

Adkins, Sandra K

From: Adkins, Sandra K
Sent: Friday, October 21, 2016 4:32 PM
To: 'wentworth.paul@epa.gov'; 'bradley.megan@epa.gov'; 'kevin.hill@chk.com';
'northerndivisionairpermitting@chk.com'
Cc: Durham, William F; McKeone, Beverly D; McCumbers, Carrie; Hammonds, Stephanie E;
Williams, Jerry; Taylor, Danielle R
Subject: WV Draft Permit R13-3337 for Chesapeake Appalachia L.L.C.; Browns Creek Compressor
Station
Attachments: 3337.pdf; Eval3337.pdf; notice.pdf

Please find attached the Draft Permit R13-3337, Engineering Evaluation, and Public Notice for Chesapeake Appalachia, L.L.C.'s Browns Creek Compressor Station located in Kanawha County.

The notice will be published in *The Charleston Gazette-Mail* on Wednesday, October 26, 2016, and the thirty day comment period will end on Monday, November 28, 2016.

Should you have any questions or comments, please contact the permit writer, Jerry Williams, at 304 926-0499 x1223.

INTERNAL PERMITTING DOCUMENT TRACKING MANIFEST

Company Name Chesapeake Appalachia, LLC

Permitting Action Number R13-3337 Total Days 43 DAQ Days 18

Permitting Action:

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

Documents Attached:

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

Date	From	To	Action Requested
10/11/2016	Jerry <i>ON</i>	Bev	Please review and approve to go to notice.
<i>10/19</i>	<i>Bev</i>	<i>Jerry</i>	<i>Construction NOT modification</i>
<i>10/20</i>	<i>Jerry</i>	<i>SANDIE</i>	<i>Go to Notice</i>
			<i>APPROVED FOR NOTICE. THANKS JW</i>

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

Engineer	Jerry Williams, P.E.
Email Address	jerry.williams@wv.gov
Company Name	Chesapeake Appalachia, L.L.C.
Company ID	039-000215
Facility Name	Browns Creek Compressor Station
Permit Number	R13-3337
County	Kanawha
Newspaper	<i>The Charleston Gazette</i>
Company Email and "Attention To:"	Kevin Hill kevin.hill@chk.com
Environmental Contact Email Address	Melissa Hatfield Atkinson northerndivisionairpermitting@chk.com
Regional Office (if applicable)	NA
New or Modified Source?	new
Construction, Modification, or Relocation?	construction
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\Permit Applications Under Review\Chesapeake Appalachia\R13-3337 Browns Creek

AIR QUALITY PERMIT NOTICE

Notice of Intent to Approve

On August 29, 2016, Chesapeake Appalachia, L.L.C. applied to the WV Department of Environmental Protection, Division of Air Quality (DAQ) for a permit to construct a natural gas compressor facility located off of Browns Creek Road (Rt 1), St. Albans, Kanawha County, WV at latitude 38.38250 and longitude -81.90289. 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 R13-3337.

The following increase in potential emissions will be authorized by this permit action: Oxides of Nitrogen, 6.53 tons per year (TPY); Carbon Monoxide, 8.67 TPY; Volatile Organic Compounds, 6.41 TPY; Particulate Matter less than 10 microns, 0.09 tons per year (TPY); Sulfur Dioxide, 0.04 TPY; Formaldehyde, 0.13 TPY; Total Hazardous Air Pollutants, 0.34 TPY; Carbon Dioxide Equivalents, 938 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 construction 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.: R13-3337
Plant ID No.: 039-00215
Applicant: Chesapeake Appalachia, L.L.C. (CHK)
Facility Name: Browns Creek Compressor Station
Location: St. Albans, Kanawha County
NAICS Code: 211111 (Natural Gas Extraction)
Application Type: Construction
Received Date: August 29, 2016
Engineer Assigned: Jerry Williams, P.E.
Fee Amount: \$2,000
Date Received: August 29, 2016
Complete Date: September 23, 2016
Due Date: December 22, 2016
Applicant Ad Date: August 29, 2016
Newspaper: *Charleston Gazette Mail*
UTM's: Easting: 421.145 km Northing: 4,248.644 km Zone: 17
Latitude: 38.382526
Longitude: -81.902850
Description: Engine replacement.

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-3337:

The natural gas inlet stream from surrounding area wells enters the facility through a separator that separates the inlet stream into two (2) streams: natural gas and pipeline fluids (hydrocarbons/water). Inlet gas is compressed via a reciprocating compressor. After the inlet gas passes through the compressor, it goes through the dehydration process before exiting the facility via a sales pipeline.

A triethylene glycol (TEG) dehydration unit is used to remove water from the gas. The unit is comprised of both a glycol dehydrator skid and a glycol regeneration skid. In the dehydration process, gas passes through a contactor vessel where water is absorbed by the glycol. The “rich”

glycol containing water goes to the glycol reboiler where heat is used to remove the water and regenerate the glycol. The heat is supplied by a natural gas-fired reboiler that exhausts to the atmosphere. Overhead still column emissions from the glycol regeneration skid are emitted to the atmosphere.

Pipeline fluids are stored onsite in an atmospheric storage tank that vents to atmosphere and are transported offsite via truck. Fugitive emissions from component leaks also occur.

This permit application requests authorization to replace an existing natural gas-fired compressor engine with a like-kind reconstructed engine that is subject to NSPS Subpart JJJJ. Other emission sources at the facility, which is currently exempt from permitting requirements, consist of one (1) pipeline fluids tank, pipeline fluids loading, and fugitive emissions. The grandfathered TEG dehydration unit and reboiler will retain their “grandfathered” status.

SITE INSPECTION

A site inspection was conducted on May 14, 2015 by Todd Shrewsbury of the DAQ Enforcement Section. The facility was in compliance at that time.

Directions as given in the permit application are as follows:

From Rt. 60 (near top of Coal Mountain) between St. Albans and Hurricane, turn onto Browns Creek Road (Rt 1), stay on main road and travel approximately 1.3 miles to a right turn onto a gravel road. Then travel approximately 0.2 mile to compressor station on left.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this permitting action consist of the equipment listed in the following table. The following table indicates which methodology was used in the emissions determination:

Emission Unit ID#	Process Equipment	Calculation Methodology
EU-MC1648	225 hp Caterpillar G342 NA HCR engine w Non Selective Catalytic Reduction (NSCR)	Manufacturer’s Data, EPA AP-42 Emission Factors
EU-TK1	25 bbl Pipeline Fluids Storage Tank	E&P Tanks, TANKS 4.09d
EU-LOAD	10,080 gal/yr Pipeline Fluids Truck Loading	EPA AP-42 Emission Factors

The following table indicates the control device efficiencies that are associated with this permitting action:

Emission Unit	Pollutant	Control Device	Control Efficiency
EU-MC1648	Nitrogen Oxides	NSCR	76.74 %
	Carbon Monoxide		70.80 %
	Volatile Organic Compounds		44.44 %

The total non-fugitive facility PTE for the Browns Creek Compressor Station is shown in the following table:

Pollutant	R13-3337 PTE (tons/year)
Nitrogen Oxides	6.66
Carbon Monoxide	8.76
Volatile Organic Compounds	47.12
Particulate Matter-10/2.5	0.10
Sulfur Dioxide	0.04
Formaldehyde	0.13
Total HAPs	6.03
Carbon Dioxide Equivalent	1,075

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

Chesapeake Appalachia, L.L.C. – Browns Creek Compressor Station (R13-3337)

Emission Point ID#	Source	NO _x		CO		VOC		PM-10		SO ₂		Formaldehyde		Total HAPs		CO _{2e} 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	
EP-MCI648	CAT GB42 NA HCR RICE	1.49	6.53	1.98	8.67	0.50	2.19	0.02	0.09	0.01	0.04	0.03	0.13	0.05	0.22	871
EP-DEHY1*	TEG Dehydration Unit	0	0	0	0	9.58	41.94	0	0	0	0	0	0	1.30	5.73	64
EP-RBL1*	TEG Reboiler	0.03	0.13	0.02	0.09	0.01	0.04	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	128
EP-TK1	Pipeline Fluids Storage Tank	0	0	0	0	0.67	2.93	0	0	0	0	0	0	0.02	0.07	12
EP-LOAD	Pipeline Fluids Truck Loading	0	0	0	0	NA	0.02	0	0	0	0	0	0	NA	0.01	0
Total Point Source		1.52	6.66	2.00	8.76	10.76	47.12	0.02	0.10	0.01	0.04	0.03	0.13	1.37	6.03	1075
Fugitive	Component Leaks	0	0	0	0	0.29	1.27	0	0	0	0	0	0	0.01	0.06	54
Total Fugitive		0	0	0	0	0.29	1.27	0	0	0	0	0	0	0.01	0.06	54
Total Site wide		1.52	6.66	2.00	8.76	11.05	48.39	0.02	0.10	0.01	0.04	0.03	0.13	1.38	6.09	1129

* Grandfathered Equipment

REGULATORY APPLICABILITY

The following rules apply to this permitting action:

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)

A 45CSR13 construction permit applies to this source due to the fact that CHK exceeds the regulatory emission threshold for uncontrolled criteria pollutants increase of 6 lb/hr and 10 ton/year of volatile organic compounds and are subject to a substantive requirement of an emission control rule (40CFR60 Subpart JJJJ).

CHK paid the appropriate application fee and published the required legal advertisement for a construction permit application.

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to this source by reference of 40CFR60, Subpart JJJJ. These requirements are discussed under that rule below.

45CSR22 (Air Quality Management Fee Program)

CHK is not subject to 45CSR30. The Browns Creek facility is subject to 40CFR60 Subpart JJJJ, 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.

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

40CFR60 Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE))

40CFR60 Subpart JJJJ establishes emission standards for applicable SI ICE.

The 225 hp, four stroke rich burn natural gas fired Caterpillar engine was reconstructed after the June 12, 2006 effective date.

The 225 hp Caterpillar G342 NA HCR engine will be subject to the following emission limits under §60.4233(f) for reconstructed engines: NO_x – 3.0 g/hp-hr (1.49 lb/hr); CO – 4.0 g/hp-hr (1.98 lb/hr); and VOC – 1.0 g/hp-hr (0.50 lb/hr). Based on the manufacturer's specifications for this engines, the emission standards will be met.

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 unit at the Browns Creek Compressor Station is subject to the area source requirements for glycol dehydration units. However, because the facility is an area source of HAP emissions and the actual annual average flowrate of natural gas is less than 85 thousand standard cubic meters per day, it is exempt from all requirements of Subpart HH except to maintain records of actual average flowrate of natural gas to demonstrate a continuous exemption status.

40CFR63 Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines)

Subpart ZZZZ establishes national emission limitations and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations. The engine at the Browns Creek Compressor Station is subject to the area source requirements for non-emergency spark ignition engines.

The applicability requirements for reconstructed stationary RICEs located at an area source of HAPs, is the requirement to meet the standards of 40CFR60 Subpart JJJJ. These requirements were outlined above. The proposed engine meets these standards.

The following rules do not apply to this permitting action:

40CFR60 Subpart Kb (Standards of Performance for VOC Liquid Storage Vessels)

The affected facility to which this subpart applies is each storage vessel with a capacity greater than or equal to 75 cubic meters (m³) (19,813 gallons) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984. The largest tank is 25 bbl (1,050 gal or 3.98 m³), therefore, CHK is not subject to this rule.

40CFR60, Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after August 23, 2011, and on or before September 18, 2015)

EPA published its New Source Performance Standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. EPA published amendments to the Subpart on September 23, 2013 and June 3, 2016.

40CFR60 Subpart 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.

There is no applicable equipment at this facility that commenced construction, modification or reconstruction after August 23, 2011. Furthermore, no additional horsepower capacity was added, therefore, it would not be deemed a modification in relation to the fugitive emissions requirements.

40CFR60 Subpart OOOOa (Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced after September 18, 2015)

EPA published its New Source Performance Standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. EPA published amendments to the Subpart on September 23, 2013 and June 3, 2016. 40CFR60 Subpart OOOOa establishes emission standards and compliance schedules for the control of the pollutant greenhouse gases (GHG). The greenhouse gas standard in this subpart is in the form of a limitation on emissions of methane from affected facilities in the crude oil and natural gas source category that commence construction, modification or reconstruction after September 18, 2015. This subpart also establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from affected facilities that commence construction, modification or reconstruction after September 18, 2015. The effective date of this rule is August 2, 2016.

There is no applicable equipment at this facility that commenced construction, modification or reconstruction after September 18, 2015. Furthermore, no additional horsepower capacity was added, therefore, it would not be deemed a modification in relation to the fugitive emissions requirements.

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 Browns Creek facility is located in Kanawha County, which is an attainment area for all criteria pollutants, therefore this facility is not applicable to 45CSR19.

As shown in the following table, CHK is not a major source subject to 45CSR14 or 45CSR19 review. According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, the fugitive emissions are not included in the PTE below.

Pollutant	PSD (45CSR14) Threshold (tpy)	NANSR (45CSR19) Threshold (tpy)	Browns Creek PTE (tpy)	45CSR14 or 45CSR19 Review Required?
Carbon Monoxide	250	NA	8.76	No
Nitrogen Oxides	250	NA	6.66	No
Sulfur Dioxide	250	NA	0.04	No
Particulate Matter 2.5	250	NA	0.10	No
Ozone (VOC)	250	NA	47.12	No

45CSR30 (Requirements for Operating Permits)

CHK is not subject to 45CSR30. The Browns Creek facility is subject to 40CFR60 Subpart JJJJ, 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.

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. Small amounts of non-criteria regulated hazardous air pollutants such as BTEX and formaldehyde may be emitted when natural gas is combusted in reciprocating engines or combusted in the fuel burning unit.

BTEX

BTEX is the term used for benzene, toluene, ethylbenzene, and xylene. Each of these possible hazardous air pollutants are identified in this section.

Benzene

Benzene is found in the air from emissions from burning coal and oil, gasoline service stations, and motor vehicle exhaust. Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidence of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. EPA has classified benzene as a Group A human carcinogen.

Toluene

The acute toxicity of toluene is low. Toluene may cause eye, skin, and respiratory tract irritation. Short-term exposure to high concentrations of toluene (e.g., 600 ppm) may produce fatigue, dizziness, headaches, loss of coordination, nausea, and stupor; 10,000 ppm may cause death from respiratory failure. Ingestion of toluene may cause nausea and vomiting and central nervous system depression. Contact of liquid toluene with the eyes causes temporary irritation. Toluene is a skin irritant and may cause redness and pain when trapped beneath clothing or shoes; prolonged or repeated contact with toluene may result in dry and cracked skin. Because of its odor and irritant effects, toluene is regarded as having good warning properties. The chronic effects of exposure to toluene are much less severe than those of benzene. No carcinogenic effects were reported in animal studies. Equivocal results were obtained in studies to determine developmental effects in animals. Toluene was not observed to be mutagenic in standard studies.

Ethylbenzene

Ethyl benzene is mainly used in the manufacturing of styrene. Acute (short-term) exposure to ethyl benzene in humans results in respiratory effects, such as throat irritation and chest constriction, irritation of the eyes, and neurological effects, such as dizziness. Chronic (long-term) exposure to ethyl benzene by inhalation in humans has shown conflicting results regarding its effects on the blood. Animal studies have reported effects on the blood, liver, and kidneys from chronic inhalation exposure to ethyl benzene. Limited information is available on the carcinogenic effects of ethyl benzene in humans. In a study by the National Toxicology Program (NTP), exposure to ethyl benzene by inhalation resulted in an increased incidence of kidney and

testicular tumors in rats, and lung and liver tumors in mice. EPA has classified ethyl benzene as a Group D, not classifiable as to human carcinogenicity.

Xylenes

Commercial or mixed xylene usually contains about 40-65% m-xylene and up to 20% each of o-xylene and p-xylene and ethyl benzene. Xylenes are released into the atmosphere as fugitive emissions from industrial sources, from auto exhaust, and through volatilization from their use as solvents. Acute (short-term) inhalation exposure to mixed xylenes in humans results in irritation of the eyes, nose, and throat, gastrointestinal effects, eye irritation, and neurological effects. Chronic (long-term) inhalation exposure of humans to mixed xylenes results primarily in central nervous system (CNS) effects, such as headache, dizziness, fatigue, tremors, and incoordination; respiratory, cardiovascular, and kidney effects have also been reported. EPA has classified mixed xylenes as a Group D, not classifiable as to human carcinogenicity. Mixed xylenes are used in the production of ethylbenzene, as solvents in products such as paints and coatings, and are blended into gasoline.

Formaldehyde

Formaldehyde is used mainly to produce resins used in particle board products and as an intermediate in the synthesis of other chemicals. Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute (short-term) and chronic (long-term) inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. EPA considers formaldehyde a probable human carcinogen (Group B1).

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) as seen in the table listed in the Regulatory Discussion Section.

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 Source Determination Rule for the oil and gas industry was published in the Federal Register on June 3, 2016 and will become effective on August 2, 2016. EPA defined the term “adjacent” and stated that equipment and activities in the oil and gas sector that are under common control will be considered part of the same source if they are located on the same site or on sites that share equipment and are within ¼ mile of each other.

The Browns Creek will operate under SIC code 1311 (Natural Gas Extraction). There are other compressor stations operated by CHK that share the same two-digit major SIC code of 13 for natural gas extraction. Therefore, the Browns Creek facility does share the same SIC code as other CHK compressor stations.

“Contiguous or Adjacent” determinations are made on a case by case basis. There are no other equipment and activities in the oil and gas sector that are under common control of CHK that are located on the same site or on sites that share equipment and are within ¼ mile of each other.

Because the Browns Creek facility is not located on contiguous or adjacent properties with other facilities under common control, the emissions from this facility shall not be aggregated with other facilities for the purposes of making Title V and PSD determinations.

MONITORING OF OPERATIONS

CHK will be required to perform the following monitoring and recordkeeping associated with this permit application:

- Monitor and record hours of operation for the natural gas fired compressor engine.
- Monitor and record tank and truck loading throughput.
- 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
- Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
- 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.
- The records shall be maintained on site or in a readily available off-site location maintained by CHK for a period of five (5) years.

RECOMMENDATION TO DIRECTOR

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

Jerry Williams, P.E.
Engineer

Date

Facility Location: St. Albans, Kanawha County, West Virginia
Mailing Address: P.O. Box 18496
Oklahoma City, OK 73154-0496
Facility Description: Natural Gas Compression Station
NAICS Codes: 211111
UTM Coordinates: 421.145 km Easting • 4,248.644 km Northing • Zone 17
Permit Type: Construction
Description of Change: Engine replacement.

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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DRAFT

1.0. Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
EU-MC1648	EP-MC1648	Caterpillar G342 NA HCR Engine	2016	225 hp	NSCR
EU-DEHY1	EP-DEHY1	TEG Dehydration Unit Still Vent	1973	2.0 mmscfd	None
EU-RBL1	EP-RBL1	TEG Reboiler	1973	0.25 MMBTU/hr	None
EU-TK1	EP-TK1	Pipeline Fluids Storage Tank	2008	25 bbl	None
EU-LOAD	EP-LOAD	Pipeline Fluids Truck Loading	2008	10,080 gal/yr	None

1.1. Control Devices

Emission Unit	Pollutant	Control Device	Control Efficiency
EU-MC1648	Nitrogen Oxides	NSCR	76.74 %
	Carbon Monoxide		70.80 %
	Volatile Organic Compounds		44.44 %

2.0. General Conditions

2.1. Definitions

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

2.2. Acronyms

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

2.3. Authority

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

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

2.4. Term and Renewal

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

2.5. Duty to Comply

- 2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Application R13-3337, 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; and
- d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

2.12. Emergency

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

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

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

2.13. Need to Halt or Reduce Activity Not a Defense

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

2.14. Suspension of Activities

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

2.15. Property Rights

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

2.16. Severability

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

2.17. Transferability

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

2.18. Notification Requirements

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

2.19. Credible Evidence

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

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

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

3.2. Monitoring Requirements

[Reserved]

3.3. Testing Requirements

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

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

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

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

3.4. Recordkeeping Requirements

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

3.5. Reporting Requirements

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

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

If to the US EPA:
Associate Director
Office of 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.
- 3.5.4.2. In accordance with 45CSR22 – Air Quality Management Fee Program, enclosed with this permit is an Application for a Certificate to Operate (CTO). The CTO will cover the time period beginning with the date of initial startup through the following June 30. Said application and the appropriate fee shall be submitted to this office prior to the date of initial startup. For any startup date other than July 1, the permittee shall pay a fee or prorated fee in accordance with Section 4.5 of 45CSR22. A copy of this schedule may be found on the reverse side of the CTO application.
- 3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Source-Specific Requirements

4.1. Limitations and Standards

- 4.1.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:
- The date, place as defined in this permit, and time of sampling or measurements;
 - The date(s) analyses were performed;
 - The company or entity that performed the analyses;
 - The analytical techniques or methods used;
 - The results of the analyses; and
 - The operating conditions existing at the time of sampling or measurement.
- 4.1.2. **Minor Source of Hazardous Air Pollutants (HAP).** 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:
- The equipment involved.
 - Steps taken to minimize emissions during the event.
 - The duration of the event.
 - The estimated increase in emissions during the event.

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

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

5.0. Source-Specific Requirements (RICE, EP-MC1648)

5.1. Limitations and Standards

- 5.1.1. Maximum controlled emissions from the 225 hp Caterpillar NA HCR natural gas fired reciprocating engine (EP-MC1648), shall not exceed the following limits:

Pollutant	Maximum Hourly Emissions (lbs/hr)	Maximum Annual Emissions (TPY)
Nitrogen Oxides	1.49	6.53
Carbon Monoxide	1.98	8.67
Volatile Organic Compounds	0.50	2.19
Formaldehyde	0.03	0.13

- 5.1.2. Requirements for Use of Catalytic Reduction Devices

- a. The rich burn natural gas compressor engine (EP-MC1648) equipped with non-selective catalytic reduction (NSCR) air pollution control devices shall be fitted with a closed-loop, automatic air/fuel ratio controller to ensure emissions of regulated pollutants do not exceed the potential to emit for any engine/NSCR combination under varying load. The closed-loop, automatic air/fuel ratio controller shall control a fuel metering valve to ensure a fuel-rich mixture and a resultant exhaust oxygen content of less than or equal to 0.5%.
- b. The automatic air/fuel ratio controller or closed-loop automatic feedback controller shall provide a warning or indication to the operator and/or be interlocked with the engine ignition system to cease engine operation in case of a masking, poisoning or overrich air/fuel ratio situation which results in performance degradation or failure of the catalyst element; and
- c. No person shall knowingly:
 1. Remove or render inoperative any air pollution or auxiliary air pollution control device installed subject to the requirements of this permit;
 2. Install any part or component when the principal effect of the part or component is to bypass, defeat or render inoperative any air pollution control device or auxiliary air pollution control device installed subject to the requirements of this permit; or
 3. Cause or allow engine exhaust gases to bypass any catalytic reduction device.

5.2. Monitoring Requirements

- 5.2.1. Catalytic Oxidizer Control Devices

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

5.3. Testing Requirements

- 5.3.1. See Facility-Wide Testing Requirements Section 3.3 and Testing Requirements of Sections 6.3.

5.4. Recordkeeping Requirements

- 5.4.1. To demonstrate compliance with permit condition 5.1.1, the permittee shall maintain records of 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.
- 5.4.2. To demonstrate compliance with permit condition 5.1.2, the permittee shall maintain records of all catalytic reduction device maintenance. Said records shall be maintained on site or in a readily accessible off-site location maintained by the permittee for a period of five (5) years. Said records shall be readily available to the Director of the Division of Air Quality or his/her duly authorized representative for expeditious inspection and review. Any records submitted to the agency pursuant to a requirement of this permit or upon request by the Director shall be certified by a responsible official.

5.5. Reporting Requirements

- 5.5.1. See Facility-Wide Reporting Requirements Section 3.5 and Reporting Requirements of Sections 6.4.

6.0. Source-Specific Requirements (40CFR60 Subpart JJJJ Requirements, EP-MC1648)

6.1. Limitations and Standards

- 6.1.1. Owners and operators of stationary SI natural gas and lean burn LPG engines with a maximum engine power greater than 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in paragraph (d) or (e) of this section, except that such owners and operators of non-emergency engines and emergency engines greater than or equal to 130 HP must meet a nitrogen oxides (NOX) emission standard of 3.0 grams per HP-hour (g/HP-hr), a CO emission standard of 4.0 g/HP-hr (5.0 g/HP-hr for non-emergency engines less than 100 HP), and a volatile organic compounds (VOC) emission standard of 1.0 g/HP-hr, or a NOX emission standard of 250 ppmvd at 15 percent oxygen (O₂), a CO emission standard 540 ppmvd at 15 percent O₂ (675 ppmvd at 15 percent O₂ for non-emergency engines less than 100 HP), and a VOC emission standard of 86 ppmvd at 15 percent O₂, where the date of manufacture of the engine is prior to July 1, 2008, for non-emergency engines with a maximum engine power less than 500 HP.
[40CFR§60.4233(f)(4)(ii)]

6.2. Compliance Requirements

- 6.2.1. 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]
- 6.2.2. It is expected that air-to-fuel ratio controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller must be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.
[40CFR§60.4243(g)]
- 6.2.3. If you are an owner or operator of a stationary sparking ignition 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.
[40CFR§60.4243(b)(2)(i)]
- 6.2.4. 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)]
- 6.2.5. It is expected that the air-to-fuel ratio (AFR) controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller must be maintained and operated in a manner to ensure proper operation of the engine and control device to minimize emissions at all times.
[40CFR§60.4243(g)]

6.3. Testing Requirements

To demonstrate compliance with permit condition 6.1.1, the permittee shall conduct the following testing.

6.3.1. The permittee shall conduct performance tests following the procedures in paragraphs (a) through (g) of this section.

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

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

Where:

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

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

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

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

T = Time of test run, in hours.

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

[40CFR§60.4244(d)]

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

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

Where:

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

C_d = Measured CO concentration in ppmv.

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

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

T = Time of test run, in hours.

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

[40CFR§60.4244(e)]

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

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

Where:

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

C_d = VOC concentration measured as propane in ppmv.

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

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

T = Time of test run, in hours.

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

[40CFR§60.4244(f)]

- g. If the owner/operator chooses to measure VOC emissions using 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.

$$RF_i = \frac{C_{M_i}}{C_{A_i}} \quad (\text{Eq. 4})$$

Where:

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

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

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

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

Where:

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

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

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

Where:

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

[40CFR§60.4244]

6.4. Notifications, Reports, and Records Requirements

6.4.1. Owners and operators of all stationary sparking ignition internal combustion engine 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 sparking ignition 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, 1048, 1054, and 1060, as applicable.
- (4) If the stationary sparking ignition 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)]

6.4.2. Owners and operators of stationary sparking ignition internal combustion engine 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)]

7.0. Source-Specific Requirements (40CFR63 Subpart ZZZZ Requirements, EP-MC1648)

7.1. Limitations and Standards

7.1.1. 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)]

7.1.2. *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 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.

8.0. Source-Specific Requirements (Pipeline Fluids Storage Tank (EP-TK1) and Pipeline Fluids Truck Loading (EP-LOAD))

8.1. Limitations and Standards

8.1.1. **Annual Pipeline Fluids Truck Loading (EP-LOAD) Throughput Limitation.** The permittee shall not exceed an annual pipeline fluids truck loading (EP-LOAD) throughput of 10,080 gallons per year. Compliance with the annual throughput limitation shall be determined using a twelve month rolling total. A twelve month rolling total shall mean the sum of the tank throughputs at any given time during the previous twelve consecutive months.

8.1.2. The permittee shall employ dedicated submerged loading for the Pipeline Fluids Truck Loading (EP-LOAD).

8.2. Recordkeeping Requirements

8.2.1. For the purpose of demonstrating compliance with permit condition 8.1.1, the permittee shall maintain records of the throughputs of pipeline fluids loaded into tank trucks and pipeline fluids tank throughput.

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.



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

Company:	Chesapeake Appalachia, LLC		Facility:	Browns Creek	
Region:	4	Plant ID:	039-00215	Application #:	13-3337
Engineer:	Williams, Jerry		Category:	Gas Comp	
Physical Address:	Browns Creek Road Browns Creek WV 25177		SIC: [4922] ELECTRIC, GAS AND SANITARY SERVICES - NATURAL GAS TRANSMISSION NAICS: [486210] Pipeline Transportation of Natural Gas SIC: [1311] OIL AND GAS EXTRACTION - CRUDE PETROLEUM & NATURAL GAS NAICS: [211111] Crude Petroleum and Natural Gas Extraction		
County:	Kanawha				
Other Parties:	ENV_CONT - Hatfield- Atkinson, Melissa 304-353-5118				

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

Regulated Pollutants

Summary from this Permit 13-3337		Applicable Regulations
Air Programs	Fee	Application Type
Fee Program	\$2,000.00	CONSTRUCTION

Notes from Database

Activity Dates
 APPLICATION RECIEVED 08/29/2016
 APPLICATION FEE PAID 08/30/2016
 ASSIGNED DATE 08/30/2016

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

Company ID: 039-00215
 Company: Chesapeake Appalachia, LLC
 Printed: 08/30/2016
 Engineer: Williams, Jerry

Williams, Jerry

From: Williams, Jerry
Sent: Friday, September 23, 2016 10:19 AM
To: 'kevin.hill@chk.com'; Melissa Hatfield Atkinson;
'northerndivisionairpermitting@chk.com'
Cc: McKeone, Beverly D
Subject: WV DAQ NSR Permit Application Complete for Chesapeake Appalachia LLC - Browns Creek Compressor Station

**RE: Application Status: Complete
Chesapeake Appalachia LLC - Browns Creek Compressor Station
Permit Application R13-3337
Plant ID No. 039-00215**

Mr. Hill,

Your application for a modification permit for a natural gas compressor station was received by this Division on August 29, 2016 and assigned to the writer for review. Upon review of said application, it has been determined that the application is complete and, therefore, the statutory review period commenced on September 23, 2016.

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



September 19, 2016

VIA HAND DELIVERY

West Virginia Department of Environmental Protection
Division of Air Quality
Attn: Jerry Williams
601 57th St SE
Charleston, WV 25304-2345

Re: Affidavit of Publication
Browns Creek Compressor Station
Facility ID 039-00215
Chesapeake Appalachia, L.L.C.

Dear Mr. Williams:

Enclosed please find the Affidavit of Publication for the NSR Construction Permit Application submitted to the Division of Air Quality for the above referenced facility. A public notice for the proposed project was published in the Monday, August 29, 2016, *Charleston Gazette Mail*.

Should you have any questions or require additional information, please contact me at 304-353-5118

Sincerely,

Melissa Hatfield-Atkinson, P.E.
Supervisor – Air Permitting, Northern Division

ID # 039-00215
Reg R13-3337
Company CHK
Facility Browns Creek Initials JW

AIR QUALITY PERMIT NOTICE

Notice of Application

Notice is given that Chesapeake Appalachia, L.L.C. has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a New Source Review (45 CSR 13) construction permit for Browns Creek Compressor Station located in Kanawha County, West Virginia. Driving directions to the facility are: On Rt 60 (near top of Coal Mountain) between St. Albans and Hurricane, turn onto Browns Creek Road (Rt 1), stay on main road, travel approximately 1.3 miles to a right turn onto a gravel road, then travel approximately 0.2 mile to compressor station on left. Latitude/longitude coordinates are 38.381485, -81.902405.

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

Nitrogen Oxides (NOx)	6.53 tons/yr
Carbon Monoxide (CO)	8.67 tons/yr
Volatile Organic Compounds (VOC)	6.41 tons/yr
Particulate Matter (PM)	0.13 tons/yr
Sulfur Dioxide (SO ₂)	0.04 tons/yr
Acetaldehyde	0.02 tons/yr
Acrolein	0.02 tons/yr
Benzene	<0.01 tons/yr
Ethylbenzene	0.13 tons/yr
Formaldehyde	0.04 tons/yr
Methanol	0.10 tons/yr
n-Hexane	0.01 tons/yr
Toluene	0.01 tons/yr
Xylenes	2.64 tons/yr
Methane	870.37 tons/yr
Carbon Dioxide	<0.01 tons/yr
Nitrous Oxide	937.09 tons/yr
Carbon Dioxide Equivalent	

Startup of operation is expected to occur on or about December 15, 2016, but is contingent upon the permit issuance date. 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 1227, during normal business hours.

Dated this the 26th of August 2016

By: Chesapeake Appalachia, L.L.C.
Kevin Hill
Vice President
P.O. Box 18496
Oklahoma City, OK 73154-0496

(438185)



CHARLESTON NEWSPAPERS

P.O. Box 2993
Charleston, West Virginia 25330
Billing 348-4898
Classified 348-4848
1-800-WVA-NEWS

LEGAL ADVERTISING INVOICE

INVOICE DATE	08/31/16
ACCOUNT NBR	091096106
SALES REP ID	0004
INVOICE NBR	007727001

M

CHESAPEAKE ENERGY
ACCOUNTS PAYABLE
P. O. BOX 6070
CHARLESTON

WV 25362 USA

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BILLED TO

ID # 039-00215
Reg R13-3337
Company CHK
Facility BANWICK Initials JW

RECEIVED
SEP 14 2016
IMAGING (3)

Please return this portion with your payment.
Make checks payable to: Charleston Newspapers

AMOUNT PAID: _____



CHARLESTON NEWSPAPERS

P.O. Box 2993
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Billing 348-4898
Classified 348-4848
1-800-WVA-NEWS
FEIN 55-0676079

INVOICE DATE	08/31/16
ACCOUNT NBR	091096106
SALES REP ID	0004
INVOICE NBR	007727001

Legal pricing is based upon 65 words per column inch.
Each successive insertion is discounted by 25% of the first insertion rate.

The Charleston Gazette Mail rate is \$.14 per word.

ISSUE DATE	AD TYPE	PUB	DESCRIPTION	AD NUMBER	AD SIZE	RATE	GROSS AMOUNT	NET AMOUNT
08/29	LEG	GZ	8/29 NOTICE OF AIR Q 007727001	0638185	1X1000 10.00	9.10	91.00	91.00
TOTAL INVOICE AMOUNT								91.00

State of West Virginia, **AFFIDAVIT OF PUBLICATION**

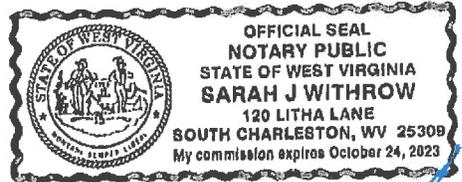
I, Mary Smith of

CHARLESTON GAZETTE MAIL,
do solemnly swear that the legal notice of:
8/29 NOTICE OF AIR QUALI

was duly published in said newspaper(s) at the stated price for the respective newspaper(s) and during the dates listed below:

Subscribed and sworn to before me this 1st day of September

08/29/16 08/29/16



Sarah J Withrow
Notary Public of Kanawha County, West Virginia

Williams, Jerry

From: Ward, Beth A
Sent: Wednesday, August 31, 2016 11:43 AM
To: Williams, Jerry
Subject: CHESAPEAKE APPALACHIA LLC PERMIT APPLICATION FEE

This is the receipt for payment received from:

CHESAPEAKE APPALACHIA LLC, BROWNS CREEK, CHECK NUMBER 6005807, CHECK DATE 08/23/2016, \$2,000.00
R13-3337 ID# 039-00215

OASIS CR 1700023250

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, August 30, 2016 11:39 AM
To: 'kevin.hill@chk.com'; 'northerndivisionairpermitting@chk.com'
Cc: McKeone, Beverly D; Williams, Jerry
Subject: WV DAQ Permit Application Status for Chesapeake Appalachia, LLC; Browns Creek

**RE: Application Status
Chesapeake Appalachia, LLC
Browns Creek
Facility ID No. 039-00215
Application No. R13-3337**

Mr. Hill,

Your application for a construction permit for the Browns Creek Compressor Station was received by this Division on August 29, 2016, 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 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.

Please submit one original and two electronic versions for future applications. Electronic versions should contain signatures.

Should you have any questions, please contact the assigned engineer, Jerry Williams, at 304-926-0499, extension 1223.

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039-00215 Construction
R13#3337 (Jeny)

45CSR13 Administrative Update, Construction, Modification, Relocation, Temporary Permit or General Permit Registration Incomplete Application

A complete application is demonstrated when all of the information required below is properly prepared, completed and attached. The items listed below are required information which must be submitted with a 45CSR13 permit application. Any submittal will be considered incomplete if the required information is not included. The applicant must submit a complete application in order to receive a 45CSR13 permit.

- Class I legal advertisement not published in a newspaper certified to accept legal advertisements and original affidavit submitted. X1250
- Application fee AND/OR additional application fees not included:
 - \$250 Class I General Permit
 - \$300 Class II Administrative Update
 - \$1,000 Construction, Modification, Relocation or Temporary Permit
 - \$500 Class II General Permit
 - \$1,000 NSPS
 - \$2,500 NESHAP
 - \$2,500 45CSR27 Pollutant
 - \$5,000 Major Modification
 - \$10,000 Major Construction
- Original and two (2) copies of the application not submitted.
- File organization – application pages are not numbered or in correct order, application is not bound in some way, etc.
- Confidential Business Information is not properly identified.
- General application forms not completed and signed by a responsible official.
- Authority of Corporation form not included – required if application is signed by someone other than a responsible official.
- Applicant is not registered with the West Virginia Secretary of State's Office.
- Copy of current Business Registration Certificate not included.
- Process description, including equipment and emission point identification numbers, not submitted.
- Process flow diagram, including equipment and emission point identification numbers, not submitted.
- Plot plan, including equipment and emission point identification numbers, not submitted.
- Applicable technical forms not completed and submitted:
 - Emission Point Data Summary Sheets
 - Emission Unit Data Sheets
 - Air Pollution Control Device Sheets
 - Equipment List Form
- Emission calculations not included – emission factors, references, source identification numbers, etc.
- Electronic submittal diskette not included.