufacturer;
- Installing a 0.50 mmBtu/hr fuel conditioning heater (FUEL1) to condition/treat fuel gas for the compressor engines prior to the engines to allow more complete combustion;
- Increasing the throughput of each GDU to 72.5 mmscf/day;
- Revising of the dehydrator flash tank control efficiency to 98% based on the use of a VRU/VRU backup on flash gases not combusted in the reboiler; and
- Updating the facility-wide fugitive emissions based on 52 pigging events per year.

SITE INSPECTION

Due to the nature of the proposed changes, the writer deemed a site inspection as not necessary. The facility was last “Full On-Site” inspected by DAQ Compliance/ Enforcement (C/E) Inspector Mr. Douglas Hammell on March 1, 2016. Based on that inspection, the facility was determined to be “Status 30 - In Compliance.”

AIR EMISSIONS AND CALCULATION METHODOLOGIES

Antero included in Attachment N of the permit application air emissions calculations for the equipment and processes at the West Mountain Compressor Station. The following will summarize only the calculation methodologies used by Antero to calculate the potential-to-emit (PTE) of equipment and processes modified or added as part of this permitting action.

Compressor Engines

Potential emissions from each of the eleven (11) Waukesha 7044 GSI 4SRB 1,680 hp compressor engines (1E through 11E) were based on post-control emission factors provided by the oxidation catalyst vendor, the engine vendor, and as given in AP-42, Section 3.2 (AP-42 is a database of emission factors maintained by USEPA). Hourly emissions were based on the (as calculated using a fuel heat rating of 8,289 Btu/hp-hr) maximum design heat input (MDHI) of the engines of 13.93 mmBtu/hr and the maximum hp rating. Annual emissions were based on 8,760

hours of operation per year. The compressor engines are each controlled (NO_x, CO, VOCs, and formaldehyde) by an EMIT Technologies RT-3615-T oxidation catalyst (97.5%, 97.5%, 84%, and 90%, respectively). The following table details the PTE of each compressor engine:

Table 1: Per-Compressor Engine PTE

Pollutant	Emission Factor	Source	Hourly (lb/hr)	Annual (ton/yr)
CO ⁽¹⁾	0.32 g/hp-hr (controlled)	Catalyst Vendor	1.19	5.19
NO _x ⁽¹⁾	0.34 g/hp-hr (controlled)	Catalyst Vendor	1.26	5.52
PM _{2.5} /PM ₁₀ /PM ⁽²⁾	19.41 x 10 ⁻³ lb/mmBtu	AP-42, Table 3.2-2	0.27	1.18
SO ₂	5.88 x 10 ⁻⁴ lb/mmBtu	AP-42, Table 3.2-2	0.01	0.04
VOCs ⁽¹⁾	0.082 g/hp-hr (controlled)	Catalyst Vendor	0.30	1.33
Total HAPs	Various	AP-42, Table 3.2-2	0.18	0.81
Formaldehyde ⁽¹⁾	0.005 g/hp-hr (controlled)	Catalyst Vendor	0.02	0.08

(1) Based on post-control emission factors provided by the catalytic converter vendor. VOC emissions based on NMNEHC + CH₂O emission factors.

(2) Includes condensables.

Glycol Regenerator Column/GDU Flash Tank Emissions

Uncontrolled VOC and Hazardous Air Pollutant (HAP) emissions from the glycol regenerators (14E and 17E) and GDU flash tanks (15E and 18E) are based on the emissions calculation program GRI-GLYCalc Version 4.0. GRI-GLYCalc is a well-known program for estimating air emissions from glycol units using TEG. Included in the application is a copy of the appropriate GLY-Calc analysis sheets. Controlled emissions from the regenerators were based on a 98% destruction and removal efficiency (DRE) of hydrocarbons at the flare. Controlled emissions from the flash tanks were based on a 98% DRE of hydrocarbons in the reboiler (with a VRU/VRU backup system in the event of reboiler downtime).

New Fuel Conditioning Heater Emissions

Combustion emissions from the natural gas-fired 0.50 mmBtu/hr fuel conditioning heater (30E) were based on the emission factors provided for natural gas combustion as given in AP-42 Section 1.4. Hourly emissions were based on the MDHI of the unit and annual emissions were based on an annual operation of 8,760 hours. A fuel/waste gas heat content value of 1,020 Btu/ft³ was used in the calculations as well as a heater efficiency rate of 80%.

Maintenance and Emergency Events

Antero also included in their fugitive emission estimate a certain number of scenarios where natural gas is released for emergency or maintenance purposes. Those included were compressor blowdown/startup events (132 events/year for each), station emergency shutdowns (2 events/year), and “pigging” events (revised upward to 52 events/year). The amount of gas released per event was taken from “engineering based on other facilities.” VOC/HAP by-weight percentages of the natural gas were based on a representative gas analysis.

Emissions Summary

Based on the revised calculations as submitted in Attachment N of the permit application, the post-modification facility-wide PTE of the West Mountain Compressor Station is given in Attachment A.

The following table lists the change in facility-wide PTE at the West Mountain Compressor Station from the changes proposed herein:

Table 2: Change in Facility-Wide Post-Modification PTE

Source	CO	NO _x	PM ⁽¹⁾	SO ₂	VOCs	HAPs
R13-3215	94.12	91.32	12.90	0.46	78.44	11.64
R13-3215A	69.37	65.05	14.25	0.50	49.21	11.15
<i>Change in Emissions</i> →	(24.75)	(26.27)	1.35	0.04	(29.23)	-0.49

(1) All particulate matter emissions are assumed to be less than 2.5 microns. Includes condensables.

REGULATORY APPLICABILITY

This section will address the potential regulatory applicability/non-applicability of substantive state and federal air quality rules relevant to the emission units/sources added or modified at the West Mountain Compressor Station.

45CSR2: To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers

Pursuant to the definition of “fuel burning unit” under 45CSR2 (“producing heat or power by indirect heat transfer”), 45CSR2 does not apply to the compressor engines.

The fuel conditioning heater has been determined to meet the definition of a “fuel burning unit” under 45CSR2 and is, therefore, subject to the applicable requirements therein. However, pursuant to the exemption given under §45-2-11, as the MDHI of the fuel conditioning heater is less than 10 mmBtu/hr, the unit is not subject to sections 4, 5, 6, 8 and 9 of 45CSR2. The only remaining substantive requirement is under Section 3.1 - Visible Emissions Standards.

Pursuant to 45CSR2, Section 3.1, the heater is subject to an opacity limit of 10%. Proper maintenance and operation of the unit (and the use of natural gas as fuel) should keep the opacity of the unit well below 10% during normal operations.

45CSR10: To Prevent and Control Air Pollution from the Emission of Sulfur Oxides - (NON-APPLICABILITY)

Pursuant to the definition of “fuel burning unit” under 45CSR10 (“producing heat or power by indirect heat transfer”), the limitations on fuel burning units under 45CSR10 do not apply to the compressor engines.

45CSR10 has requirements limiting SO₂ emissions from “fuel burning units,” limiting in-stack SO₂ concentrations of “manufacturing processes,” and limiting H₂S concentrations in process gas streams. The only potential applicability of 45CSR10 to the West Mountain Compressor Station is the limitations on fuel burning units. The fuel conditioning heater has been determined to meet the definition of a “fuel burning unit” under 45CSR10. However, pursuant to the exemption given under §45-10-10.1, as the MDHI of the fuel conditioning heater is less than 10 mmBtu/hr, the unit is not subject to the limitations on fuel burning units under 45CSR10.

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

The proposed modification of the West Mountain Compressor Station does have the potential to increase a regulated pollutant (see Table 2 above) but does not, however, have the potential to increase the facility-wide PTE of any regulated pollutant in excess of the thresholds that would, pursuant to §45-13-2.17, define the changes as a “modification” under 45CSR13. Therefore, the proposed changes would normally be eligible to be reviewed as a Class II Administrative Update. However, Antero voluntarily submitted the application as a modification and it was reviewed as such. Pursuant to §45-13-5.1, “[n]o person shall cause, suffer, allow or permit the construction, modification, relocation and operation of any stationary source to be commenced without . . . obtaining a permit to construct.”

As required under §45-13-8.3 (“Notice Level A”), Antero placed a Class I legal advertisement in a “newspaper of *general circulation* in the area where the source is . . . located.” The ad ran on June 22, 2016 in *The Pennsboro News* and the affidavit of publication for this legal advertisement was submitted on July 15, 2016.

45CSR14: Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration - (NON APPLICABILITY)

The West Mountain Compressor Station is located in Ritchie County, WV. Ritchie County is classified as “in attainment” with all National Ambient Air Quality Standards. Therefore, as the facility is not a “listed source” under §45-14-2.43, the individual major source applicability threshold for all pollutants is 250 TPY. As given in Attachment A, the revised post-modification facility-wide PTE of the West Mountain Compressor Station is less than 250 TPY for all criteria pollutants. Therefore, the facility is not defined as a “major stationary source” under either 45CSR14 and the rule does not apply.

45CSR27: To Prevent and Control the Emissions of Toxic Air Pollutants - (NON APPLICABILITY)

Pursuant to §45-27-3.1, the “owner or operator of a plant that discharges or may discharge a toxic air pollutant into the open air in excess of the amount shown in the Table A [of 45CSR27] shall employ [Best Available Technology] at all chemical processing units emitting the toxic air pollutant.” As calculated from Table 1 above, the aggregate PTE of formaldehyde generated by the compressor engines is greater than 0.5 TPY - greater than the 1,000 pound per year threshold given

in Table A of 45CSR27. However, internal combustion engines do not meet the definition of “chemical processing units” under §45-27-2.4 and, therefore, they are not subject to BAT under 45CSR27.

45CSR30: Requirements for Operating Permits - (NON APPLICABILITY)

45CSR30 provides for the establishment of a comprehensive air quality permitting system consistent with the requirements of Title V of the Clean Air Act. The modified West Mountain Compressor Station does not meet the definition of a “major source under §112 of the Clean Air Act” as outlined under §45-30-2.26 and clarified (fugitive policy) under 45CSR30b. The proposed facility-wide PTE (see Attachment A) of any regulated pollutant does not exceed 100 TPY. Additionally, the facility-wide PTE does not exceed 10 TPY of any individual HAP or 25 TPY of aggregate HAPs.

However, as the proposed facility is subject to two New Source Performance Standard (NSPS) - 40 CFR 60, Subpart JJJJ and Subpart OOOO - and two Maximum Achievable Control Technology (MACT) rules - 40 CFR 63, Subpart ZZZZ and 40 CFR 63, Subpart HH, the facility would, in most cases, be subject to Title V as a “deferred source.” However, pursuant to §60.4230(c), §60.5370(c), §63.6585(d), and §63.760(h) as a non-major “area source,” Antero is not required to obtain a Title V permit for the proposed facility. Therefore, the West Mountain Compressor Station is not subject to 45CSR30.

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

Antero’s eleven (11) Waukesha 7044 GSI 4SRB 1,680 hp compressor engines located at the West Mountain Compressor Station are defined under 40 CFR 60, Subpart JJJJ as stationary spark-ignition internal combustion engines (SI ICE) and are each, pursuant to §60.4230(a)(4)(i), subject to the applicable provisions of the rule. Pursuant to §60.4233(e): “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.” Therefore, as Antero’s compressor engines are greater than 100 hp, each engine must comply with the emission standards under Table 1 for “Non-Emergency SI ICE ≥ 500 hp manufactured after July 1, 2010:” NO_x - 1.0 g/HP-hr, CO - 2.0 g/HP-hr, and VOC - 0.7 g/HP-hr. The emission standards and the proposed compliance therewith of the engines are given in the following table:

Table 3: Waukesha, 7044 GSI Subpart JJJJ Compliance

Pollutant	Standard (g/HP-hr)	Uncontrolled Emissions (g/bhp) ⁽¹⁾	Control Percentage	Controlled Emissions (g/bhp) ⁽¹⁾	JJJJ Compliant?
NO _x	1.0	13.60	97.50%	0.34	Yes
CO	2.0	12.80	97.50%	0.32	Yes
VOC	0.7	0.53	84.53%	0.08	Yes

(1) Based on the revised EMIT Technologies, Inc. Model RT-3615-T oxidation catalyst specification sheet. Controlled VOC emissions based on NMNEHC + CH₂O emission factors. However, Subpart JJJJ standard does not include CH₂O emissions.

The Waukesha 7044 GSI is not a “certified” engine under Subpart JJJJ so Antero will have to show compliance with the emission standards pursuant to §60.4243(b)(2)(ii): conducting an initial performance test and thereafter conducting subsequent performance testing every 8,760 hours or 3 years, whichever comes first, to demonstrate compliance. Performance testing requirements are given under §60.4244 of Subpart JJJJ. Antero will additionally have to meet all applicable monitoring, recording, and record-keeping requirements under Subpart JJJJ.

40CFR60 Subpart OOOOa: Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after September 18, 2015

EPA published its New Source Performance Standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. EPA published amendments to the Subpart on September 23, 2013 and June 3, 2016. 40CFR60 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 that commence construction, modification or reconstruction after September 18, 2015. The effective date of this rule is August 2, 2016

Compressor Engines

Pursuant to §60.5365a(c), “[e]ach reciprocating compressor affected facility, which is a single reciprocating compressor [not located at a well site]” that is constructed after September 18, 2015 is subject to the applicable provisions of Subpart OOOOa. As the West Mountain Compressor Station is located before the point of custody transfer, the compressor engines are applicable to Subpart OOOOa. The substantive requirements for the engines are given under §60.5385a(a): the engines’ “rod packing” must be replaced according to the given schedule and the engine must meet applicable MRR given under §60.5410a(c), §60.5415a(c), and §60.5420a(b).

Fugitive Emissions Components

Pursuant to §60.5365a(j), “[t]he collection of fugitive emissions components at a compressor station, as defined in §60.5430a, is an affected facility.” The Leak Detection and Repair (LDAR) requirements for a compressor station are given under §60.5497a.

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

On June 1, 2013 the DAQ took delegation of the area source provisions of 40 CFR 63, Subpart HH. Pursuant to §63.760(a)(3), as the West Mountain Compressor Station - an area source of HAPs (see Attachment A) - “process[es], upgrade[s], or store[s] natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category or is delivered to a final end user,” it is defined as an area source subject to the applicable provisions under Subpart HH.

Pursuant to §63.760(b)(2), each TEG GDU located at an area source that meets the requirements under §63.760(a)(3) is defined as an affected facility under Subpart HH. The requirements for affected sources at area sources are given under §63.764(d). However, for a GDU, exemptions to these requirements are given under §63.764(e): if (1) “actual annual average flowrate of natural gas to the glycol dehydration unit is less than 85 thousand standard cubic meters [3 mmscf/day] per day” or (2) “actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere are less than 0.90 megagram [1 TPY] per year.”

Information in the permit application indicates the maximum aggregate PTE of benzene emissions from each GDU is less than 1 TPY. Therefore, the GDUs are exempt from the Subpart HH requirements given under §63.764(d).

40 CFR 63 Subpart ZZZZ: Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

On June 1, 2013 the DAQ took delegation of the area source provisions of 40 CFR 63, Subpart ZZZZ. As the West Mountain Compressor Station is defined as an area source of HAPs (see Attachment A), the facility is subject to applicable requirements of Subpart ZZZZ. Pursuant to §63.6590(c):

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.

§63.6590(c)(1) specifies that “[a] new or reconstructed stationary RICE located at an area source” is defined as a RICE that shows compliance with the requirements of Subpart ZZZZ by “meeting the requirements of . . . 40 CFR part 60 subpart JJJJ, for spark ignition engines.” Pursuant to §63.6590(a)(2)(iii), a “stationary RICE located at an area source of HAP emissions is new if [the applicant] commenced construction of the stationary RICE on or after June 12, 2006.” The engines located at the West Mountain Compressor Station are each defined as a new stationary RICE (application states manufacture date of engines is July 2013) and, therefore, will show compliance with Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart JJJJ. Compliance with Subpart JJJJ is discussed above.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

This section provides an analysis for those regulated pollutants that are emitted from the modified West Mountain Compressor Station and that are not classified as “criteria pollutants.” Criteria pollutants are defined as Carbon Monoxide (CO), Lead (Pb), Oxides of Nitrogen (NO_x), Ozone, Particulate Matter (PM₁₀ and PM_{2.5}), and Sulfur Dioxide (SO₂). These pollutants have National Ambient Air Quality Standards (NAAQS) set for each that are designed to protect the public health and welfare. Other pollutants of concern, although designated as non-criteria and without national concentration standards, are regulated through various federal and programs designed to limit their emissions and public exposure. These programs include federal source-specific Hazardous Air Pollutants (HAPs) limits promulgated under 40 CFR 61 (NESHAPS) and

40 CFR 63 (MACT). Any potential applicability to these programs were discussed above under REGULATORY APPLICABILITY.

The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. The following table lists each HAP identified by Antero with a facility-wide PTE above 0.05 TPY (100 lbs/year) and the associated carcinogenic risk (as based on analysis provided in the Integrated Risk Information System (IRIS)):

Table 4: HAPs - Carcinogenic Risk

HAPs	Type	Known/Suspected Carcinogen	Classification
Acetaldehyde	VOC	Yes	B2 - Probable Human Carcinogen
Acrolein	VOC	No	Inadequate Data
Formaldehyde	VOC	Yes	B1 - Probable Human Carcinogen
Methanol	VOC	No	No Assessment Available
Biphenyl	VOC	Yes	Suggestive Evidence of Carcinogenic Potential
n-Hexane	VOC	No	Inadequate Data
Benzene	VOC	Yes	Category A - Known Human Carcinogen
Toluene	VOC	No	Inadequate Data
Xylenes	VOC	No	Inadequate Data

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health affects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease) and lifestyle. As stated previously, *there are no federal or state ambient air quality standards for these specific chemicals*. For a complete discussion of the known health effects of each compound refer to the IRIS database located at www.epa.gov/iris.

AIR QUALITY IMPACT ANALYSIS

The estimated maximum emissions of the modified facility are less than applicability thresholds that would define the proposed facility as “major” under 45CSR14 and, therefore, no air quality impacts modeling analysis was required. Additionally, based on the nature and location of the proposed source, an air quality impacts modeling analysis was not required under §45-13-7.

CHANGES TO R13-3215

The following substantive changes were made to Permit Number R13-3215:

- The Emissions Units Table 1.0 was revised to reflect the changes evaluated herein;
- The Control Devices Table 1.1 was revised to list the updated control percentages for the oxidation catalysts and the use of the reboilers (with VRU backup) as a control system for the GDU Flash Tanks;
- All fuel usage limits and associated MRR was removed for emission units that have an annual PTE calculated at 8,760 hours/year;
- The emission limits for the compressor engines were revised under 5.1.2. as based on the new catalyst vendor specification sheet;
- The daily and annual GDU gas processing limit was increased under 6.1.1. pursuant to the modifications evaluated herein;
- An additional table was added under 6.1.2. with the revised GDU emission limits;
- Operational requirements were added for the VRU/VRU backup of the flash tanks under 6.1.6.; and
- 40 CFR 60, Subpart OOOO language was removed from the permit under 11.0, 13.0, and 14.0 and replaced with Subpart OOOOa language.

MONITORING, COMPLIANCE DEMONSTRATIONS, REPORTING, AND RECORDING OF OPERATIONS

The draft permit contains extensive and detailed monitoring, compliance demonstration, reporting, and record-keeping requirements (MRR) on all emission units primarily based on the applicable requirements contained in the recently issued G35-C General Permit. The requirements are given under various sections of the draft permit (per emission unit grouping) and may be reviewed at that location. There was no substantive changes to the MRR as a result of the proposed changes evaluated herein.

PERFORMANCE TESTING OF OPERATIONS

The draft permit contains performance testing requirements primarily based on the applicable requirements contained in the recently issued G35-C General Permit. The requirements are given under Section 4.3 of the draft permit and may be reviewed at that location. There was no substantive changes to the performance testing requirements as a result of the proposed changes evaluated herein.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that compliance with all applicable state and federal air quality regulations will be achieved. Therefore, I recommend to the Director the issuance of a Permit Number R13-3215A to Antero Midstream LLC for the proposed modification of the West Mountain Compressor Station located near Pennsboro, Ritchie County, WV.

Joe Kessler, PE
Engineer

Date

Attachment A: Facility-Wide PTE

Antero Midstream LLC: West Mountain Compressor Station: Permit Number R13-3215A: Facility ID 085-00039

Emission Unit	EP ID	CO		NO _x		PM _{2.5} /PM ₁₀ /PM		SO _x		VOC		Formaldehyde		HAPs	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Compressor Engine	1E	1.19	5.19	1.26	5.52	0.27	1.18	0.01	0.04	0.30	1.33	0.02	0.08	0.18	0.81
Compressor Engine	2E	1.19	5.19	1.26	5.52	0.27	1.18	0.01	0.04	0.30	1.33	0.02	0.08	0.18	0.81
Compressor Engine	3E	1.19	5.19	1.26	5.52	0.27	1.18	0.01	0.04	0.30	1.33	0.02	0.08	0.18	0.81
Compressor Engine	4E	1.19	5.19	1.26	5.52	0.27	1.18	0.01	0.04	0.30	1.33	0.02	0.08	0.18	0.81
Compressor Engine	5E	1.19	5.19	1.26	5.52	0.27	1.18	0.01	0.04	0.30	1.33	0.02	0.08	0.18	0.81
Compressor Engine	6E	1.19	5.19	1.26	5.52	0.27	1.18	0.01	0.04	0.30	1.33	0.02	0.08	0.18	0.81
Compressor Engine	7E	1.19	5.19	1.26	5.52	0.27	1.18	0.01	0.04	0.30	1.33	0.02	0.08	0.18	0.81
Compressor Engine	8E	1.19	5.19	1.26	5.52	0.27	1.18	0.01	0.04	0.30	1.33	0.02	0.08	0.18	0.81
Compressor Engine	9E	1.19	5.19	1.26	5.52	0.27	1.18	0.01	0.04	0.30	1.33	0.02	0.08	0.18	0.81
Compressor Engine	10E	1.19	5.19	1.26	5.52	0.27	1.18	0.01	0.04	0.30	1.33	0.02	0.08	0.18	0.81
Compressor Engine	11E	1.19	5.19	1.26	5.52	0.27	1.18	0.01	0.04	0.30	1.33	0.02	0.08	0.18	0.81
Microturbine	12E	0.22	0.96	0.08	0.35	0.01	0.06	0.01	0.03	0.02	0.09	0.002	0.006	0.002	0.009
Microturbine	13E	0.22	0.96	0.08	0.35	0.01	0.06	0.01	0.03	0.02	0.09	0.002	0.006	0.002	0.009
Microturbine	28E	0.22	0.96	0.08	0.35	0.01	0.06	0.01	0.03	0.02	0.09	0.002	0.006	0.002	0.009
Dehy #1 Vent/Flash Tank	14E, 15E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	6.16	0.00	0.00	0.13	0.58
Dehy #1 Reboiler	16E	0.15	0.68	0.18	0.81	0.01	0.06	0.00	0.01	0.01	0.04	~0.00	~0.00	0.00	0.02
Dehy #2 Vent/Flash Tank	17E, 18E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	6.16	0.00	0.00	0.13	0.58
Dehy #2 Reboiler	19E	0.15	0.68	0.18	0.81	0.01	0.06	0.00	0.01	0.01	0.04	~0.00	~0.00	0.00	0.02
Storage Tanks	20E - 24E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.82	7.96	0.00	0.00	0.14	0.63
Catalytic Heater	27E	0.00	0.01	0.00	0.01	~0.00	~0.00	~0.00	~0.00	~0.00	~0.00	~0.00	~0.00	~0.00	~0.00
Fuel Conditioning Heater	30E	0.05	0.23	0.06	0.27	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00
Flare Combustion	26E	1.78	7.79	0.33	1.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck Loadout	n/a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.22	4.56	0.00	0.00	3.76	0.37
Fugitive Emissions	n/a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.78	12.19	0.00	0.00	0.00	0.01
Facility-Wide Total⁽¹⁾		15.88	69.36	14.85	65.11	3.04	13.30	0.14	0.54	57.02	52.02	0.22	0.90	6.15	11.15

(1) No individual HAP has a PTE over 10 TPY. As the PTE of all individual HAPs are less than 10 TPY (n-Hexane is the highest emitted individual HAP at 1.92 TPY) and the PTE of total HAPs is less than 25 TPY, the West Mountain Compressor Station is defined as a minor (area) source of HAPs for purposes of 40 CFR 61, 40CFR63, and Title V.

INTERNAL PERMITTING DOCUMENT TRACKING MANIFEST

Company Name ANTERO MIDSTREAM LLC.

Permitting Action Number R13-3215A Total Days 76 DAQ Days 46

Permitting Action:

- | | | |
|---|------------------------------------|---|
| <input type="radio"/> Permit Determination | <input type="radio"/> Temporary | <input checked="" type="radio"/> Modification |
| <input type="radio"/> General Permit | <input type="radio"/> Relocation | <input type="radio"/> PSD (Rule 14) |
| <input type="radio"/> Administrative Update | <input type="radio"/> Construction | <input type="radio"/> NNSR (Rule 19) |

Documents Attached:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Engineering Evaluation/Memo | <input checked="" type="checkbox"/> Completed Database Sheet |
| <input checked="" type="checkbox"/> Draft Permit | <input type="checkbox"/> Withdrawal |
| <input checked="" type="checkbox"/> Notice | <input type="checkbox"/> Letter |
| <input type="checkbox"/> Denial | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> Final Permit/General Permit Registration | _____ |

Date	From	To	Action Requested
8/29/16	Joe Kessler	Bev McKeone	NOTICE APPROVAL
9/1	Bev	Joe	Costs Notice

NOTE: Retain a copy of this manifest for your records when transmitting your document(s).

July 12, 2016



Mr. Joe Kessler
Division of Air Quality
WV Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Antero Resources
1615 Wynkoop Street
Denver, CO 80202
Office 303.357.7310
Fax 303.357.7315

Dear Mr. Kessler:

Re: Original Affidavit of Publication
Lafferty Compressor Station – Permit No. R13-3285A
West Mountain Compressor Station- Permit No. R13-3215A

Antero Midstream would like to submit the Original Affidavits of Publication from *The Pennsboro News*. These are being submitted in accordance with a permit application requirement for an oil and gas facility.

Sincerely,

A handwritten signature in black ink that reads "Barry Schatz".

Barry Schatz
Senior Environmental and Regulatory Manager

Entire Document
NON-CONFIDENTIAL

Encl.

ID. No. 085-00039 Reg. 3215A
Company ANTERO MIDSTREAM
Facility West Mountain
Initials [Signature]

INVOICE AND AFFIDAVIT OF PUBLICATION



The Pennsboro News

103 North Spring Street, P.O. Box 241
Harrisville, WV 26362
Ph. 304.643.4947 • Fax 304.643.4717

WEST CENTRAL PUBLISHING
FEDERAL I.D. NO. 55-06700561
STATE OF WEST VIRGINIA
COUNTY OF RITCHIE, to wit:

I, James McGoldrick, being first duly sworn upon my oath, do depose and say:

- that I am Publisher of The Pennsboro News, a Democratic newspaper,
- that I have been duly authorized to execute this affidavit,
- that such newspaper is regularly published weekly for at least fifty weeks during the calendar year, in the municipality of Harrisville, Ritchie County, West Virginia.
- That such newspaper is a newspaper of "general circulation" as defined in Art. 3, Chap. 59 of the Code of West Virginia 1931 as amended, within Ritchie County
- that such newspaper averages in length four or more pages, exclusive of any cover, per issue;
- that such newspaper is circulated to the general public at a definite price or consideration;
- that such newspaper is a newspaper to which the general public resorts for passing events or a political, religious, commercial and social nature and for current happenings, announcements, miscellaneous reading matters, advertisements and other notices;
- and that the annexed notice described as follows:

Air Quality Permit Notice -

West Mountain Compressor Station

WAS PUBLISHED IN SAID NEWSPAPER AS FOLLOWS:

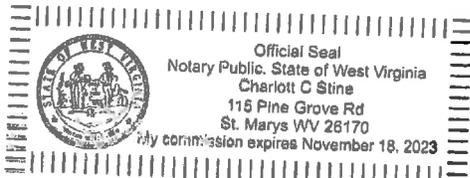
TIMES	DATES
One	June 22, 2016

PUBLICATION CHARGES	\$100.68
----------------------------	----------

CERTIF-BILL TO
 Antero Resources
 Attn: Betsey McLaughlin
 1615 Wynkoop St.
 Denver, CO 80202

(signed) 
 NOTARIZATION

Taken, sworn to and subscribed before me this 22nd
 day of June, 20 16
Charlotte St
 Notary Public



PLEASE RETURN A COPY OF THIS INVOICE WITH YOUR PAYMENT TO:
 P.O. BOX 241, Harrisville, WV 26362

AIR QUALITY PERMIT NOTICE
 Notice of Application
 West Mountain Compressor Station

Notice is given that Antero Midstream LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a 45CSR13 Construction Permit Modification (R13-3215) for a Natural Gas Compressor Station located at 1739 Mountain Drive in Pennsboro, West Virginia within Ritchie County.

The latitude and longitude coordinates are: 39.321042N, 80.978431W.

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

Pollutants	TOTALS (tpy):
Nitrogen Oxides (NOx)	-28.27
Carbon Monoxide (CO)	-27.75
Volatile Organic Compounds (VOC)	-29.23
Particulate Matter less than 10 um (PM10)	1.35
Particulate Matter less than 2.5 um (PM2.5)	1.35
Sulfur Dioxide (SO2)	0.04
Formaldehyde	-1.03
Benzene	0.14
Toluene	0.12
Ethylbenzene	0.003
Xylenes	0.04
Total HAPs	-0.03
Carbone Dioxide equivalent (CO2e)	7,336

Note that negative numbers in the table above denote a decrease in potential emissions.

Startup of modified operation is planned to begin on or about the 1st day of September 2016. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

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

Dated this the 7th day of June, 2016

By: Antero Midstream LLC
 Barry Schatz
 Midstream Environmental Supervisor
 1615 Wynkoop Street
 Denver, CO 80202

6-22 R

Kessler, Joseph R

From: Kessler, Joseph R
Sent: Thursday, July 14, 2016 2:04 PM
To: Barry Schatz
Cc: Elizabeth McLaughlin; 'kmeszaros@kleinfelder.com'; Kessler, Joseph R
Subject: R13-3215A Permit Application Status

RE: Application Status: Complete
Antero Midstream LLC
West Mountain Compressor Station
Permit Application: R13-3215A
Plant ID No.: 085-00039

Entire Document
NON-CONFIDENTIAL

Mr. Schatz,

Your application for a modification permit was received by the Division of Air Quality (DAQ) on June 14, 2016 and assigned to the writer for review. Upon an initial review, the application has been deemed complete as of the date of this e-mail. The ninety (90) day statutory time frame began on that day.

This determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit determination.

Should you have any questions, please contact me at (304) 926-0499 ext. 1219 or reply to this email.

Thank You,

Joe Kessler, PE
Engineer
West Virginia Division of Air Quality
601-57th St., SE
Charleston, WV 25304
Phone: (304) 926-0499 x1219
Fax: (304) 926-0478
Joseph.r.kessler@wv.gov

Kessler, Joseph R

From: Ward, Beth A
Sent: Thursday, June 16, 2016 11:24 AM
To: Kessler, Joseph R
Subject: ANTERO MIDSTREAM LLC PERMIT APPLICATION FEE

This is the receipt for payment received from:

ANTERO MIDSTREAM LLC, WEST MOUNTAIN STATION, CHECK NUMBER 1461, CHECK DATE 06/06/2016, \$4,500.00
R13-3215A ID# 085-00039

OASIS Deposit CR 1600137741

Thank You!

Beth Ward

**WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
BTO FISCAL
601 57TH STREET SE
CHARLESTON, WV 25304
(304) 926-0499 EXT 1846
beth.a.ward@wv.gov**

UC Defaulted Accounts Search Results

Sorry, no records matching your criteria were found.

FEIN:

Business name: ANTERO MIDSTREAM, LLC

Doing business

as/Trading as:

Please use your browsers back button to try again.

<u>WorkforceWV</u>	<u>Unemployment Compensation</u>	<u>Offices of the Insurance Commissioner</u>
------------------------------------	--	--

UC Defaulted Accounts Search Results

Sorry, no records matching your criteria were found.

FEIN: 465517375

Business name:

Doing business as/Trading as:

Please use your browsers back button to try again.

<u>WorkforceWV</u>	<u>Unemployment Compensation</u>	<u>Offices of the Insurance Commissioner</u>
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July 12, 2016



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Division of Air Quality
WV Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Antero Resources
1615 Wynkoop Street
Denver, CO 80202
Office 303.357.7310
Fax 303.357.7315

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West Mountain Compressor Station- Permit No. R13-3215A

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Sincerely,

A handwritten signature in black ink that reads "Barry Schatz". The signature is written in a cursive, slightly slanted style.

Barry Schatz
Senior Environmental and Regulatory Manager

Encl.

INVOICE AND AFFIDAVIT OF PUBLICATION



The Pennsboro News

103 North Spring Street, P.O. Box 241
 Harrisville, WV 26362
 Ph. 304.643.4947 • Fax 304.643.4717

WEST CENTRAL PUBLISHING
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 STATE OF WEST VIRGINIA
 COUNTY OF RITCHIE, to wit:

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- that I have been duly authorized to execute this affidavit,
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- That such newspaper is a newspaper of "general circulation" as defined in Art. 3, Chap. 59 of the Code of West Virginia 1931 as amended, within Ritchie County
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- that such newspaper is circulated to the general public at a definite price or consideration;
- that such newspaper is a newspaper to which the general public resorts for passing events or a political, religious, commercial and social nature and for current happenings, announcements, miscellaneous reading matters, advertisements and other notices;
- and that the annexed notice described as follows:

Air Quality Permit Notice -
 West Mountain Compressor Station

WAS PUBLISHED IN SAID NEWSPAPER AS FOLLOWS:

TIMES	DATES
One	June 22, 2016

PUBLICATION CHARGES	\$100.68
----------------------------	----------

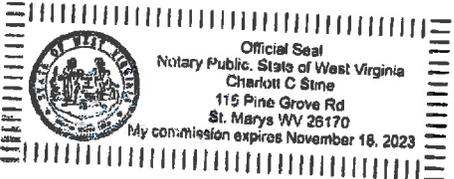
CERTIF-BILL TO
 Antero Resources
 Attn: Betsey McLaughlin
 1615 Wynkoop St.
 Denver, CO 80202

(signed) 
 NOTARIZATION

Taken, sworn to and subscribed before me this 22nd

day of June, 20 16

Charlotte St
 Notary Public



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 P.O. BOX 241, Harrisville, WV 26362

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 Notice of Application
 West Mountain Compressor Station

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

Dated this the 7th day of June, 2016

By: Antero Midstream LLC
 Barry Schatz
 Midstream Environmental Supervisor
 1615 Wynkoop Street
 Denver, CO 80202

Adkins, Sandra K

From: Adkins, Sandra K
Sent: Wednesday, June 15, 2016 1:34 PM
To: 'wmcneilly@anteroresources.com'; 'bschatz@anteroresources.com';
'kmeszaros@kleinfelder.com'
Cc: McKeone, Beverly D; Kessler, Joseph R
Subject: WV DAQ Application Status for Antero Midstream LLC; West Mountain Station

**RE: Application Status
Antero Midstream LLC
West Mountain Station
Facility ID No. 085-00039
Application No. R13-3215A**

Entire Document
NON-CONFIDENTIAL

Mr. McNeilly,

Your application for modification permit for the West Mountain Compressor Station was received by this Division on June 14, 2016, and was assigned to Joe Kessler. The following item was not included in the initial application submittal:

Original affidavit for Class I legal advertisement not submitted.

This item is necessary for the assigned permit writer to continue the 30-day completeness review.

Within 30 days, you should receive a letter from Joe Kessler stating the status of the permit application and, if complete, given an estimated time frame for the agency's final action on the permit.

Any determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit decision.

Should you have any questions, please contact the assigned engineer, Joe Kessler, at 304-926-0499, extension 1219.