



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.: R13-3081
Plant ID No.: 051-00143
Applicant: CNX Gas Company, LLC (CNX)
Facility Name: Majorsville Station
Location: Majorsville, Marshall County
NAICS Code: 211111
Application Type: Modification
Received Date: May 17, 2013
Engineer Assigned: Jerry Williams, P.E.
Fee Amount: \$2,000.00
Date Received: May 17, 2013
Complete Date: July 1, 2013
Due Date: September 29, 2013
Applicant Ad Date: June 1, 2013
Newspaper: *Moundsville Daily Echo*
UTM's: Easting: 539.827 km Northing: 4,424.302 km Zone: 17T
Description: This permitting action proposes the removal of one (1) temporary slop tank and two (2) condensate tanks and related flare, and the installation of six (6) storage tanks and vapor recovery unit (VRU) control device.

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-3081:

The station experienced significantly more water than originally anticipated in its incoming raw gas stream. For safety reasons, tanks and a flare were installed and operated to prevent unsafe gas build-up in the system and related uncontrolled direct release of these gases to the atmosphere without flaring.

This equipment was permitted in a temporary permit issued on July 18, 2013. This permitting action addresses the removal of the temporary equipment and installation of permanent equipment in its place. The following permanent equipment will be installed:

- One (1) 500 barrel (bbl) (21,000 gallons) tank in condensate-water/slop separation, also known as the Gun Barrel Tank (T06)
- Five (5) 400 bbl (16,800 gallons) tanks in the following service:
 - T05 – Water/Slop Service Tank
 - T07 – Unstabilized Condensate Tank
 - T08, T09 – Stabilized Condensate Tanks connected in series
 - T10 – Condensate Tank which can be used for optional water/slop storage

The station also intends to install a water transfer pump and a condensate transfer pump. These pumps are electrically driven and are not sources of emissions.

In order to control the off gassing of the proposed tanks, the station will install a VRU (C-1) which is composed of a screw type compressor, an electric driver, suction scrubber, air cooler, and associated instrumentation.

Tank Operations

The Gun Barrel Tank (T06) will be the tank where the closed drain empties and collects all the process and rain water. The tank will be equipped for automatic separation of wild condensate from water, making use of the difference in densities between condensate and water to separate them. The tank is an internal process tank and not considered an Emission Unit.

The wild condensate will be decanted into the Wild Condensate Tank (T07) through a nozzle located above the water level. The wild un-stabilized condensate is then pumped into the condensate stabilizer for recycling. The water below will drain into the water/slop tank (T05) from where it will be sent to the truck tanks for disposal. If there is a need for additional slop/water storage, the Stabilized Condensate Tank (T10) can be used for this purpose.

The Stabilized Condensate Tanks (T08, T09) will store stabilized condensate from the stabilizer unit. These tanks all connected in series and will be used when trucking of the stabilized condensate is required.

All of the six (6) tanks overhead and bottoms are interconnected to allow for all vapors to be recovered in the VRU (C-1) and for any of the liquids to discharge into tank trucks, respectively. The gasses recovered by the VRU discharge into the suction of the station main gas compressors. The liquids, will either be disposed of, reprocessed, or sold depending on their composition.

SITE INSPECTION

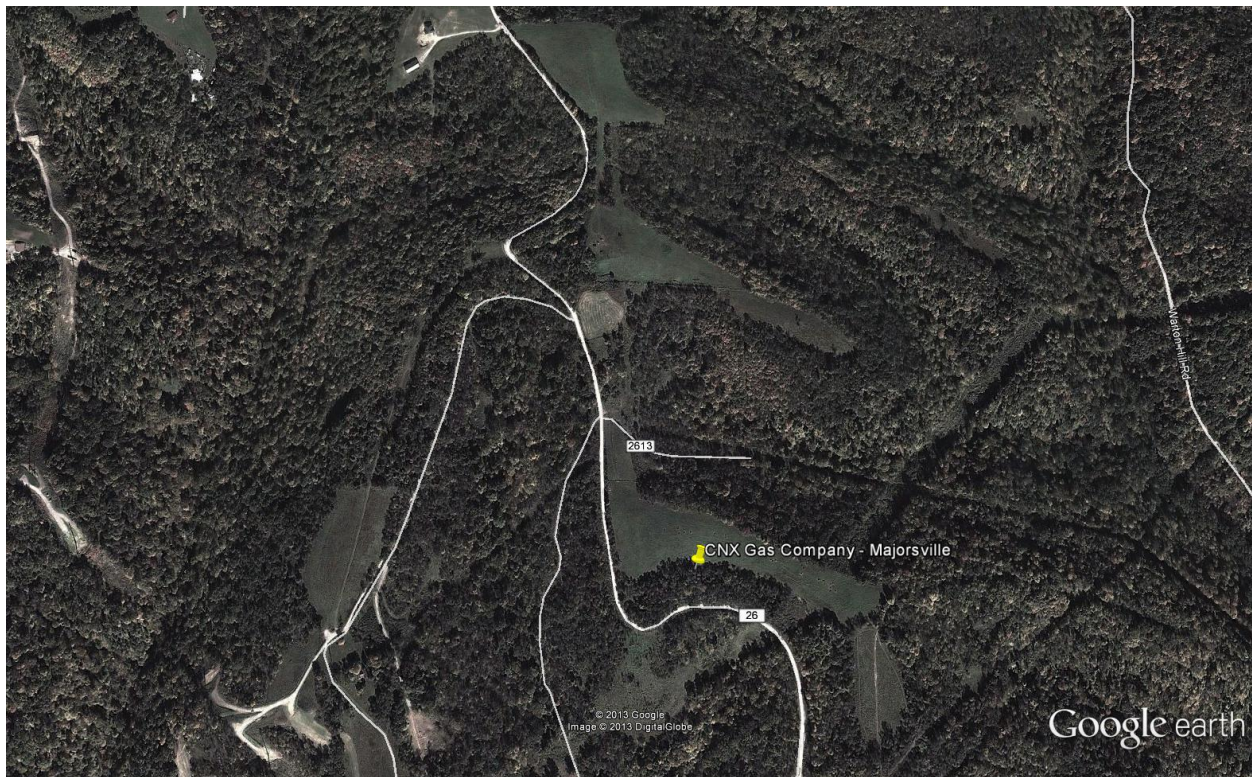
A site inspection was conducted by Steve Sobotka of the Northern Panhandle Regional Office. Mr. Sobotka stated that the site is relatively remote and the majority of the site is surrounded by woods. The closest residence is more than 1,000 feet from the site.

CNX entered into a Consent Order with the DAQ on March 18, 2013 to submit the appropriate temporary and modification permit applications to address this equipment.

Latitude: 39.9675
Longitude: -80.5331

Directions as given in the permit application are as follows:

From Wheeling: Travel east on I-70 for approximately 9.3 miles. Take Exit 11 onto Dallas Pike. Turn right onto Dallas Pike and travel approximately 1.7 miles. Take a slight left onto Middle Wheeling Creek Road (Old Co. 39) for 0.4 miles. Continue onto Dallas Pike and travel 3.0 miles. Turn right onto Number 2 Ridge Road and travel 3.6 miles. Turn right and the facility will be 0.5 miles on the right.



ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this application consist of the emissions from one (1) condensate water/slop separation tank, one (1) water/slop service tank, one (1) un-stabilized condensate tank, two (2) stabilized condensate tanks, one (1) condensate tank which can be used for optional water/slop storage, one (1) vapor recovery unit (VRU), and fugitive emissions. Fugitive emissions for the facility are based on calculation methodologies presented in EPA Protocol for Equipment Leak Emission Estimates.

The following table indicates the control device efficiencies that are required for this facility:

Emission Unit	Pollutant	Control Device	Control Efficiency
T06 – T11	Volatile Organic Compounds	VRU	99.5 %
	Total HAPs		99.5 %
BLT01	Volatile Organic Compounds	VRU	66.5 %
	Total HAPs		66.5 %

Maximum detailed controlled point source emissions were calculated by CNX and checked for accuracy by the writer and are summarized in the table on the next page. The following table includes equipment also permitted under General Permit Registration G35-A066.

CNX Gas Company, LLC – Majorsville Station (R13-3081)

Emission Point ID#	Source	NO _x		CO		VOC		PM-10/2.5		SO ₂		Formaldehyde		Total HAPs		CO ₂ e	
		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	lb/hr	ton/year
E1	Caterpillar 3608	2.61	11.44	1.00	4.40	1.64	7.21	0.16	0.69	0.01	0.04	0.33	1.45	0.47	2.04	2302	10083
E2	Caterpillar 3608	2.61	11.44	1.00	4.40	1.64	7.21	0.16	0.69	0.01	0.04	0.33	1.45	0.47	2.04	2302	10083
E3	Caterpillar 3608	2.61	11.44	1.00	4.40	1.64	7.21	0.16	0.69	0.01	0.04	0.33	1.45	0.47	2.04	2302	10083
E4	Caterpillar 3608	2.61	11.44	1.00	4.40	1.64	7.21	0.16	0.69	0.01	0.04	0.33	1.45	0.47	2.04	2302	10083
EG-1	Emergency Generator	7.82	1.95	0.50	0.12	0.18	0.04	0.08	0.02	0.02	0.01	<0.01	<0.01	<0.01	<0.01	5548	1387
FL-1	Glycol Dehy Flare	0.22	0.95	1.18	5.19	0.79	3.50	0.02	0.08	<0.01	0.02	<0.01	<0.01	0.37	1.61	291	1271
BLR-1	Glycol Dehy Reboiler	0.34	1.51	0.15	0.67	0.01	0.04	0.01	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	334	1464
BLR-2	Condensate Reboiler	0.14	0.62	0.06	0.28	0.01	0.02	0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	118	515
HTR-1	Condensate Flash Drum	0.02	0.08	0.04	0.18	<0.01	0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	334	1464
FUG	Fugitive Emissions	0	0	0	0	1.12	4.9	0	0	0	0	0	0	0.52	2.25	2346	10276
BLT01	Bulk Liquid Truck Loading	0	0	0	0	1.72	7.56	0	0	0	0	0	0	<0.01	0.02	0	0
VRU	Tanks	0	0	0	0	<0.01	0.03	0	0	0	0	0	0	<0.01	<0.01	0	0
Total	Total Facility PTE	18.98	50.87	5.93	24.04	10.39	44.94	0.76	2.97	0.06	0.19	1.32	5.80	2.77	12.06	18179	56709

REGULATORY APPLICABILITY

The following rules apply the equipment associated with 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 CNX is defined as a “stationary source” under 45CSR13 Section 2.24.b, which states that an owner or operator discharges or has the potential to discharge more than six (6) pounds per hour and ten (10) tons per year, or has the potential to discharge more than 144 pounds per calendar day of any regulated air pollutant. CNX’s uncontrolled volatile organic compounds (VOC) emissions exceed 45CSR13 permit thresholds. In addition, the VRU is subject to a substantive requirement under 45CSR6. CNX has 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)

This facility is a minor source and not subject to 45CSR30. CNX is required to keep their Certificate to Operate current.

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 (m^3) (19,813 gallons) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984. This subpart does not apply to storage vessels with a capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with a capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure less than 15.0 kPa. This subpart also does not apply to pressure vessels designed to operate in excess of 204.9 kPa and without emissions to the atmosphere. The only tank that CNX has proposed to install that exceed this size is the 21,000 gallon (79.49 cubic meter) slop tank. Therefore, CNX would be subject to this rule. This tank will have a closed vent system and vapors will be sent to the vapor recovery unit. All other tanks do not exceed the applicable capacity limit.

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 (SO_2) 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 the Majorsville Station. Therefore, all requirements regarding gas wells 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 associated with this application.

- 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 are no reciprocating compressors associated with this application.

- 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 pneumatic controllers associated with this application.

- 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 Majorsville Station are controlled by a VRU and emit less than 6 tpy of VOC. Therefore, CNX is not required by this section to further 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 Majorsville 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 Majorsville Station. Therefore, all requirements regarding sweetening units under 40 CFR 60 Subpart OOOO would not apply.

The following rules do not apply to the facility:

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 Majorsville Station is not a natural gas processing plant, therefore, CNX would not be 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 Majorsville Station is located in Marshall County which is a non-attainment county for Particulate Matter 2.5. Because Marshall County is a non-attainment county, 45CSR19 possibly applies to this facility.

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

Pollutant	PSD (45CSR14) Threshold (tpy)	NANSR (45CSR19) Threshold (tpy)	Majorsville PTE (tpy)	45CSR14 or 45CSR19 Review Required?
Carbon Monoxide	250	NA	24.04	No
Nitrogen Oxides	250	100	50.87	No
Sulfur Dioxide	250	100	0.19	No
Particulate Matter 2.5	250	100	2.97	No
Ozone (VOC)	250	NA	44.94	No
Greenhouse Gas (CO ₂ e)	100,000	NA	56,709	No

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There will be small amounts of various non-criteria regulated pollutants emitted from the combustion of natural gas. However, due to the concentrations emitted, detailed toxicological information is not included in this evaluation.

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 Majorsville Station is located in Marshall County and will be operated by CNX.

1. The Majorsville Station will operate under SIC code 1311 (Crude Petroleum and Natural Gas Extraction). There are surrounding wells and compressor stations operated by CNX that share the same two-digit major SIC code of 13 for oil and gas exploration and production. Therefore, the Majorsville Station does share the same SIC code as the wells and surrounding compressor stations.
2. “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.

The closest CNX facility to the Majorsville Station is over one quarter (1/4) mile away. Operations separated by these distances do not meet the common sense notion of a plant. Therefore, the properties in question are not considered to be on contiguous or adjacent property.

3. According to CNX, none of the wells in the area are under common control with the Majorsville Station.

Because the facilities are not considered to be on contiguous or adjacent properties, the emissions from the Majorsville Station should not be aggregated with other facilities in determining major source or PSD status.

MONITORING OF OPERATIONS

CNX will be required to perform the following monitoring associated with this permit modification application:

1. Monitor and record quantity of waste gas consumed in the VRU.
2. Monitor the VRU that is operated per manufacturer’s specifications.
3. Monitor opacity from the VRU.
4. Monitor the tanks to ensure that all vapors are sent to the VRU.
5. Monitor the condensate truck loading to ensure that vapor return/combustion is used.

CNX will be required to perform the following recordkeeping associated with this modification application:

1. Maintain records of the amount of waste gas consumed in the VRU.
2. 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
3. Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
4. Maintain records of the visible emission opacity tests conducted per the permit.
5. 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.
6. The records shall be maintained on site or in a readily available off-site location maintained by CNX for a period of five (5) years.
7. Monitor the tanks to ensure that the tanks vapors will be sent to the VRU.
8. Monitor the condensate truck loading to ensure that vapor return/combustion is used.

RECOMMENDATION TO DIRECTOR

The information provided in the modification permit application indicates CNX's Majorsville Station meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Marshall County location should be granted a 45CSR13 modification permit for this proposed permitting action.

Jerry Williams, P.E.
Engineer

Date