



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

Company:	Cranberry Pipeline Corporation		Facility:	Bradley Station	
Region:	5	Plant ID:	109-00017	Application #:	13-2127G
Engineer:	Williams, Jerry			Category:	Gas Comp
Physical Address:				SIC: [1311] OIL AND GAS EXTRACTION - CRUDE PETROLEUM & NATURAL GAS	
County:	Wyoming			NAICS: [211111] Crude Petroleum and Natural Gas Extraction	
Other Parties:	ENV_MGR - Spencer, Randy 304-545-2231 Consultant - Hanshaw, Jesse 304-545-8563				

Information Needed for Database and AIRS
 No required information is missing.

Regulated Pollutants

Summary from this Permit 13-2127G		
Air Programs	Fee	Applicable Regulations
Fee Program	\$3,500.00	Application Type MODIFICATION

Notes from Database

Activity Dates
 APPLICATION RECIEVED 11/03/2015
 APPLICATION FEE PAID 11/03/2015
 ASSIGNED DATE 11/03/2015

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: 109-00017
 Company: Cranberry Pipeline Corporation
 Printed: 11/03/2015
 Engineer: Williams, Jerry

Engineer	Jerry Williams, P.E.
Email Address	jerry.williams@wv.gov
Company Name	Cranberry Pipeline Corporation
Company ID	109-00017
Facility Name	Bradley Station
Permit Number	R13-2127G
County	Wyoming
Newspaper	<i>Independent Herald</i>
Company Email and "Attention To:"	Randy Spencer randy.spencer@cabotog.com
Environmental Contact Email Address	Nathaniel Lanham nlanham@slrconsulting.com
Regional Office (if applicable)	NA
New or Modified Source?	modified
Construction, Modification, or Relocation?	modification
Type of Facility	natural gas compressor station
"Located" or "To Be Located"?	located
Place where I can find electronic versions of your notice, engineering evaluation, and draft permit	Q:\AIR_QUALITY\Willi\2127G

publish Wed Jan 6 2016
30 days Fri Feb 5 2016

INTERNAL PERMITTING DOCUMENT TRACKING MANIFEST

Company Name Cranberry Pipeline Corporation

Permitting Action Number R13-2127G

Total Days 48

DAQ Days 20

Permitting Action:

- Permit Determination
- General Permit
- Administrative Update
- Temporary
- Relocation
- Construction
- Modification
- PSD (Rule 14)
- NNSR (Rule 19)

Documents Attached:

- Engineering Evaluation/Memo
- Draft Permit
- Notice
- Denial
- Final Permit/General Permit Registration
- Completed Database Sheet
- Withdrawal
- Letter
- Other (specify) _____

Date	From	To	Action Requested
12/21/2015	Jerry <i>Jyw</i>	Bev	Please review and approve to go to notice.
<i>12/22</i>	<i>Bev</i>	<i>Jerry</i>	<i>Cost to Notice</i>
<i>12/23</i>	<i>JERRY</i>	<i>SANDIE</i>	<i>Approved for Notice - Thanks ju</i>

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



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Other Parties:	ENV_MGR - Spencer, Randy 304-545-2231 Consultant - Hanshaw, Jesse 304-545-8563		

Information Needed for Database and AIRS
 No required information is missing.

Regulated Pollutants

Summary from this Permit 13-2127G		
Air Programs	Applicable Regulations	
NSPS	02 10 13 16 22 60 JJJJ 60 OOOO	
SIP	63 HH 63 ZZZZ	
Fee Program	Fee	Application Type
8D	\$3,500.00	MODIFICATION

Notes from Database
 Permit MM Note: Change in emissions from glycol dehydration unit to account for an updated wet gas analysis.

Activity Dates

APPLICATION RECEIVED	11/03/2015
APPLICATION FEE PAID	11/03/2015
ASSIGNED DATE	11/03/2015
APPLICANT PUBLISHED LEGAL AD	11/11/2015
ADDITIONAL INFO REQUESTED	11/20/2015
ADDITIONAL INFO REQUESTED	11/30/2015
ADDITIONAL INFO RECEIVED	11/30/2015
APPLICATION DEEMED COMPLETE	12/01/2015

NON-CONFIDENTIAL

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Company ID: 109-00017
 Company: Cranberry Pipeline Corporation
 Printed: 12/21/2015
 Engineer: Williams, Jerry

Engineer	Jerry Williams, P.E.
Email Address	jerry.williams@wv.gov
Company Name	Cranberry Pipeline Corporation
Company ID	109-00017
Facility Name	Bradley Station
Permit Number	R13-2127G
County	Wyoming
Newspaper	<i>Independent Herald</i>
Company Email and "Attention To:"	Randy Spencer randy.spencer@cabotog.com
Environmental Contact Email Address	Nathaniel Lanham nlanham@slrconsulting.com
Regional Office (if applicable)	NA
New or Modified Source?	modified
Construction, Modification, or Relocation?	modification
Type of Facility	natural gas compressor station
"Located" or "To Be Located"?	located
Place where I can find electronic versions of your notice, engineering evaluation, and draft permit	Q:\AIR_QUALITY\J_Willi\2127G

AIR QUALITY PERMIT NOTICE

Notice of Intent to Approve

On November 3, 2015, Cranberry Pipeline Corporation applied to the WV Department of Environmental Protection, Division of Air Quality (DAQ) for a permit to modify a natural gas compressor facility located County Highway 14, near Fanrock, Wyoming County, WV at latitude 37.5455 and longitude - 81.6391. A preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed facility. The DAQ is providing notice to the public of its preliminary determination to issue the permit as R13-2127G.

The following increase in potential emissions will be authorized by this permit action: Volatile Organic Compounds, 40.09 tons per year (TPY); Total Hazardous Air Pollutants, 6.92 TPY.

Written comments or requests for a public meeting must be received by the DAQ before 5:00 p.m. on (Day of Week, Month, Day, Year). 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.

Jerry Williams, P.E.
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Telephone: 304/926-0499, ext. 1223
FAX: 304/926-0478

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



west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-2127G
Plant ID No.: 109-00017
Applicant: Cranberry Pipeline Corporation (Cranberry)
Facility Name: Bradley Compressor Station
Location: Fanrock, Wyoming County
NAICS Code: 211111 (Natural Gas Extraction)
Application Type: Modification
Received Date: November 3, 2015
Engineer Assigned: Jerry Williams, P.E.
Fee Amount: \$3,500.00
Date Received: November 4, 2015
Complete Date: December 1, 2015
Due Date: February 29, 2016
Applicant Ad Date: November 11, 2015
Newspaper: *The Independent Herald*
UTM's: Easting: 443.5 km Northing: 4,155.3 km Zone: 17
Description: Change in emissions from glycol dehydration unit to account for an updated wet gas analysis.

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-2127G:

Natural gas enters the facility via pipeline where the wet gas is compressed to a higher pressure. Natural gas fired engines power compressors that compress the gas to a higher pressure. After compression, the compressed gas exits the facility to an underground storage site.

Pipeline quality natural gas has a moisture content of 7 pounds per million standard cubic feet (mmscf). Triethylene glycol (TEG) dehydration units are used to remove water from natural gas streams to prevent the formation of hydrates and corrosion in the pipeline. The natural gas stream is passed through a stream of TEG. At the point of contact, the glycol will absorb water and water vapor from the natural gas stream. During the absorption process, aromatic hydrocarbons include benzene, toluene, ethylbenzene, xylenes, hexane as well as other volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) present in the gas stream are absorbed along with the water vapor into the glycol stream. When the glycol is saturated with water, it is considered "rich" glycol. The rich glycol is then sent to a glycol still for regeneration to remove water and liquid hydrocarbons. The glycol still vent emits VOCs and HAPs depending on the concentration of those constituents in the processed wet gas. After regeneration, the glycol is considered "lean" glycol and is suitable for reuse.

Natural gas fired boilers provide process heat for processes such as glycol regenerator reboilers. The glycol regenerator reboiler fires natural gas and is also a potential source of criteria and HAP emissions. The reboiler has an exhaust stack where the by-products of natural gas combustion are vented.

This permit application involves the following:

Recent wet gas analyses from the Bradley Compressor Station indicate increased emissions above permitted levels for the glycol dehydration unit still vent. Additionally, an update to the potential to emit for storage vessels T1 and T2 based on new annual throughputs and an update of emissions from truck loading and fugitive leaks is requested.

The new emission estimates reflect the need to increase the VOC and HAP levels. These changes to emissions are a result of the increase to HAP and C8+ gas fractions measured within the wet gas inlet to the contactor column.

All other operating parameters on the dehydration unit were set to its maximum capacity. The lean TEG is recirculated through the unit by an electric driven pump. The pump has a maximum pump rate of 5.0 gallons per minute (GPM). The gas throughput was modeled to reflect the station's maximum flow of 30 million standard cubic feet per day (MMscfd). Additionally, the inlet water content was assumed to be saturated at 779 psig and 95 °F. The outlet is assumed to be pipeline quality natural gas at 7 lb H₂O/MMscf. This equates to a TEG recirculation ratio of 3.35 gal TEG/lb H₂O removed from the wet gas.

Pipeline liquids and produced water is separated at the station's inlet and dehydration separators as well as "compression drip" which is removed in the compression process and transferred to two (2) above ground storage tanks. The emission estimates for the tanks are based on direct measurement pressurized liquid testing and E&P Tanks simulation analysis taken at a representative Cranberry site. The throughput was based on a maximum of 5 barrels per day (bbls/d).

SITE INSPECTION

A site inspection was conducted on May 6, 2014 by Todd Shrewsbury of the DAQ Enforcement Section. The facility was found to be operating in compliance at that time. The facility is located approximately 400 feet from the closest residence.

Directions as given in the permit application are as follows:

From I-64 Exit 42, take SR16 southwest. After 3.6 miles, bear right onto Lester Highway. Travel 3.3 miles and bear right onto SR54. Travel 6.6 miles and bear left on SR54. Travel 3.9 miles and turn right on SR97. Travel 12 miles and bear left onto SR10. Travel 1.1 miles and turn right onto SR16. Travel 5.1 miles and turn right onto CR12/4 (Indian Creek Road). Travel 5.2 miles and turn left onto CR14 (Brier Creek Road). Travel 1.8 miles and turn right onto local road. Travel 0.2 miles and bear left onto local road. Travel 0.1 miles to Bradley Compressor Station.

Latitude: 37.545489

Longitude: -81.639058



ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this modification application consist of one (1) TEG dehydrator still vent, two (2) condensate storage vessels, and an update to truck loading and fugitive leaks. Fugitive emissions for the facility are based on calculation methodologies presented in EPA Protocol for Equipment Leak Emission Estimates. The following table indicates which methodology was used in the emissions determination:

Emission Point ID#	Process Equipment	Calculation Methodology
011	30 mmscfd TEG Dehydrator Still Vent	GRI-GlyCalc 4.0
T1E	500 gal Pipeline Liquids Storage Tank	Direct measurement and E&P Tanks simulation analysis
T2E	2,100 gal Pipeline Liquids Storage Tank	Direct measurement and E&P Tanks simulation analysis
TL	153,300 gal/yr Truck Loading	EPA AP-42 Emission Factors

The total PTE after this proposed modification are shown in the following table:

Pollutant	Maximum Pre-Modification Annual Facility Wide Emissions (tons/year)	Maximum Post-Modification Annual Facility Wide Emissions (tons/year)	Net Facility Wide Emissions Changes (tons/year)
Nitrogen Oxides	64.08	64.08	0
Carbon Monoxide	99.14	99.14	0
Volatile Organic Compounds	33.34	73.43	40.09
Particulate Matter-10/2.5	1.51	1.51	0
Sulfur Dioxide	0.13	0.13	0
Total HAPs	16.73	23.65	6.92
Greenhouse Gas (CO ₂ e)	17,913	18,451	538

Maximum detailed controlled point source emissions were calculated by Cranberry and checked for accuracy by the writer and are summarized in the table on the next page.

Cranberry Pipeline Corporation – Bradley Compressor Station (R13-2127G)

Emission Point ID#	Source	NO _x		CO		VOC		PM-10/2.5		SO ₂		Formaldehyde		Total HAPs		CO ₂ e ton/year
		lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	
006	515 hp CAT G3508TA	2.27	9.94	1.70	7.45	0.44	1.93	0.04	0.16	<0.01	0.01	0.20	0.87	0.21	0.90	2059
009	1,100 hp White 8GT825	4.85	21.22	7.27	31.84	0.94	4.13	0.08	0.35	<0.01	0.02	0.42	1.85	0.44	1.93	4098
012	1,150 hp CAT G3516LE	4.56	19.97	3.80	16.64	0.99	4.32	0.08	0.37	<0.01	0.02	0.44	1.93	0.46	2.01	4369
013	1,775hp CAT G3606TA	2.74	11.99	9.62	42.13	1.52	6.67	0.13	0.56	<0.01	0.03	0.68	2.98	0.71	3.11	6022
010	2.04 MMBTU/hr Reboiler	0.20	0.88	0.17	0.74	0.01	0.05	0.02	0.07	<0.01	0.05	<0.01	<0.01	<0.01	0.02	1045
011	30 mmsefd TEG Skill Vent	0.00	0.00	0.00	0.00	11.92	52.18	0.00	0.00	0.00	0.00	0.00	0.00	3.58	15.68	785
010	100 gal Flash Tank	0.00	0.00	0.00	0.00	0.11	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
014	28 hp Emergency Gen.	0.31	0.08	1.38	0.35	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6
T1E	500 gal Pipeline Liquids Tank	0.00	0.00	0.00	0.00	0.07	0.32	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	<0.01	0
T2E	2,100 gal Pipeline Liquids Tank	0.00	0.00	0.00	0.00	0.07	0.32	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	<0.01	0
TL	Truck Loading	0.00	0.00	0.00	0.00	0.06	0.21	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	<0.01	0
Total Point Source		14.92	64.08	23.94	99.14	16.14	70.62	0.34	1.51	0.00	0.13	1.74	7.63	5.39	23.64	18385

Fugitive	Fugitive Emissions	0.00	0.00	0.00	0.00	NA	2.81	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	0.01	66
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Total Fugitive		0.00	0.00	0.00	0.00	0.00	2.81	0.00	0.00	0.00	0.00	0.00	0.00	<0.01	0.01	66
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Total Site wide		14.92	64.08	23.94	99.14	16.14	73.43	0.34	1.51	0.00	0.13	1.74	7.63	2.45	23.65	18451
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REGULATORY APPLICABILITY

The following rules apply to this modification:

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)

45CSR13 applies to this source due to the fact that Cranberry's proposed modification exceeds the regulatory emission threshold for criteria pollutants of 6 lb/hr and 10 ton/year. In addition, the glycol dehydration unit is subject to a substantive requirement under 40CFR63 Subpart HH. Cranberry published the required Class I legal advertisement notifying the public of their permit application, and paid the appropriate application fee.

45CSR22 (Air Quality Management Fee Program)

Cranberry is not subject to 45CSR30. The Bradley Compressor Station is subject to 40CFR60 Subparts JJJJ and OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

Cranberry is required to pay the appropriate annual fees and keep their Certificate to Operate current.

40CFR60 Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution)

EPA published in the Federal Register new source performance standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. 40CFR60 Subpart OOOO 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 August 23, 2011. The following affected sources which commence construction, modification or reconstruction after August 23, 2011 are subject to the applicable provisions of this subpart:

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

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

- b. Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals that is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. For the purposes of this subpart, your centrifugal compressor is considered to have commenced construction on the date the compressor is installed (excluding relocation) at the facility. A centrifugal compressor located at a well site, or an

adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

There are no centrifugal compressors at the Bradley Compressor Station. Therefore, all requirements regarding centrifugal compressors under 40 CFR 60 Subpart OOOO would not apply.

- c. Each reciprocating compressor affected facility, which is a single reciprocating compressor located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. For the purposes of this subpart, your reciprocating compressor is considered to have commenced construction on the date the compressor is installed (excluding relocation) at the facility. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

There is one (1) reciprocating internal combustion engine located at the Bradley Compressor Station that was constructed after August 23, 2011. Therefore, the requirements regarding reciprocating compressors under 40 CFR 60 Subpart OOOO would apply to Engine 014. Also, none of the engines have undergone any modifications.

d. Pneumatic Controllers

- Each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh which commenced construction after August 23, 2011, and is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not located at a natural gas processing plant.
- Each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller which commenced construction after August 23, 2011, and is located at a natural gas processing plant.

There are no applicable pneumatic controllers which commenced construction after August 23, 2011. Therefore, all requirements regarding pneumatic controllers under 40 CFR 60 Subpart OOOO would not apply.

- e. Each storage vessel affected facility, which is a single storage vessel, located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment.

40CFR60 Subpart OOOO defines a storage vessel as a unit that is constructed primarily of nonearthen materials (such as wood, concrete, steel, fiberglass, or plastic) which provides structural support and is designed to contain an accumulation of liquids or other materials. The following are not considered storage vessels:

- Vessels that are skid-mounted or permanently attached to something that is mobile (such as trucks, railcars, barges or ships), and are intended to be located at a site for less than 180 consecutive days. If the source does not keep or are not able to produce records, as required by §60.5420(c)(5)(iv), showing that the vessel has been located at a site for less than 180 consecutive days, the vessel described herein is considered to be a storage vessel since the original vessel was first located at the site.
- Process vessels such as surge control vessels, bottoms receivers or knockout vessels.
- Pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere.

This rule requires that the permittee determine the VOC emission rate for each storage vessel affected facility utilizing a generally accepted model or calculation methodology within 30 days of startup, and minimize emissions to the extent practicable during the 30 day period using good engineering practices. For each storage vessel affected facility that emits more than 6 tpy of VOC, the permittee must reduce VOC emissions by 95% or greater within 60 days of startup. The compliance date for applicable storage vessels is October 15, 2013.

The storage vessels located at the Bradley Compressor Station were installed prior to August 23, 2011 and have the potential to emit to less than 6 tpy of VOC. Therefore, Cranberry is not required by this section to reduce VOC emissions by 95%.

- f. The group of all equipment, except compressors, within a process unit is an affected facility.
- Addition or replacement of equipment for the purpose of process improvement that is accomplished without a capital expenditure shall not by itself be considered a modification under this subpart.
 - Equipment associated with a compressor station, dehydration unit, sweetening unit, underground storage vessel, field gas gathering system, or liquefied natural gas unit is covered by §§60.5400, 60.5401, 60.5402, 60.5421 and 60.5422 of this subpart if it is located at an onshore natural gas processing plant. Equipment not located at the onshore natural gas processing plant site is exempt from the provisions of §§60.5400, 60.5401, 60.5402, 60.5421 and 60.5422 of this subpart.
 - The equipment within a process unit of an affected facility located at onshore natural gas processing plants and described in paragraph (f) of this section are exempt from this subpart if they are subject to and controlled according to subparts VVa, GGG or GGGa of this part.

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

- g. Sweetening units located at onshore natural gas processing plants that process natural gas produced from either onshore or offshore wells.
- Each sweetening unit that processes natural gas is an affected facility; and
 - Each sweetening unit that processes natural gas followed by a sulfur recovery unit is an affected facility.
 - Facilities that have a design capacity less than 2 long tons per day (LT/D) of hydrogen sulfide (H₂S) in the acid gas (expressed as sulfur) are required to comply with recordkeeping and reporting requirements specified in §60.5423(c) but are not required to comply with §§60.5405 through 60.5407 and paragraphs 60.5410(g) and 60.5415(g) of this subpart.
 - Sweetening facilities producing acid gas that is completely reinjected into oil-or-gas-bearing geologic strata or that is otherwise not released to the atmosphere are not subject to §§60.5405 through 60.5407, 60.5410(g), 60.5415(g), and 60.5423 of this subpart.

There are no sweetening units at the Bradley Compressor Station. Therefore, all requirements regarding sweetening units under 40 CFR 60 Subpart OOOO would not apply.

40CFR63 Subpart HH (National Emission Standards for Hazardous Air Pollutants for Oil and Natural Gas Production Facilities)

Subpart HH establishes national emission limitations and operating limitations for HAPs emitted from oil and natural gas production facilities located at major and area sources of HAP emissions. The glycol dehydration units at the Bradley Compressor Station is subject to the area source requirements for glycol dehydration units.

The following rules do not apply to the facility:

45CSR30 (Requirements for Operating Permits)

As a result of the granting of this permit, Cranberry is not subject to 45CSR30.

40CFR60 Subpart KKK (Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants)

40CFR60 Subpart KKK applies to onshore natural gas processing plants that commenced construction after January 20, 1984, and on or Before August 23, 2011. The Bradley Compressor Station is not a natural gas processing facility, therefore Cranberry is not subject to this rule.

45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants)

45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment)

The Bradley Compressor Station is located in Wyoming County, which is an attainment county for all pollutants. Because Wyoming County is an attainment county, 45CSR19 does not apply to this facility.

As shown in the table below, Cranberry is not subject to 45CSR14 or 45CSR19 review.

Pollutant	PSD (45CSR14) Threshold (tpy)	NANSR (45CSR19) Threshold (tpy)	Bradley PTE (tpy)	45CSR14 or 45CSR19 Review Required?
Carbon Monoxide	250	NA	99.14	No
Nitrogen Oxides	250	NA	64.08	No
Sulfur Dioxide	250	NA	0.13	No
Particulate Matter 2.5	250	NA	1.51	No
Ozone (VOC)	250	NA	70.62	No

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

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 HAPs are common to this industry. The following table lists each HAP's carcinogenic risk (as based on analysis provided in the Integrated Risk Information System (IRIS)):

HAPs	Type	Known/Suspected Carcinogen	Classification
Formaldehyde	VOC	Yes	Category B1 - Probable Human Carcinogen
Benzene	VOC	Yes	Category A - Known Human Carcinogen
Ethylbenzene	VOC	No	Inadequate Data
Toluene	VOC	No	Inadequate Data
Xylenes	VOC	No	Inadequate Data

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health effects 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

Modeling was not required of this source due to the fact that the facility is not subject to 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants) or 45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment) as shown in the table listed in the Regulatory Discussion section under 45CSR14/45CSR19.

SOURCE AGGREGATION

“Building, structure, facility, or installation” is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

The Bradley Compressor Station is located in Wyoming County and will be operated by Cranberry.

“Contiguous or Adjacent” determinations are made on a case by case basis. These determinations are proximity based, and it is important to focus on this and whether or not it meets the common sense notion of a plant. The terms “contiguous” or “adjacent” are not defined by USEPA. Contiguous has a dictionary definition of being in actual contact; touching along a boundary or at a point. Adjacent has a dictionary definition of not distant; nearby; having a common endpoint or border.

There are no other Cranberry properties in question that are considered to be on contiguous or adjacent property with the Bradley Compressor Station.

Because there are no other facilities that are considered to be on contiguous or adjacent properties, the emissions from the Bradley Compressor Station should not be aggregated with other facilities in determining major source or PSD status.

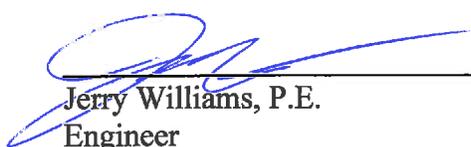
MONITORING OF OPERATIONS

Cranberry will be required to perform the following monitoring and recordkeeping:

1. Monitor and record quantity of natural gas consumed for all combustion devices.
2. Monitor and record quantity of wet gas throughput for the glycol dehydration unit.
3. Monitor and record quantity of condensate loaded into storage tanks.
4. Maintain records of testing conducted in accordance with the permit. Said records shall be maintained on-site or in a readily accessible off-site location
5. Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
6. Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility. These records shall include the natural gas compressor engines and ancillary equipment.
7. The records shall be maintained on site or in a readily available off-site location maintained by Cranberry for a period of five (5) years.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that Cranberry meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Wyoming County location should be granted a 45CSR13 modification permit for their facility.



Jerry Williams, P.E.
Engineer

12/21/2015

Date

This permitting action supersedes and replaces R13-2127F issued on July 15, 2013.

Facility Location: Fanrock, Wyoming County, West Virginia
Mailing Address: 900 Lee Street East, Suite 1500, Charleston, WV 25301
Facility Description: Natural gas compressor station
NAICS Codes: 211111
UTM Coordinates: 443.5 km Easting • 4,155.3 km Northing • Zone 17
Permit Type: Modification
Description of Change: Change in emissions from glycol dehydration unit to account for an updated wet gas analysis.

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
001-03	006	Caterpillar G3508TA Reciprocating Internal Combustion Engine (RICE)	2007	515 hp	None
001-09	009	White Superior 8GT825 RICE	1995	1,100 hp	None
001-0B	012	Caterpillar G3516LE RICE	1997	1,150 hp	None
001-0C	013	Caterpillar G3606TA RICE	2004	1,775 hp	None
001-0A	011	Petrofab TEG Dehydration Unit Still Vent	1995	30 mmscfd	None
001-04	010	Glycol Dehydration Unit Reboiler	1995	2.04 MMBTU/hr	None
Tank10	010	Flash Tank	2013	100 gal	Recycle to Reboiler
001-EG	014	Generac CGNXB9992ST Emergency Generator	2013	28 HP	None
T1	T1E	Pipeline Liquids Storage Tank	2006	500 gal	None
T2	T2E	Pipeline Liquids Storage Tank	2006	2,100 gal	None

2.0. General Conditions

2.1. Definitions

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

2.2. Acronyms

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

2.3. Authority

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

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

2.4. Term and Renewal

- 2.4.1. This permit supersedes and replaces previously issued Permit R13-2127F. 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 R13-2127, R13-2127A, R13-2127B, R13-2127C, R13-2127D, R13-2127E, R13-2127F, R13-2127G 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. 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. 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. 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

3.5.4.1. 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:

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

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

4.1.3. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate the control devices listed in Section 1.1 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.]

4.1.4. **Record of Malfunctions of Air Pollution Control Equipment.** For the control devices listed in Section 1.1, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

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

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

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

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

- 4.1.6. The permittee shall monitor and maintain quarterly records (calendar year) for each facility component that was inspected for fugitive escape of regulated air pollutants. Each component shall operate with no detectable emissions, as determined using audio-visual-olfactory (AVO) inspections, USEPA 40CFR60 Method 21, USEPA alternative work practice to detect leaks from equipment using optical gas imaging (OGI) camera (ex. FLIR camera), or some combination thereof. AVO inspections shall include, but not limited to, defects as visible cracks, holes, or gaps in piping; loose connections; liquid leaks; or broken or missing caps or other closure devices. If permittee uses USEPA Method 21, then no detectable emissions is defined as less than 500 ppm in accordance with Method 21. If permittee uses an OGI camera, then no detectable emissions is defined as no visible leaks detected in accordance with USEPA alternative OGI work practices.

If any leak is detected, the permittee shall repair the leak as soon as possible. The first attempt at repair must be made within five (5) calendar days of discovering the leak, and the final repair must be made within fifteen (15) calendar days of discovering the leak. The permittee shall record each leak detected and the associated repair. The leak will not be considered repaired until the same monitoring method or a more detailed instrument determines the leak is repaired.

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 emissions likely to result from delay of repair. You must complete repair of such equipment by the end of the next shutdown.
[45CSR§13-5.11.]

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5.0. Source-Specific Requirements (Engines, 006, 009, 012, 013, 014)

5.1. Limitations and Standards

- 5.1.1. To demonstrate compliance with Section 5.1.2, the quantity of natural gas that shall be consumed in the 515 hp natural gas fired reciprocating engine, Caterpillar G3508TA (006) shall not exceed 3,939 cubic feet per hour and 34.50×10^6 cubic feet per year.
- 5.1.2. Maximum emissions from the 515 hp natural gas fired reciprocating engine, Caterpillar G3508TA (006) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	2.27	9.94
Carbon Monoxide	1.71	7.45
Volatile Organic Compounds	0.44	1.94
Formaldehyde	0.20	0.87

- 5.1.3. To demonstrate compliance with Section 5.1.4, the quantity of natural gas that shall be consumed in the 1,100 hp natural gas fired reciprocating engine, White Superior 8GT825 (009) shall not exceed 7,841 cubic feet per hour and 68.68×10^6 cubic feet per year.
- 5.1.4. Maximum emissions from the 1,100 hp natural gas fired reciprocating engine, White Superior 8GT825 (009) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	4.85	21.23
Carbon Monoxide	7.27	31.84
Volatile Organic Compounds	0.95	4.14
Formaldehyde	0.42	1.85

- 5.1.5. To demonstrate compliance with Section 5.1.6, the quantity of natural gas that shall be consumed in the 1,150 hp natural gas fired reciprocating engine, Caterpillar G3516LE (012) shall not exceed 8,359 cubic feet per hour and 73.22×10^6 cubic feet per year.
- 5.1.6. Maximum emissions from the 1,150 hp natural gas fired reciprocating engine, Caterpillar G3516LE (012) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	4.56	19.97
Carbon Monoxide	3.80	16.65
Volatile Organic Compounds	0.99	4.32
Formaldehyde	0.44	1.94

- 5.1.7. To demonstrate compliance with Section 5.1.8, the quantity of natural gas that shall be consumed in the 1,775 hp natural gas fired reciprocating engine, Caterpillar G3606TA (013) shall not exceed 11,520 cubic feet per hour and 100.92×10^6 cubic feet per year.

- 5.1.8. Maximum emissions from the 1,775 hp natural gas fired reciprocating engine, Caterpillar G3606TA (013) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Nitrogen Oxides	2.74	11.99
Carbon Monoxide	9.62	42.13
Volatile Organic Compounds	1.53	6.67
Formaldehyde	0.68	2.99

- 5.1.9. **Maximum Yearly Operation Limitation.** The maximum yearly hours of operation for the 28 hp Generac CGNXB9992ST natural gas fired emergency generator, (014) shall not exceed 500 hours per year. Compliance with the Maximum Yearly Operation Limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the hours of operation at any given time during the previous twelve consecutive calendar months.

5.2. Recordkeeping Requirements

- 5.2.1. To demonstrate compliance with sections 5.1.1-5.1.9, the permittee shall maintain records of the amount of natural gas consumed in each engine and the hours of operation of each engine. 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.

6.0. Source-Specific Hazardous Air Pollutant Requirements (Natural Gas Dehydration Unit - 011)

6.1. Limitations and Standards

6.1.1. **Maximum Throughput Limitation.** The maximum dry natural gas throughput to the glycol dehydration unit/still column (011) shall not exceed 30 million standard cubic feet per day (mmscfd). 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. Maximum emissions from the 30 mmscfd glycol dehydration unit/still column (011) shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Volatile Organic Compounds	11.92	52.18
Benzene	0.39	1.70
Toluene	0.67	2.93
Ethylbenzene	1.01	4.44
Xylene	1.35	5.91

6.1.3. For purposes of determining potential HAP emissions at production-related facilities, the methods specified in 40 CFR 63, Subpart HH (i.e. excluding compressor engines from HAP PTE) shall be used.

6.1.4. 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.
[40CFR§63.760(c)]

6.2. Monitoring Requirements

6.2.1. The permittee shall monitor the throughput of dry natural gas fed to the dehydration system (011) on a monthly basis.

6.2.2. In order to demonstrate compliance with the area source status, claimed within sections 6.1.2 and 6.1.3, the following parameters shall be measured at least once quarterly, with the exception of natural gas flowrate annual daily average, natural gas flowrate maximum design capacity, and 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
 - i. Operating hours per quarter
 - ii. Quarterly throughput (MMscf/quarter)
 - iii. Annual daily average (MMscf/day), and
 - iv. Maximum design capacity (MMscf/day)
- b. Absorber temperature and pressure
- c. Lean glycol circulation rate
- d. Glycol pump type and maximum design capacity (gpm)
- e. Flash tank temperature and pressure, if applicable
- f. Stripping Gas flow rate, if applicable

- g. Wet gas composition (upstream of the absorber – dehydration column) sampled in accordance with GPA method 2166 and analyzed consistent with GPA extended method 2286 as well as the procedures presented in the GRI-GLYCalc™ Technical Reference User Manual and Handbook V4
- h. Wet gas water content (lbs H₂O/MMscf)
- i. Dry gas water content (lbs H₂O/MMscf) at a point directly after exiting the dehydration column and before any additional separation points

The following operating parameter(s) may be assigned default values when using GRI-GLYCalc:

- a. Dry gas water content can be assumed to be equivalent to pipeline quality at 7 lb H₂O / MMscf
- b. Wet gas water content can be assumed to be saturated
- c. Lean glycol water content if not directly measured may use the default value of 1.5 % water as established by GRI
- d. Lean glycol circulation rate may be estimated using the TEG recirculation ratio of 3 gal TEG / lb H₂O removed.

Note: If you are measuring and using actual wet or dry gas water content, then you should also measure the glycol recirculation rate rather than using the default TEG recirculation ratio.
 [45CSR§13-5.11, §63.772(b)(2)(i)]

6.3. Testing Requirements

- 6.3.1. Compliance with Section 4.1.2, shall be determined by using GRI-GlyCalc Version 3.0 or higher, sampled in accordance with the Gas Processor Association GPA Method 2166 and analyzed in accordance with Method 2286. Representative gas sample collection and analysis frequency for dehydration units shall be determined based on the level of HAP emissions from the glycol dehydration unit of the affected facility as set forth in the schedule provided in the table below. The minimum frequency stated in the table does not relieve the affected facility from the requirement to appropriately account for process or feed gas changes that could affect minor source status or prevent the affected facility from conducting more frequent sampling and analysis and producing a representative average composition.

Wet Gas Sampling and Analysis Frequency for Dehydration Units Based on Potential HAP Emission Rates	
Permitted Emission Rate as a Percentage of Major Individual (10 TPY) or Total HAPs (25 TPY) Thresholds in TPY or a Percentage of Benzene Emissions as determined by GRI-GlyCalc v. 3.0 or higher	Minimum Default Frequency
Every dehydration unit (regardless of permitted emission rate)	An initial compliance test within 180 days of permit issuance or within 180 days of start-up of the dehydration unit, whichever is later
Every dehydration unit at or above 95% of HAPs major source levels	The permittee shall sample and perform a wet gas analysis at least once each year for determining compliance with the HAP limits in the issued General Permit Registration per the procedures in Section

	6.3.
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Note: The DAQ defines a representative wet gas sample to be one that is characteristic of the average gas composition dehydrated throughout a calendar year. If an isolated sample is not indicative of the annual average composition, then a company may opt to produce a weighted average based on throughput between multiple sampling events, which can be used to define a more representative average annual gas composition profile.

- 6.3.2. The following testing and compliance provisions of Part 63 Subpart HH National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities are applicable to the facility:

§ 63.772 Test methods, compliance procedures, and compliance demonstrations.

(b) 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.

(2) The determination of actual average benzene emissions or BTEX emissions from a glycol dehydration unit shall be made using the procedures of paragraph (b)(2)(i) of this requirement. Emissions shall be determined either uncontrolled, or with federally enforceable controls in place.

(i) The owner or operator shall determine actual average benzene 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 Gas Research Institute (GRI) report entitled "Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions" (GRI-95/0368.1).

[§63.772(b)(2)(i)]

6.4. Recordkeeping Requirements

6.4.1. The permittee shall maintain a record of the monthly dry natural gas throughput through the glycol dehydration units to demonstrate compliance with section 6.1.1 of this permit. 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 permittee. 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.

6.4.2. For the purpose of demonstrating compliance with the limits set forth in section 4.1.2, the permittee shall maintain records of the flow rate measurements and wet gas analysis made during the initial compliance determination or subsequent compliance determinations in accordance with Section 6.3. 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 permittee. 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. The permittee shall maintain records of the GLYCalc analysis as required by section 6.3 of this permit. Said records shall include a printout of the aggregate calculations report, which shall include emissions reports, equipment reports, and stream reports. The permittee shall maintain bi-

monthly records of the input parameters required by section 6.2.2. Such records shall be retained for at least 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. A responsible official shall certify any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director.

6.5. Reporting Requirements

- 6.5.1. The permittee shall submit the wet gas analysis report required by section 6.3.1 of this permit within 60 days of conducting the sampling of the wet gas stream as required. This report shall include a potential to emit (PTE) estimate using GRI-GlyCalc Version 3.0 or higher, incorporating the specific parameters measured as referenced in section 6.2.2. as well as a copy of the laboratory analysis.
- 6.5.2. If the results of the compliance determination conducted as required in Section 6.3 predict the emission(s) to be greater than 9.4 tons per year for any single HAP, or a combined total of HAPs greater than 24.4 tons per year, the permittee shall submit such determination and all supporting documentation to the Director within 15 days after making such determination.

7.0. Source-Specific Hazardous Air Pollutant Requirements (Natural Gas Dehydration Flash Tank being controlled by Recycling the Flash Tank Back to Flame Zone of Reboiler)

7.1. Limitations and Standards

7.1.1. Maximum emissions from the TEG Dehydrator Flash Tank (010) controlled by a recycling the flash tank back to the flame zone of the reboiler shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (ton/year)
Volatile Organic Compounds	0.11	0.48

7.1.2. For purposes of determining potential HAP emissions at production-related facilities, the methods specified in 40 CFR 63, Subpart HH (i.e. excluding compressor engines from HAP PTE) shall be used.

7.1.3. Recycled reboilers shall be designed and operated in accordance with the following:

- a. The vapors/overheads from the flash tank 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.

7.2. Monitoring Requirements

7.2.1. The permittee shall monitor the throughput of wet natural gas fed to the dehydration system on a monthly basis for the glycol dehydration unit.

8.0. Source-Specific Requirements (40CFR60 Subpart JJJJ Requirements, Generac Emergency Generator (014))

8.1. Limitations and Standards

- 8.1.1. 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. *Reserved;*
 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)]
- 8.1.2. The provisions of this subpart are not applicable to stationary SI ICE being tested at an engine test cell/stand. [40CFR§60.4230(b)]
- 8.1.3. 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)]
- 8.1.4. 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)]
- 8.1.5. 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)]

8.2. Emission Standards for Owners and Operators

- 8.2.1. 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)]
- 8.2.2. 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]

8.3. Other Requirements for Owners and Operators

- 8.3.1. 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)]**
- 8.3.2. 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)]**
- 8.3.3. 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)]**
- 8.3.4. 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)]**

8.4. Compliance Requirements for Owners and Operators

- 8.4.1. 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)]**
- 8.4.2. 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(c)]**
- 8.4.3. 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)]

- 8.4.4. 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)]

8.5. Testing Requirements for Owners and Operators

- 8.5.1. Owners and operators of stationary SI ICE who conduct performance tests must follow the procedures in paragraphs (a) through (f) of this section.
- a. Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in §60.8 and under the specific conditions that are specified by Table 2 to this subpart. [40CFR§60.4244(a)]
 - b. You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c). If your stationary SI internal combustion engine is non-operational, you do not need to startup the engine solely to conduct a performance test; however, you must conduct the performance test immediately upon startup of the engine. [40CFR§60.4244(b)]
 - c. You must conduct three separate test runs for each performance test required in this section, as specified in §60.8(f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour. [40CFR§60.4244(c)]
 - d. To determine compliance with the NO_x mass per unit output emission limitation, convert the concentration of NO_x in the engine exhaust using Equation 1 of this section:

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

Where:

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

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

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

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

T = Time of test run, in hours.

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

[40CFR§60.4244(d)]

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

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

Where:

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

C_a = 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:

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

Where:

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

C_a = VOC concentration measured as propane in ppmv.

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

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

T = Time of test run, in hours.

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

[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_M = 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)]

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

8.6.1. 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. *Reserved;*

c. *Reserved;*

- 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)]

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9.0. Source-Specific Requirements (40CFR60 Subpart OOOO Requirements, Generac Emergency Generator (014))

9.1. Limitations and Standards

- 9.1.1. You must comply with the standards in paragraphs (a) through (d) of this section for each reciprocating compressor affected facility.
- (a) You must replace the reciprocating compressor rod packing according to either paragraph (a)(1) or (2) of this section or you must comply with paragraph (a)(3) of this section.
 - (1) Before the compressor has operated for 26,000 hours. The number of hours of operation must be continuously monitored beginning upon initial startup of your reciprocating compressor affected facility, or October 15, 2012, or the date of the most recent reciprocating compressor rod packing replacement, whichever is later.
 - (2) Prior to 36 months from the date of the most recent rod packing replacement, or 36 months from the date of startup for a new reciprocating compressor for which the rod packing has not yet been replaced.
 - (3) Collect the emissions from the rod packing using a rod packing emissions collection system which operates under negative pressure and route the rod packing emissions to a process through a closed vent system that meets the requirements of §60.5411(a).
 - (b) You must demonstrate initial compliance with standards that apply to reciprocating compressor affected facilities as required by §60.5410.
 - (c) You must demonstrate continuous compliance with standards that apply to reciprocating compressor affected facilities as required by §60.5415.
 - (d) You must perform the required notification, recordkeeping, and reporting as required by §60.5420.

[40CFR§60.5385, Reciprocating Compressor Engines]

9.2. Initial Compliance Demonstration

- 9.2.1. You must determine initial compliance with the standards for each affected facility using the requirements in paragraph (c) of this section. The initial compliance period begins on October 15, 2012 or upon initial startup, whichever is later, and ends no later than one year after the initial startup date for your affected facility or no later than one year after October 15, 2012. The initial compliance period may be less than one full year.
- (c) To achieve initial compliance with the standards for each reciprocating compressor affected facility you must comply with paragraphs (c)(1) through (4) of this section.
 - (1) If complying with §60.5385(a)(1) or (2), during the initial compliance period, you must continuously monitor the number of hours of operation or track the number of months since the last rod packing replacement.
 - (2) If complying with §60.5385(a)(3), you must operate the rod packing emissions collection system under negative pressure and route emissions to a process through a closed vent system that meets the requirements of §60.5411(a).

- (3) You must submit the initial annual report for your reciprocating compressor as required in §60.5420(b).
- (4) You must maintain the records as specified in §60.5420(c)(3) for each reciprocating compressor affected facility. **[40CFR§60.5410]**

9.3. Continuous Compliance Demonstration

- 9.3.1. For each reciprocating compressor affected facility, you must demonstrate continuous compliance according to paragraphs (1) through (3) of this section.
 - (1) You must continuously monitor the number of hours of operation for each reciprocating compressor affected facility or track the number of months since initial startup, or October 15, 2012, or the date of the most recent reciprocating compressor rod packing replacement, whichever is later.
 - (2) You must submit the annual report as required in § 60.5420(b) and maintain records as required in § 60.5420(c)(3).
 - (3) You must replace the reciprocating compressor rod packing before the total number of hours of operation reaches 26,000 hours or the number of months since the most recent rod packing replacement reaches 36 months. **[40CFR§60.5415]**

9.4. Notification, Recordkeeping and Reporting Requirements

- 9.4.1. You must submit the notifications required in § 60.7(a)(1) and (4), and according to paragraphs (a)(1) and (2) of this section, if you own or operate one or more of the affected facilities specified in § 60.5365 that was constructed, modified, or reconstructed during the reporting period.
- 9.4.2. Reporting requirements. You must submit annual reports containing the information specified in paragraphs (b)(4) of this section to the Administrator and performance test reports as specified in paragraph (b)(7) of this section. The initial annual report is due 30 days after the end of the initial compliance period as determined according to § 60.5410. Subsequent annual reports are due on the same date each year as the initial annual report. If you own or operate more than one affected facility, you may submit one report for multiple affected facilities provided the report contains all of the information required as specified in paragraphs (b)(1) through (6) of this section. Annual reports may coincide with title V reports as long as all the required elements of the annual report are included. You may arrange with the Administrator a common schedule on which reports required by this part may be submitted as long as the schedule does not extend the reporting period.
 - (1) The general information specified in paragraphs (b)(1)(i) through (iv) of this section.
 - (i) The company name and address of the affected facility.
 - (ii) An identification of each affected facility being included in the annual report.
 - (iii) Beginning and ending dates of the reporting period.
 - (iv) A certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(4) For each reciprocating compressor affected facility, the information specified in paragraphs (b)(4)(i) through (ii) of this section.

(i) The cumulative number of hours of operation or the number of months since initial startup, October 15, 2012, or since the previous reciprocating compressor rod packing replacement, whichever is later.

(ii) Records of deviations specified in paragraph (c)(3)(iii) of this section that occurred during the reporting period.

(7)(i) Within 60 days after the date of completing each performance test (see § 60.8 of this part) as required by this subpart you must submit the results of the performance tests required by this subpart to EPA's WebFIRE database by using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). Performance test data must be submitted in the file format generated through use of EPA's Electronic Reporting Tool (ERT) (see <http://www.epa.gov/ttn/chief/ert/index.html>). Only data collected using test methods on the ERT Web site are subject to this requirement for submitting reports electronically to WebFIRE. Owners or operators who claim that some of the information being submitted for performance tests is confidential business information (CBI) must submit a complete ERT file including information claimed to be CBI on a compact disk or other commonly used electronic storage media (including, but not limited to, flash drives) to EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT file with the CBI omitted must be submitted to EPA via CDX as described earlier in this paragraph. At the discretion of the delegated authority, you must also submit these reports, including the confidential business information, to the delegated authority in the format specified by the delegated authority.

(ii) All reports required by this subpart not subject to the requirements in paragraph (a)(2)(i) of this section must be sent to the Administrator at the appropriate address listed in § 63.13 of this part. The Administrator or the delegated authority may request a report in any form suitable for the specific case (e.g., by commonly used electronic media such as Excel spreadsheet, on CD or hard copy). The Administrator retains the right to require submittal of reports subject to paragraph (a)(2)(i) and (ii) of this section in paper format.
[40CFR§60.5420]

9.4.3. Recordkeeping requirements. You must maintain the records identified as specified in § 60.7(f) and in paragraph (c)(1) of this section. All records must be maintained for at least 5 years.

(3) For each reciprocating compressors affected facility, you must maintain the records in paragraphs (c)(3)(i) through (iii) of this section.

(i) Records of the cumulative number of hours of operation or number of months since initial startup or October 15, 2012, or the previous replacement of the reciprocating compressor rod packing, whichever is later.

(ii) Records of the date and time of each reciprocating compressor rod packing replacement.

(iii) Records of deviations in cases where the reciprocating compressor was not operated in compliance with the requirements specified in § 60.5385.

[40CFR§60.5420]

10.0. Source-Specific Requirements (40CFR63 Subpart ZZZZ Requirements, Generator Emergency Generator (014))

10.1. Limitations and Standards

- 10.1.1. The permittee must comply with the applicable operating limitations in this section no later than October 19, 2013.

[40 C.F.R. § 63.6595(a)]

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

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

11.0. Source-Specific Requirements (Reboiler (010))

11.1. Limitations and Standards

- 11.1.1. **Maximum Design Heat Input.** The maximum design heat input (MDHI) for the glycol dehydration reboiler shall not exceed 2.04 MMBTU/hr.
- 11.1.2. 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.]

11.2. Monitoring Requirements

- 11.2.1. 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 11.1.2. Method 9 shall be conducted in accordance with 40 CFR 60 Appendix A.

11.3. Testing Requirements

- 11.3.1. Compliance with the visible emission requirements of section 11.1.2 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 11.1.2. Continuous opacity monitors shall not be required on fuel burning units which employ wet scrubbing systems for emission control.
[45CSR§2-3.2.]

11.4. Recordkeeping Requirements

- 11.4.1. The permittee shall maintain records of all monitoring data required by Section 11.2.1 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.

11.5. Reporting Requirements

- 11.5.1. 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.

12.0. Source-Specific Requirements (Pipeline Liquids Tanks (T1, T2) and Pipeline Liquids Truck Loading (TL))

12.1. Limitations and Standards

- 12.1.1. The Pipeline Liquids Truck Loading (TL) shall be operated in accordance with the plans and specifications filed in Permit Application R13-2127G.
- 12.1.2. The maximum tank throughput (T1, T2) and quantity of pipeline liquids that shall be loaded (TL) shall not exceed 153,300 gallons per year. Compliance with this limit shall be demonstrated 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.

12.2. Recordkeeping Requirements

- 12.2.1. For the purpose of demonstrating compliance with section 12.1.2, the permittee shall maintain records of maximum tank throughput (T1, T2) and quantity of pipeline liquids loaded (TL) on a monthly basis.
- 12.2.2. All records required under Section 12.2 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.

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

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

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.

Williams, Jerry

From: Williams, Jerry
Sent: Tuesday, December 01, 2015 9:06 AM
To: randy.spencer@cabotog.com
Cc: McKeone, Beverly D; Jesse Hanshaw
Subject: WV DAQ NSR Permit Application Complete for Cranberry Pipeline Corporation - Bradley Compressor Station

**RE: Application Status: Complete
Cranberry Pipeline Corporation - Bradley Compressor Station
Permit Application R13-2127G
Plant ID No. 109-00017**

Mr. Spencer,

Your application for a modification permit for a natural gas compressor station was received by this Division on November 3, 2015 and assigned to the writer for review. Upon review of said application, it was determined that the application was incomplete and additional information was requested. The requested information has been received, therefore, the statutory review period commenced on December 1, 2015.

In the case of this application, the agency believes it will take approximately 90 days to make a final permit determination.

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 Jerry Williams at (304) 926-0499 ext. 1223 or reply to this email.

Jerry Williams, P.E.
Engineer
WVDEP – Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
(304) 926-0499 ext. 1223
jerry.williams@wv.gov



 Please consider the environment before printing this email.

NON-CONFIDENTIAL

Williams, Jerry

From: Jesse Hanshaw <jhanshaw@slrconsulting.com>
Sent: Monday, November 30, 2015 6:34 PM
To: Williams, Jerry
Cc: Nathaniel Lanham; Chris Boggess
Subject: FW: Cranberry- Bradley
Attachments: Attachment N_Bradley_Supporting Calculations_HAP UPDATE.xlsx; Certificate of Analysis_Bradley.pdf; Cabot Putnam B6 Pressurized Separator Sample Test Report_Highlighted.pdf

Jerry,

Thanks again for the opportunity to provide this additional information with respect to HAPs. I work with Mr. Boggess of our office to make sure the HAP quantities were added to the calculation spreadsheet and confirmed to be less than 0.01 tpy. In each case evaluated this was found to be true. Therefore, the additional citation and notes were added to the calculations to help justify these findings.

For these smaller throughput facilities like Cabot's Bradley Station their operating pressures and throughputs don't result in HAP levels that are quantifiable for permitting purposes. After you have a chance to review the attached documents and Chris' findings summary below please let me know if you have any remaining questions or comments. I'm looking forward to working with you again on this permit.

Thanks,
Jesse

Jesse Hanshaw
Principal Engineer
SLR International Corporation

Cell: 304-545-8563
Office: 681-205-8949
Email: jhanshaw@slrconsulting.com
8 Capitol Street Suite 300, Charleston, WV, 25301, United States

www.slrconsulting.com

ID # 109-00017
Reg 613-21276
Company Cranberry
Facility Berkeley Initials hw



Confidentiality Notice and Disclaimer

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From: Chris Boggess
Sent: November 30, 2015 5:54 PM
To: Jesse Hanshaw
Subject: RE: Cranberry- Bradley

NON-CONFIDENTIAL

Jerry,

In regards to the questions/concerns of HAP emissions from tanks T1 and T2, Truck Loading emissions and Fugitive emissions please refer to the attached spreadsheet and explanations below;

Tanks T1 and T2

- Included in the tanks tab of the calculations spreadsheet is a note detailing that HAP emissions were evaluated and found to be less than 0.01 tpy. These HAP emissions were evaluated during the Putnam B6 tank study which was designed to encompass flashing emissions. A pressurized liquid sample was taken and used as the input concentration to E&P Tanks to predict flashing/working/breathing emissions. The report has been included with this e-mail and the emissions for each individual HAP have been highlighted on pages 16 and 17 of the pdf. They were all found to be below 0.001 with the exception of n-Hexane which is identified as n-C6 in the table which barely registers at 0.004 tons/yr.

Fugitives

- On the fugitives tab of the spreadsheet, I have updated it to account for individual HAP emissions by multiplying the wt. % of the individual HAP by the total amount of gas vented from all points in gas service. I have also included the gas analysis to support the wt.% for each HAP.

Truck Loading

- AP-42 Loading Emissions in Section 5.2 are based on the vapor pressure of the liquid as a whole as well as the total gas molecular weight inputs. Therefore, this method of calculating loading losses assumes every component that exerts a vapor pressure to be a VOC and does not speciate individual components, but assumes all volatiles are VOCs. As a result, AP-42 methods focus on VOC totals rather than individual HAPs. However, it is believed that due to the relatively low VOC total of 0.21 tpy any HAPs that would be present within the liquid being transferred would be below quantification limits.

If you have any further questions or concerns feel free to contact me at your convenience

Thanks

Have a great evening

Chris

Chris Boggess

Associate Engineer
SLR International Corporation

Office: 681-205-8949

Email: cboggess@slrconsulting.com

8 Capitol Street Suite 300, Charleston, WV, 25301, United States

From: Jesse Hanshaw

Sent: November 30, 2015 2:37 PM

To: Chris Boggess

Subject: FW: Cranberry- Bradley

FYI

Jesse Hanshaw
Principal Engineer
SLR International Corporation

Cell: 304-545-8563
Office: 681-205-8949
Email: jhanshaw@slrconsulting.com
8 Capitol Street Suite 300, Charleston, WV, 25301, United States

From: Williams, Jerry [<mailto:Jerry.Williams@wv.gov>]
Sent: November 30, 2015 10:07 AM
To: Jesse Hanshaw
Subject: Cranberry- Bradley

Jesse,

I still need you to address the HAP emissions from tanks T1 and T2, truck loading and fugitive emissions that we discussed on November 20, 2015. I plan to send the complete/incomplete letter tomorrow.

Thanks,
Jerry

Jerry Williams, P.E.
Engineer
WVDEP – Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
(304) 926-0499 ext. 1223
jerry.williams@wv.gov



 Please consider the environment before printing this email.

**Table 4. Fugitive Leak Emissions
Cranberry Pipeline Corporation - Bradley Station**

Pollutant	Emission Factor	PTE ^(a) Gas Service (tons/yr)
Valves	9.9E-03 lb/hr/source (1)	21.72
Low Bleed Pneumatic Valves	9.9E-03 lb/hr/source (1)	4.34
Flanges	8.6E-04 lb/hr/source (1)	4.52
Connector	4.4E-04 lb/hr/source (1)	2.32
Other Points in Gas Service	1.9E-02 lb/hr/source (1)	37.46
Total Gas Released	-	70.36
Total VOC Released (gas service)	(b)	2.81

Total Benzene Released (gas service)	(3)	0.001
Total Toluene Released (gas service)	(3)	0.001
Total Ethylbenzene Released (gas service)	(3)	0.001
Total Xylene Released (gas service)	(3)	0.007

Calculations:

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

(b) Gas sample from Bradley gas analysis as worst case at 4 wt % VOC

Number of Components in Gas Service

Valves=	500	(2)
Low Bleed Pneumatic Valves=	100	(2)
Connectors=	1,200	(2)
Other Points in Gas Service =	200	(2)
 Maximum Hour of Operation =	 8,760	

(1) Emission factors from 1995 EPA Protocol for Equipment Leak Emission Estimates, Table 2-4 Oil and Gas Production

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

(3) Wt % for individual HAP taken from Bradley Station gas analysis performed by Southern Petroleum Laboratories 02/14

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

**Table 2. Tank Emissions
Cranberry Pipeline Corporation - Bradley Station**

Emission Unit	Tank Contents	Control Devices	Tank Throughput (bbbls/day)	Flashing/Working/Breathing Em. Factor (lbs/bbl)	VOC Emissions (lbs/day)	VOC Emissions (lb/hr)	VOC Emissions (tons/yr)
T1	PPL/Waste	None	5	0.350	1.75	0.07	0.32
T2	PPL/Waste	None	5	0.350	1.75	0.07	0.32

Notes:

* This tank is filled by the liquids captured from the dehy and compressor suction pots.

** Based on Putnam B-6 Tank Study, Total HAP emissions were found to be less than 0.01 tons per year. The highest emissions from any individual HAP was from n-Hexane where emissions were 0.004 tons per year

Calculations:

Notes:

(1) Flashing/Working/Breathing losses calculated from pressurized liquid sample taken by FESCO and modeled using E+P Tanks 2.0. The sample was taken from the Putnam B6 site on 4-25-13 and is assumed to be representative

**Table 3. TEG Dehydration Unit (001-0A)
Cranberry Pipeline Corporation - Bradley Station**

Stream	Uncontrolled Emission Rates		
	lb/hr	lb/d	tpy
Methane	7.172	172.121	31.412
Ethane	0.936	22.460	4.099
Propane	0.293	7.041	1.285
n-Hexane	0.135	3.233	0.590
Benzene	0.323	7.748	1.414
Toluene	0.556	13.353	2.437
Ethylbenzene	0.844	20.258	3.697
Xylene	1.125	26.997	4.927
VOC	9.927	238.241	43.479
Total HAPs	2.983	71.584	13.064
CO2e	179.292	4303.014	785.300

Uncontrolled Emission Rates (20% Buffer) Accounts for gas variability in the future	
lb/hr	tpy
8.606	37.694
1.123	4.919
0.352	1.542
0.162	0.708
0.387	1.697
0.668	2.924
1.013	4.436
1.350	5.912
11.912	52.175
3.579	15.678

Emission estimates were calculated using GRI-GlyCalc Software. The aggregate emissions report is provided within supporting attachments.

- Specs
- 30 MMscf/d
 - 5.0 gpm TEG max pump rate
 - Column Pressure 778.77 psig
 - Column Temperature 95.18 F
 - Wet gas water content - Saturated
 - Dry gas water content - 7 lb H2O/ MMscf
 - Flash Tank Temperature 60 F
 - Flash Tank Pressure 70 psig

**Table 5. Truck Loading (TL) VOC Emissions
Cranberry Pipeline Corporation - Bradley Station**

Contents	Volume Transferred ³	Loading Loss ^(a) (lb VOC/1000gal)	PTE VOC Emissions (lb/hr)	PTE VOC Emissions (ton/yr) ^(b)
Pipeline Liquids	153,300 gal/yr	3.659	0.064	0.210
Total			0.064	0.210

Calculations:

(a) Loading Loss (lbs/1000 gal) = $12.46 \times [\text{Saturation Factor}] \times [\text{True Vapor Pressure of Liquid Loaded (psia)}] \times [\text{Molecular Weight of Vapors (lbs/lbmole)}] / [\text{Temperature of Bulk Liquid Loaded (}^\circ\text{R)}]$

(b) Annual Emissions(tons/yr) = $[\text{Loading Loss (lb VOC/ 1000 gal)}] \times [\text{Volume Transferred(gal/yr)}] / 1000 / 2000$

<u>Pipeline liquids</u>	
Saturation factor	0.60 Note (1)
Pvap (psia)	7.70 Note (2)
Molecular Weight Vap (lb/lbmol)	33.37 Note (2)
Bulk Liquid Temperature (F)	65.00 Note (2)

Notes:

- (1) AP-42 Section 5.2
- (2) Putnam B6 Compressor Station Pressurized Separator Sampling and Emission Estimation Report, August 2013
- (3) Annual rates based on maximum throughput of 5 bbbls/d



Certificate of Analysis
 Number: 1030-14020751-003A

Houston Laboratories
 8820 Interchange Drive
 Houston, TX 77054
 Phone 713-660-0901

Nathaniel Lanham
 SLR- International
 900 Lee St. E Suite 0500
 Huntington Square
 Charleston, WV 25301

Feb. 27, 2014

Station Name: Bradley
 Method: GPA 2286
 Cylinder No: Glasgow102
 Analyzed: 02/27/2014 07:59:32 by JD

Sampled By: ES
 Sample Of: Gas Spot
 Sample Date: 02/12/2014
 Sample Conditions: 765 psig

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia		
Nitrogen	0.926	1.554		GPM TOTAL C2+	0.694
Carbon Dioxide	0.232	0.612		GPM TOTAL C3+	0.146
Methane	96.324	92.583		GPM TOTAL iC5+	0.038
Ethane	2.051	3.695	0.548		
Propane	0.268	0.708	0.074		
Iso-butane	0.044	0.153	0.014		
n-Butane	0.065	0.226	0.020		
Iso-pentane	0.027	0.117	0.010		
n-Pentane	0.017	0.073	0.006		
Hexanes Plus	0.046	0.279	0.022		
	100.000	100.000	0.694		

Physical Properties	Total	C6+
Relative Density Real Gas	0.5773	3.4959
Calculated Molecular Weight	16.69	101.25
Compressibility Factor	0.9979	
GPA 2172-09 Calculation:		
Calculated Gross BTU per ft³ @ 14.696 psia & 60°F		
Real Gas Dry BTU	1026	5474
Water Sat. Gas Base BTU	1008	5379

Comments: H2O Mol% : 1.744 ; Wt% : 1.880

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.



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 Number: 1030-14020751-003A

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Station Name: Bradley
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Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia	
Nitrogen	0.926	1.554	GPM TOTAL C2+ 0.694	
Carbon Dioxide	0.232	0.612	GPM TOTAL C3+ 0.146	
Hydrogen Sulfide	NIL	NIL	GPM TOTAL iC5+ 0.038	
Methane	96.324	92.583		
Ethane	2.051	3.695	0.548	
Propane	0.268	0.708	0.074	
Iso-Butane	0.044	0.153	0.014	
n-Butane	0.065	0.226	0.020	
Iso-Pentane	0.027	0.117	0.010	
n-Pentane	0.017	0.073	0.006	
Hexanes	0.019	0.077	0.006	
Heptanes Plus	0.027	0.202	0.016	
	100.000	100.000	0.694	

Physical Properties	Total	C7+
Relative Density Real Gas	0.5773	3.7555
Calculated Molecular Weight	16.69	108.77
Compressibility Factor	0.9979	
GPA 2172-09 Calculation:		
Calculated Gross BTU per ft ³ @ 14.696 psia & 60°F		
Real Gas Dry BTU	1026	5841
Water Sat. Gas Base BTU	1008	5740
Comments: H2O Mol% : 1.744 ; Wt% : 1.880		

Hydrocarbon Laboratory Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.



Certificate of Analysis
 Number: 1030-14020751-003A

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 Phone 713-660-0901

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 900 Lee St. E Suite 0500
 Huntington Square
 Charleston, WV 25301

Feb. 27, 2014

Station Name: Bradley
 Method: GPA 2286
 Cylinder No: Glasgow102
 Analyzed: 02/27/2014 07:59:32 by JD

Sampled By: ES
 Sample Of: Gas Spot
 Sample Date: 02/12/2014
 Sample Conditions: 765 psig

Analytical Data

Components	Mol. %	Wt. %	GPM at 14.696 psia	
Nitrogen	0.926	1.554		
Methane	96.324	92.583		
Carbon Dioxide	0.232	0.612		
Hydrogen Sulfide	NIL	NIL		
Ethane	2.051	3.695	0.548	
Propane	0.268	0.708	0.074	
Iso-Butane	0.044	0.153	0.014	
n-Butane	0.065	0.226	0.020	
Iso-Pentane	0.027	0.117	0.010	
n-Pentane	0.017	0.073	0.006	
i-Hexanes	0.013	0.052	0.004	
n-Hexane	0.006	0.025	0.002	
Benzene	NIL	NIL	NIL	
Cyclohexane	0.002	0.008	0.001	
i-Heptanes	0.007	0.051	0.004	
n-Heptane	0.004	0.017	0.001	
Toluene	NIL	NIL	NIL	
i-Octanes	0.007	0.058	0.004	
n-Octane	0.002	0.011	0.001	
Ethylbenzene	NIL	NIL	NIL	
Xylenes	0.002	0.010	0.001	
i-Nonanes	0.001	0.023	0.002	
n-Nonane	0.001	0.009	0.001	
i-Decanes	0.001	0.015	0.001	
n-Decane	NIL	NIL	NIL	
Undecanes	NIL	NIL	NIL	
Dodecanes	NIL	NIL	NIL	
Tridecanes	NIL	NIL	NIL	
Tetradecanes Plus	NIL	NIL	NIL	
	<u>100.000</u>	<u>100.000</u>	<u>0.694</u>	
				GPM TOTAL C2+ 0.694



Certificate of Analysis

Number: 1030-14020751-003A

Houston Laboratories
8820 Interchange Drive
Houston, TX 77054
Phone 713-660-0901

Nathaniel Lanham
SLR- International
900 Lee St. E Suite 0500
Huntington Square
Charleston, WV 25301

Feb. 27, 2014

Station Name: Bradley
Method: GPA 2286
Cylinder No: Glasgow102
Analyzed: 02/27/2014 07:59:32 by JD

Sampled By: ES
Sample Of: Gas Spot
Sample Date: 02/12/2014
Sample Conditions: 765 psig

Physical Properties	Total
Calculated Molecular Weight	16.691
GPA 2172-09 Calculation:	
Calculated Gross BTU per ft ³ @ 14.696 psia & 60°F	
Real Gas Dry BTU	1025.9
Water Sat. Gas Base BTU	1008
Relative Density Real Gas	0.5773
Compressibility Factor	0.9979

Hydrocarbon Laboratory Manager

Quality Assurance:

The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.



global environmental solutions

Putnam B6 Compressor Station
Cranberry Pipeline Corporation
Glasgow District, West Virginia

Pressurized Separator Sampling and Emissions Estimation
Report

SLR Ref: 116.00400.00064

August 2013



Pressurized Separator Sampling and Emissions Estimation Report

Prepared for:

**Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East
Suite 1500
Charleston, West Virginia 25301**

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

Nathaniel Lanham
Senior Environmental Specialist

Fuad Wadud, P.E.
Senior Engineer

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1. INTRODUCTION.....	1
1.1 Applicability and Designation of Affected Source	1
1.2 Sample Collection & Analysis Frequency.....	1
2. PARAMETERS	3
3. CALCULATION OF EMISSIONS.....	4
4. COMPARISON TO EMISSION LIMIT AND THRESHOLD.....	5

TABLES

Table 3.1	Actual Emissions for Drip Tank T-01
Table 4.1	VOC Comparison

Appendix A	GPA Method 2286 Laboratory Results
Appendix B	Operational data and Supporting documents
Appendix C	E&P TANK Version 3.0 Emission Estimate

1. INTRODUCTION

On April 25, 2013 SLR International Corporation (SLR) oversaw Fesco Petroleum Engineers (Fesco) perform pressurized tank sampling per GPA-2186 methodology at Putnam B6 to collect samples which could be analyzed to estimate emissions for Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs) being emitted from liquid hydrocarbon storage vessels. The analysis of information gathered was performed by Fesco per GPA Method 2286-95. Liquid hydrocarbon samples are taken from the last pressurized vessel prior to atmospheric storage vessels to determine the concentrations of dissolved volatile gases which will flash off the liquid and be emitted from the hydrocarbon storage vessel. The storage vessel's emissions are estimated using the American Petroleum Institute model E&P TANK 3.0, which incorporates specific input parameters for storage vessels and pressurized liquid analysis results. This report provides a summary that demonstrates compliance or applicability with 40 CFR 60 Subpart OOOO.

1.1 APPLICABILITY AND DESIGNATION OF AFFECTED SOURCE

A pressurized liquid sample was taken from the Pre-Dehy Separator (SP-1) to model flash emissions from Drip Tank (T-01) at Putnam B6 Compressor Station for determination of emissions under 40 CFR 60 Subpart OOOO.

40 CFR 60 Subpart OOOO

New, re-constructed, and/or modified hydrocarbon storage vessels installed after August 23, 2011 at oil and natural gas production, natural gas processing, or natural gas transmission and storage facilities, with actual emissions of 6 tons per year (tpy) or greater of VOC emissions, are subject to the Subpart OOOO, *Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution*.

Drip Tank T-01 was installed before the applicability date of this regulation. However, this tank was pre-selected to evaluate the VOC emissions and compare the emissions with the applicability threshold. The standard of storage vessel applicable to this subpart is provided below.

40CFR§6.5395(a)(1) and (2)

For each storage vessel affected facility emitting more than 6 tpy VOC, you must reduce emissions by 95 percent or greater.

1.2 SAMPLE COLLECTION & ANALYSIS FREQUENCY

The pressurized hydrocarbon liquid sample was taken from Pre-Dehy Separator (SP-1) on April 25, 2013 by Fesco. Nathaniel Lanham from SLR oversaw the sample collection. The sample lab analysis report provided by Fesco is included in Appendix A.

The West Virginia Department of Environment Protection (WVDEP) – Division of Air Quality (DAQ) defines a representative pressurized separator sample to be one that is characteristic of the average liquid composition found in the annual throughput. If an isolated sample is not indicative of the annual average composition, then a company may opt to produce a weighted average based on throughput between multiple sampling events, which can be used to define a more representative average annual liquid composition profile.

For Drip Tank (T-01) at Putnam B6 Compressor Station, a one-time sample collection and modeling determination is sufficient for the tank emission modeling because the hydrocarbon production stream parameters do not vary greatly on a short-term basis. Re-analysis would be recommended should there be a major event which may change the characterization of the production stream.

2. PARAMETERS

The following input parameters were obtained from the Fesco laboratory report and used in the E&P TANK model run:

1. Days of operation per year; 365
2. Separator temperature; 60.00 °F
3. Separator pressure; 28.00 PSIG
4. Ambient temperature; 70.00 °F
5. Ambient pressure; 14.65 PSIG
6. API Gravity of Sample; 33.29
7. Bulk Tank Temperature; 60.00 °F
8. No control device

The following input parameters were provided by Cabot Oil & Gas Corporation:

- Worst Case Production Rate of Tank Volume/Throughput; 5.0 Barrels per day

Supporting documentation provided by Cabot Oil & Gas Corporation is included in Appendix B.

The following default assumptions were made:

- Reid Vapor Pressure is 7.70 psia

3. CALCULATION OF EMISSIONS

Emissions from the Putnam B6 Compressor Station were derived using a software based program called E&P TANK 3.0. The parameters outlined in Section 2 along with laboratory results from the separator sample taken on April 25, 2013 are entered into the program and the software calculates the estimated flash gas emission rates. The E&P TANK output file for the Drip Tank (T0-1) is included in Appendix C.

Listed below, in Table 3.1, are actual emissions as calculated by E&P TANK 3.0.

Table 3.1. Actual Emissions for Drip Tank T0-1

POLLUTANT	EMISSION RATE (LB/HR)	EMISSION RATE (TPY)
VOC	0.194	0.852
Benzene	0.000	0.000
Hexane	0.001	0.004
Toluene	0.000	0.000
Xylenes	0.000	0.000
Ethylbenzene	0.000	0.000
Total HAPs	0.000	0.000

4. COMPARISON TO EMISSION LIMIT AND THRESHOLD

The attached E&P TANK 3.0 Report was calculated using recorded and client-supplied operating parameters. Tank T-01 does not emit VOCs equal to or in excess of 6TPY; therefore, 40CFR 60 Subpart OOOO does not apply to this hydrocarbon liquid vessel. The following table, Table 4.1, shows the comparison of generated VOCs to the VOC threshold as defined in 40 CFR 60.5415. The generated rate falls within the designated threshold.

Table 4.1. VOC Emissions Comparison

POLLUTANT	EMISSION RATE (TPY)	EMISSION THRESHOLD (TPY)
VOC	0.852	6.0

APPENDIX A

GPA METHOD 2286 LABORATORY RESULTS

**Pressurized Separator Sampling and Emissions Estimation
Report**

**Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East
Suite 1500
Charleston, West Virginia 25301**

August 2013

May 22, 2013

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

For: SLR International Corporation
900 Lee Street, Suite 200
Charleston, West Virginia 25301

Sample: Cabot Oil & Gas - Puttman B6
Separator Hydrocarbon Liquid
Sampled @ 28 psig & 60 °F

Date Sampled: 04/25/13

Job Number: 33213.002

CHROMATOGRAPH EXTENDED ANALYSIS - GPA 2186-M

COMPONENT	MOL %	LIQ VOL %	WT %
Nitrogen	0.019	0.002	0.002
Carbon Dioxide	0.044	0.007	0.007
Methane	1.228	0.194	0.068
Ethane	1.343	0.335	0.139
Propane	1.724	0.443	0.262
Isobutane	0.292	0.089	0.058
n-Butane	1.395	0.410	0.279
2,2 Dimethylpropane	0.048	0.017	0.012
Isopentane	0.610	0.208	0.151
n-Pentane	0.932	0.315	0.231
2,2 Dimethylbutane	0.012	0.005	0.003
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.120	0.046	0.036
2 Methylpentane	0.457	0.177	0.136
3 Methylpentane	0.283	0.108	0.084
n-Hexane	0.940	0.360	0.279
Heptanes Plus	<u>90.554</u>	<u>97.285</u>	<u>98.254</u>
Totals:	100.000	100.000	100.000

Characteristics of Heptanes Plus:

Specific Gravity ----- 0.8672 (Water=1)
°API Gravity ----- 31.66 @ 60°F
Molecular Weight ----- 315.3
Vapor Volume ----- 8.73 CF/Gal
Weight ----- 7.23 Lbs/Gal

Characteristics of Total Sample:

Specific Gravity ----- 0.8587 (Water=1)
°API Gravity ----- 33.29 @ 60°F
Molecular Weight ----- 290.6
Vapor Volume ----- 9.38 CF/Gal
Weight ----- 7.15 Lbs/Gal

Base Conditions: 14.650 PSI & 60 °F

Certified: FESCO, Ltd. - Alice, Texas

Analyst: JCM
Processor: Aldjv
Cylinder ID: W-1109

David Dannhaus 361-661-7015

TOTAL EXTENDED REPORT

COMPONENT	Mol %	LiqVol %	Wt %
Nitrogen	0.019	0.002	0.002
Carbon Dioxide	0.044	0.007	0.007
Methane	1.228	0.194	0.068
Ethane	1.343	0.335	0.139
Propane	1.724	0.443	0.262
Isobutane	0.292	0.089	0.058
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2,2 Dimethylbutane	0.012	0.005	0.003
Cyclopentane	0.000	0.000	0.000
2,3 Dimethylbutane	0.120	0.046	0.036
2 Methylpentane	0.457	0.177	0.136
3 Methylpentane	0.283	0.108	0.084
n-Hexane	0.940	0.360	0.279
Methylcyclopentane	0.528	0.174	0.153
Benzene	0.054	0.014	0.015
Cyclohexane	0.519	0.165	0.150
2-Methylhexane	0.418	0.181	0.144
3-Methylhexane	0.379	0.162	0.131
2,2,4 Trimethylpentane	0.000	0.000	0.000
Other C-7's	0.550	0.226	0.188
n-Heptane	1.093	0.470	0.377
Methylcyclohexane	1.528	0.573	0.516
Toluene	0.251	0.079	0.080
Other C-8's	2.887	1.279	1.095
n-Octane	1.425	0.681	0.560
E-Benzene	0.220	0.079	0.080
M & P Xylenes	0.586	0.212	0.214
O-Xylene	0.471	0.167	0.172
Other C-9's	2.953	1.461	1.283
n-Nonane	1.635	0.858	0.722
Other C-10's	4.741	2.578	2.305
n-decane	1.254	0.718	0.614
Undecanes(11)	5.356	2.989	2.710
Dodecanes(12)	5.045	3.041	2.795
Tridecanes(13)	4.918	3.178	2.962
Tetradecanes(14)	4.334	3.000	2.834
Pentadecanes(15)	3.784	2.806	2.682
Hexadecanes(16)	3.075	2.437	2.350
Heptadecanes(17)	2.764	2.316	2.254
Octadecanes(18)	2.683	2.367	2.317
Nonadecanes(19)	2.474	2.274	2.239
Eicosanes(20)	2.166	2.069	2.050
Heneicosanes(21)	1.881	1.891	1.884
Docosanes(22)	1.954	2.047	2.051
Tricosanes(23)	1.593	1.729	1.743
Tetracosanes(24)	1.905	2.143	2.170
Pentacosanes(25)	1.406	1.641	1.669
Hexacosanes(26)	1.487	1.799	1.838
Heptacosanes(27)	1.631	2.046	2.099
Octacosanes(28)	1.481	1.920	1.977
Nonacosanes(29)	1.181	1.581	1.634
Triacosanes(30)	1.004	1.386	1.437
Hentriacontanes Plus(31+)	<u>16.940</u>	<u>42.546</u>	<u>45.761</u>
Total	100.000	100.000	100.000

Cabot Oil & Gas - Poca Coal No. 6 Condensate Tank -T-001.

Component	Carbon Numer	Results (Mol%)	Inputs to E&P Tanks
CO2		0.0440	0.0440
O2		0.0000	0.0000
H2S		0.0000	0.0000
Nitrogen		0.0190	0.0190
Methane	C1	1.2280	1.2280
Ethane	C2	1.3430	1.3430
Propane	C3	1.7240	1.7240
Iso-Butane	C4H10	0.2920	0.2920
n-Butane	C4H10	1.3950	1.3950
Iso-Pentane	C5H12	0.6100	0.6100
n-Pentane	C5H12	0.9320	0.9320
n-Hexane	C6H14	0.9400	0.9400
Cyclohexane	C6H12	0.5190	1.9190
Hexanes	C6H14	1.4000	
Heptanes	C7H16	2.4400	3.9680
Methylcyclohexane	C7H14	1.5280	
2,2,4- Trimethylpentane	C8H18	0.0000	0.0000
Benzene	C6H6	0.0540	0.0540
Toluene	C7H8	0.2510	0.2510
Ethylbenzene	C8H10	0.2290	0.2290
Xylenes (listed below)	C8H10	1.0570	1.0570
m/p- Xylene	C8H10	0.5860	
o- Xylene	C8H10	0.4710	
C8 Heavies (listed below)		4.3120	4.3120
Octanes	C8H18	1.4250	
Other C-8's	C8	2.8870	
C9 Heavies (listed below)		4.5880	4.5880
Nonanes		1.6350	
Other C-9's	C9	2.9530	
Sum Total (C1 through C9)		24.8960	
All Other components	C+10	75.1040	75.1040
TOTAL		100.0000	100.0000

Hexanes	Liq. Vol/ %
2, 2 Dimethylbutane	0.012
2, 3 Dimethylbutane	0.12
2 Methylpentane	0.457
3 Methylpentane	0.283
Methylcyclopentane	0.528

Heptanes	Liq. Vol/ %
2-methylhexane	0.418
3-methylhexane	0.379
n-Heptane	1.093
Other C-7's	0.55

APPENDIX B

OPERATIONAL DATA AND SUPPORTING DOCUMENTS

(Tank throughput not provided)

Pressurized Separator Sampling and Emissions Estimation Report

**Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East
Suite 1500
Charleston, West Virginia 25301**

August 2013

APPENDIX C

E&P TANKS VERSION 3.0 EMISSION ESTIMATE

Pressurized Separator Sampling and Emissions Estimation Report

**Cranberry Pipeline Corporation
c/o Cabot Oil & Gas Corporation
900 Lee Street East
Suite 1500
Charleston, West Virginia 25301**

August 2013

Report

* Project Setup Information

*

Project File : N:\West Virginia\Cabot\Projects\2013\Testing
Sampling\Tank Sampling\April 2013\Poca Coal No. 6 4-25-13 - Tanks Sampling\APPENDIX
C - Poca Coal 6.ept
Flowsheet Selection : Oil Tank with Separator
Calculation Method : AP42
Control Efficiency : 100.0%
Known Separator Stream : Low Pressure Oil
Entering Air Composition : No

Date : 2013.07.23

* Data Input

*

Separator Pressure : 28.00[psig]
Separator Temperature : 60.00[F]
Ambient Pressure : 14.70[psia]
Ambient Temperature : 70.00[F]
C10+ SG : 0.8672
C10+ MW : 315.30

-- Low Pressure Oil

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.0440
4	N2	0.0190
5	C1	1.2280
6	C2	1.3430
7	C3	1.7240
8	i-C4	0.2920
9	n-C4	1.3950
10	i-C5	0.6100
11	n-C5	0.9800
12	C6	1.9190
13	C7	3.9680
14	C8	4.3120
15	C9	4.5880
16	C10+	75.0560
17	Benzene	0.0540
18	Toluene	0.2510
19	E-Benzene	0.2200
20	Xylenes	1.0570
21	n-C6	0.9400
22	224Trimethylp	0.0000

-- Sales Oil

Production Rate : 5[bb]/day
Days of Annual Operation : 365 [days/year]

Report

API Gravity : 33.29
 Reid Vapor Pressure : 7.70[psia]
 Bulk Temperature : 60.00[F]

-- Tank and Shell Data

Diameter : 6.00[ft]
 Shell Height : 11.50[ft]
 Cone Roof Slope : 0.06
 Average Liquid Height : 8.00[ft]
 Vent Pressure Range : 0.06[psi]
 Solar Absorbance : 0.17

-- Meteorological Data

City : Charleston, WV
 Page 1

E&P TANK

Ambient Pressure : 14.70[psia]
 Ambient Temperature : 70.00[F]
 Min Ambient Temperature : 44.00[F]
 Max Ambient Temperature : 65.50[F]
 Total Solar Insolation : 1123.00[Btu/ft^2*day]

 * Calculation Results
 *

-- Emission Summary

Item	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
Total HAPs	0.000	0.000
Total HC	0.717	0.164
VOCs, C2+	0.536	0.122
VOCs, C3+	0.316	0.072

Uncontrolled Recovery Info.

Vapor	52.5300 x1E-3	[MSCFD]
HC Vapor	51.5000 x1E-3	[MSCFD]
GOR	10.51	[SCF/bbl]

-- Emission Composition

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
1	H2S	0.000	0.000
2	O2	0.000	0.000
3	CO2	0.014	0.003
4	N2	0.005	0.001
5	C1	0.181	0.041
6	C2	0.220	0.050
7	C3	0.182	0.042
8	i-C4	0.018	0.004
9	n-C4	0.062	0.014
10	i-C5	0.013	0.003
11	n-C5	0.015	0.003
12	C6	0.009	0.002

Report

13	C7	0.007	0.002
14	C8	0.003	0.001
15	C9	0.001	0.000
16	C10+	0.000	0.000
17	Benzene	0.000	0.000
18	Toluene	0.000	0.000
19	E-Benzene	0.000	0.000
20	Xylenes	0.000	0.000
21	n-C6	0.004	0.001
22	224Trimethylp	0.000	0.000
	Total	0.734	0.168

-- Stream Data

No. Component	MW	LP oil	Flash Oil	Sale Oil	Flash Gas	W&S Gas
Total Emissions		mol %	mol %	mol %	mol %	mol %
mol %						
1 H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000						
2 O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000						
3 CO2	44.01	0.0440	0.0187	0.0123	1.1961	1.3910
1.2143						
4 N2	28.01	0.0190	0.0014	0.0000	0.8212	0.0005
0.7447						
5 C1	16.04	1.2280	0.2362	0.0545	46.3174	29.1183
44.7149						
6 C2	30.07	1.3430	0.7543	0.5963	28.1077	36.5488
28.8942						
7 C3	44.10	1.7240	1.4153	1.3282	15.7583	22.1847
16.3571						
8 i-C4	58.12	0.2920	0.2727	0.2671	1.1707	1.6499
1.2154						
9 n-C4	58.12	1.3950	1.3365	1.3192	4.0547	5.6824
4.2063						
10 i-C5	72.15	0.6100	0.6084	0.6075	0.6818	0.9360
0.7054						
11 n-C5	72.15	0.9800	0.9835	0.9837	0.8200	1.1143
0.8474						
12 C6	86.16	1.9190	1.9517	1.9589	0.4339	0.5689
0.4464						
13 C7	100.20	3.9680	4.0488	4.0671	0.2966	0.3757
0.3040						
14 C8	114.23	4.3120	4.4046	4.4258	0.1008	0.1231
0.1029						

Page 2

E&P TANK

15 C9	128.28	4.5880	4.6881	4.7110	0.0367	0.0433
0.0373						
16 C10+	315.30	75.0560	76.7069	77.0841	0.0000	0.0000
0.0000						
17 Benzene	78.11	0.0540	0.0550	0.0552	0.0091	0.0119
0.0094						
18 Toluene	92.13	0.2510	0.2563	0.2575	0.0118	0.0149
0.0121						
19 E-Benzene	106.17	0.2200	0.2248	0.2259	0.0034	0.0041
0.0034						
20 Xylenes	106.17	1.0570	1.0799	1.0852	0.0141	0.0170
0.0143						
21 n-C6	86.18	0.9400	0.9570	0.9608	0.1658	0.2153
0.1704						
22 224Trimethylp	114.24	0.0000	0.0000	0.0000	0.0000	0.0000

Report

0.0000

MW		258.27	263.32	263.94	28.70	33.06
29.10	Stream Mole Ratio	1.0000	0.9785	0.9763	0.0215	0.0022
0.0237	Heating Value [BTU/SCF]				1647.41	1890.56
1670.06	Gas Gravity [Gas/Air]				0.99	1.14
1.00	Bubble Pt. @ 100F [psia]	57.57	18.33	10.94		
	RVP @ 100F [psia]	65.45	37.28	30.77		
	Spec. Gravity @ 100F	0.721	0.722	0.722		



November 23, 2015

Jerry Williams
Permitting Engineer
WVDEP, Division of Air Quality
601 – 57th Street
Charleston, West Virginia 25304



Re: Rule 13 Permit Modification Application
Bradley Compressor Station – Facility I.D. 109-00017
Cranberry Pipeline Corporation

Dear Mr. Williams,

SLR International Corporation has attached the Class I Legal Advertisement original affidavit for the Bradley Rule 13 Permit Modification Application on behalf of Cranberry Pipeline Corporation.

The public notice was delivered to *The Independent Herald* for publication on 11-11-15. If any additional information is needed, please feel free to give me a call (304) 545-8563 or by e-mail at jhanshaw@slrconsulting.com.

Sincerely,
SLR International Corporation

Jesse Hanshaw, P.E.
Principal Engineer

Attachment: Published Legal Advertisement Affidavit

SLR International Corporation 8 Capitol Street, Suite 300, Terminal Building Charleston, WV 25301

T: (681) 205-8949 F: (681) 205-8969 www.slrconsulting.com
Offices throughout USA, UK, Ireland, Canada, Australia, Namibia, and South Africa

ID # 109-00017
Reg 213-21274
Company Cranberry Pipeline
Facility BRADLEY Initials JW

NON-CONFIDENTIAL

AFFIDAVIT OF PUBLICATION

I, Edward C. Martin, Publisher of the The Williamson Daily News (Mingo County), Logan Banner (Logan County), Coal Valley News (Boone County), Gilbert Times (Mingo County) and Independent Herald (Wyoming County) West Virginia, do hereby certify that the annexed notice was published in said paper for 1 successive time(s)

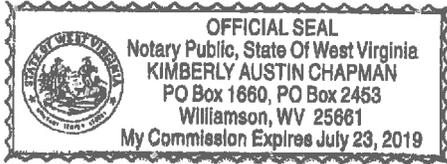
Independent Herald 11-11-15

Given under my hand this 15 day of November, 2015

Edward C. Martin

State of West Virginia
to-wit:

Subscribed and sworn before me this 15 day of November, 2015



Kimberly Austin Chapman

Notary Public for West Virginia

Cost of Publication \$ 44.20

Copy of Publication
See attached

AIR QUALITY PERMIT NOTICE

Notice of Application

Notice is given that Cranberry Pipeline Corporation has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Modification Permit for a Natural Gas Compression & Dehydration Station located on Brier Creek Rd. near Fanrock, in Wyoming County, West Virginia. The latitude and longitude coordinates are: 37.54616 and -81.63924.

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

Pollutant: VOCs, (tons/yr):
40.638

Pollutant: Benzene, (tons/yr):
0.767

Pollutant: Toluene, (tons/yr):
1.304

Pollutant: Ethylbenzene,
(tons/yr): 2.016

Pollutant: Xylene, (tons/yr):
2.552

Pollutant: n-Hexane, (tons/yr):
0.708

Modification of operation will take place upon issuance of permit. 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 11th day of
November, 2015.

By: Cranberry Pipeline Corporation
Randy Spencer
Safety and Environmental
Manager
900 Lee Street East, Suite
1500
Charleston, WV 25301

11:11

Williams, Jerry

From: Ward, Beth A
Sent: Wednesday, November 04, 2015 10:36 AM
To: Williams, Jerry
Subject: CRANBERRY PIPELINE CORPORATION PERMIT APPLICATION FEE

This is the receipt for payment received from:

CRANBERRY PIPELINE CORPORATION, BRADLEY STATION, CK# 2900221625, CK DATE 08/11/2015, \$3500.00
R13-2127G ID# 109-00017

OASIS Deposit CR 1600050583

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**

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Adkins, Sandra K

From: Adkins, Sandra K
Sent: Tuesday, November 03, 2015 3:47 PM
To: 'randy.spencer@cabotog.com'; 'Jesse Hanshaw'; 'nlanham@slrconsulting.com'
Cc: McKeone, Beverly D; Williams, Jerry
Subject: WV Permit Application Status for Cranberry Pipeline Corp; Bradley Station

**RE: Application Status
Cranberry Pipeline Corporation
Bradley Station
Plant ID No. 109-00017
Application No. R13-2127G**

Mr. Spencer,

Your application for a modification permit for the Bradley Station was received by this Division on November 3, 2015, and was assigned to Jerry Williams. The following item was not included in the initial application submittal:

Original affidavit for Class I legal advertisement not submitted.

**Please use telephone extension 1250 in future legal ads.*

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 Jerry 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, Jerry Williams, at 304-926-0499, extension 1223.

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