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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-3088
Plant ID No.: 103-00068
Applicant: EQT Production Company
Facility Name: BIG-57
Location: Wetzel County
NAICS Code: 211111
Application Type: Construction
Received Date: June 6, 2013
Engineer Assigned: Joe Kessler
Fee Amount: \$4,500
Date Received: July 2, 2013 (\$2,000); August 9, 2013 (\$2,500)
Complete Date: September 17, 2013
Due Date: December 16, 2013
Applicant Ad Date: July 24, 2013
Newspaper: *Wetzel Chronicle*
UTM's: Easting: 532.7 km Northing: 4,381.4 km Zone: 17
Latitude/Longitude: 39.5527/-80.5274
Description: Permit for construction and operation of a natural gas production facility at the BIG-57 well-pad.

DESCRIPTION OF PROCESS

EQT Production Company (EQT) has submitted a permit application for the partially after-the-fact construction and operation of a natural gas production facility located approximately 4.16 miles north-northeast of Smithfield, Wetzel County, WV. The facility, after completion, would primarily consist of two (2) 1.54 mmBtu/hr natural gas-fired line heaters, six (6) 8,820-gallon condensate/produced-water storage tanks, one (1) 30 mmscf/day triethylene glycol (TEG) dehydration unit (GDU), and one (1) 0.029 mmBtu/hr natural gas-fired thermoelectric generator. Truck loading of condensate/produced-water will also take place at the site.

When in production, raw gas from the wells will pass through an inlet separator where the condensate/produced-water will be removed from the gas and sent to one of the storage tanks (S001

through S006). Gas passing through the separator will be sent to the GDU (S007) for removal of water from the gas.

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

After leaving the absorber, each glycol stream - now referred to as "rich" glycol - is fed to a flash vessel where flashed hydrocarbon vapors are emitted into the atmosphere. Any liquid hydrocarbons removed in the flash tank are sent to the storage tanks. After leaving the flash vessel, the rich glycol is fed to a Glycol Regenerator Column. Each Regenerator Column consists of a column, an overhead condenser, and the reboiler. The glycol is thermally regenerated to remove excess water and regain high purity. The heat for the regeneration will be provided by one (1) 0.58 mmBtu/hr natural gas-fired reboiler (S008). The hot, lean glycol is cooled by a heat-exchanger and is then fed to a pump where it is sent to the glycol absorber for reuse. Liquids produced in the regeneration process will be sent to one of the facility storage tanks.

Working, breathing, and flashing losses from the storage tanks are uncontrolled. The line heaters (S010 and S011) shall be used to keep the lines at the facility from freezing and to promote gas/liquids flow.

From the storage tanks, condensate/produced-water will be loaded into trucks for removal from the site. Emissions from the truck loading are uncontrolled but mitigated by using pipe racks and submerged fill methods. The thermoelectric generator (S009) is used to provide small amounts of electricity for switching/monitoring purposes when the facility is unable to generate sufficient solar power.

SITE INSPECTION

On August 20, 2013, the writer conducted an inspection of the BIG-57 natural gas production facility. The facility is located just south of County Route (CR) 15 (North Fork Road) approximately 4.16 miles north-northeast of Smithfield, Wetzel County, WV. While the location is generally rural in nature, there is an occupied residence directly adjacent to the facility along CR 15. At the time of the inspection, two wells, two line heaters, and one storage tank were in operation. The GDU had not been constructed. Two additional wells were in the process of being top-holed and pad was full of drilling related equipment. The following is a picture of the BIG-57 site taken on the day of the inspection:

BIG-57



D i r e c t i o n s : [L a t i t u d e :

39.5527, Longitude: -80.5274] From the junction of WV State Route (SR) 20 (Galmish Road) and County Route 15 (North Fork Road) in Pine Grove, travel east on CR 15 for approximately 12.7 miles (0.9 miles after the CR 15/CR 80 junction) to the access road on the right.

AIR EMISSIONS AND CALCULATION METHODOLOGIES

EQT included in Attachment N of the permit application air emissions calculations for the equipment and processes at the BIG-57 natural gas production facility. The following will summarize the calculation methodologies used by EQT to calculate the potential-to-emit (PTE) of the proposed facility.

Gas-Fired Line Heaters/Thermoelectric Generator/GDU Reboiler

Criteria Pollutant emissions from the natural gas-fired line heaters (E010 through E011), the thermoelectric generator (E009), and the GDU Reboiler (E008) were based on the emission factors provided for natural gas combustion as given in AP-42 (AP-42 is a database of emission factors maintained by USEPA) Section 1.4. Emissions of Greenhouse Gases (GHGs) were based on Tables C-1 and C-2 of 40 CFR 98 - Federal GHG Reporting Rule.

Hourly emissions were based on the maximum design heat input (MDHI) of each unit and annual emissions were based on an annual operation of 8,760 hours. A heat content of the gas of 1,050 Btu/scf was used in the calculations.

Glycol Dehydrator Unit Emissions

VOC, Hazardous Air Pollutant (HAP), and methane emissions from the GDU Still Vent and Flash Tank (two separate emission points but aggregated here as E007) were based on the emissions calculation program GRI-GLYCalc Version 4.0. (with a 10% safety factor applied to the emissions). GRI-GLYCalc is a well-known program for estimating air emissions from glycol units using triethylene glycol (TEG). Included in the application is a copy of the appropriate GLY-Calc analysis sheets. Input values to GLYCalc are based on gas sampling done at the BIG-57 well-site.

Storage Tanks

Working and breathing emissions from the six (6) condensate/produced-water storage tanks were based on the TANKS 4.09d program as provided under AP-42, Section 7. Emissions from flashing in the tanks were calculated using CHEMCAD - a chemical process simulation software. Input and summary sheets for both programs were included in the permit application. An annual throughput of 595,308 gallons of condensate/produced-water was used in the calculations for the aggregate emissions from the storage tank.

Truck Loading

Air emissions from condensate truck loading operations occur as fugitive emissions generated by displacement of vapors when loading trucks. The emission factor used to generate the VOC emissions is based on Equation (1) of AP-42 Section 5.2-1. In this equation, EQT used variables

specific to the liquids loaded and to the method of loading - in this case “submerged filling - dedicated normal service.” Additionally, worst-case annual emissions were based on a maximum loading rate of 595,308 gal/year of condensate/produced-water. As no maximum hourly pumping rate was provided, hourly emissions were based on 1,000 hours of loading per year.

Fugitives

EQT based their fugitive equipment leak calculations on emission factors taken from the document EPA-453/R-95-017 - “Protocol for Equipment Leak Emission Estimates.” Emission factors were taken from Table 2-4 and no control efficiency, as based on a Leak Detection and Repair (LDAR) protocol, was applied. Emissions of Greenhouse Gases (GHGs) were based on Subpart W of 40 CFR 98 - Federal GHG Reporting Rule.

Emissions Summary

Based on the above estimation methodology, which is determined to be appropriate, the PTE of the BIG-57 natural gas production facility is given in the following tables:

Table 1: Facility-Wide Aggregate Hourly (lb/hr) Criteria Pollutant PTE Summary.

Source	CO	NO _x	PM ⁽¹⁾	SO ₂	VOCs	HAPs
Line Heaters ⁽²⁾	0.25	0.29	0.02	<0.01	0.02	<0.01
Thermoelectric Generator	<0.01	<0.01	~0.00	~0.00	~0.00	~0.00
GDU Still Vent/Flash Tank	0.00	0.00	0.00	0.00	2.75	0.85
GDU Reboiler	0.05	0.05	<0.01	~0.00	<0.01	~0.00
Storage Tanks ⁽²⁾	0.00	0.00	0.00	0.00	0.39	0.01
Equipment Leaks	0.00	0.00	0.00	0.00	0.37	0.00
Truck Loading ⁽³⁾	0.00	0.00	0.00	0.00	0.01	0.00
<i>Facility-Wide Totals →</i>	0.31	0.35	0.03	0.01	3.55	0.87

- (1) Conservatively, all particulate matter emissions are assumed to be less than 2.5 microns. Includes condensables.
- (2) Aggregate emission rate of all such units.
- (3) As a maximum hourly pump rate was not provided, hourly emissions based on 1,000 hours/year.

Table 2: Facility-Wide Aggregate Annual (ton/yr) Criteria Pollutant/GHG PTE Summary.

Source	CO	NO _x	PM ⁽¹⁾	SO ₂	VOCs	HAPs	CO ₂ e ⁽²⁾
Line Heaters ⁽³⁾	1.08	1.28	0.10	0.01	0.07	0.02	1,577.12
Thermoelectric Generator	0.01	0.01	~0.00	~0.00	~0.00	~0.00	14.95
GDU Still Vent/Flash Tank	0.00	0.00	0.00	0.00	12.03	3.71	182.96
GDU Reboiler	0.20	0.24	0.02	~0.00	0.01	~0.00	295.71
Storage Tanks ⁽³⁾	0.00	0.00	0.00	0.00	1.69	0.04	7.40
Equipment Leaks	0.00	0.00	0.00	0.00	1.62	0.00	225.61

Truck Loading	0.00	0.00	0.00	0.00	0.04	0.00	0.00
Facility-Wide Totals →	1.29	1.53	0.12	0.01	15.46	3.77	2,303.75

- (1) Conservatively, all particulate matter emissions are assumed to be less than 2.5 microns. Includes condensables.
- (2) Based on multiplying the mass amount of emissions for each of the six greenhouse gases by the gas's associated global warming potential published at Table A-1 to Subpart A of 40 CFR Part 98 - Global Warming Potentials. Used to determine major source status of facilities under 45CSR14.
- (3) Aggregate emission rate of all such units.
- (4) As the PTE of all individual HAPs are less than 10 TPY and the PTE of total HAPs is less than 25 TPY, the BIG-57 Natural Gas Production Facility is defined as a minor (area) source of HAPs for purposes of 40 CFR 61, 40CFR63, and Title V.

REGULATORY APPLICABILITY

The proposed EQT natural gas production facility is subject to substantive requirements in the following state and federal air quality rules and regulations: 45CSR2, 45CSR13, 40 CFR 60 Subpart OOOO, and 40 CFR 63, Subpart HH. Each applicable rule (and ones that have reasoned non-applicability), and EQT's compliance therewith, will be discussed in detail below.

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

The Line Heaters (S010 and S011) and the Reboiler (S008) each have been determined to meet the definition of a "fuel burning unit" under 45CSR2 and are, therefore, subject to the applicable requirements therein. However, pursuant to the exemption given under §45-2-11, as the MDHI of the units are each less than 10 mmBtu/hr, they are not subject to sections 4, 5, 6, 8 and 9 of 45CSR2. The only remaining substantive requirement is under Section 3.1 - Visible Emissions Standards.

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

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

45CSR10 has requirements limiting SO₂ emissions from "fuel burning units," limiting in-stack SO₂ concentrations of "manufacturing processes," and limiting H₂S concentrations in process gas streams. The only potential applicability of 45CSR10 to the BIG-57 natural gas production facility is the limitations on fuel burning units. Pursuant to the exemption given under §45-10-10.1, as the MDHI of the Line Heaters (S005 to S008) and the Reboiler (S008) - each of which have been determined to meet the definition of a "fuel burning unit" under 45CSR10 - are less than 10 mmBtu/hr, the units are not subject to the limitations on fuel burning units under 45CSR10.

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

The construction of the BIG-57 natural gas production facility (with the GDU included) does not have a potential to emit a regulated pollutant in excess of six (6) lbs/hour and ten (10) TPY. However, the proposed GDU is subject to a “substantive requirement of an emission control rule promulgated by the Secretary” - the benzene exemption limit in 40 CFR 63, Subpart HH - and, therefore, pursuant to §45-13-2.24, the facility is defined as a “stationary source” under 45CSR13. Pursuant to §45-13-5.1, “[n]o person shall cause, suffer, allow or permit the construction . . . and operation of any stationary source to be commenced without . . . obtaining a permit to construct.” Therefore, EQT is required to obtain a permit under 45CSR13 for the construction and operation of the natural gas production facility (with the GDU included).

As required under §45-13-8.3 (“Notice Level A”), EQT placed a Class I legal advertisement in a “newspaper of general circulation in the area where the source is . . . located.” The ad ran on July 24, 2013 in the *Wetzel Chronicle* and the affidavit of publication for this legal advertisement was submitted on August 8, 2013.

45CSR14 (NON APPLICABILITY)

The facility-wide potential-to-emit of the BIG-57 natural gas production facility (see Table 2 above) is below the levels that would define the source as a “major stationary source” under 45CSR14 and, therefore, the construction evaluated herein is not subject to the provisions of 45CSR14.

Potential Source Aggregation

Classifying multiple facilities as one “stationary source” under 45CSR13, 45CSR14, and 45CSR19 is based on the definition of “Building, structure, facility, or installation” as given in §45-14-2.13 and §45-19-2.12. The definition states:

“Building, Structure, Facility, or Installation” means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Pollutant-emitting activities are a part of the same industrial grouping if they belong to the same “Major Group” (i.e., which have the same two (2)-digit code) as described in the Standard Industrial Classification Manual, 1987 (United States Government Printing Office stock number GPO 1987 0-185-718:QL 3).

The proposed BIG-57 natural gas production facility will be located approximately 0.88 miles from the known nearest other EQT facility (BIG-57/BIG-176 Meter Site). The BIG-57/BIG-176 Meter Site shares the same SIC code as BIG-57 and is owned by EQT. Therefore, the potential classification of the BIG-57 facility as one stationary source with the BIG-57/BIG-176 Meter Site depends on the determination if these stations are considered “contiguous or adjacent properties.”

"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 one stationary source. 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 BIG-57 natural gas production facility is not located contiguous with, or *directly* adjacent to the BIG-57/BIG-176 Meter Site. As noted above, the facilities are 0.88 miles apart. Facilities separated by this distance do not meet the common sense notion of a single plant. Therefore, the BIG-57 and the BIG-57/BIG-176 Meter Site facilities are not considered to be on contiguous or adjacent property.

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

45CSR30 provides for the establishment of a comprehensive air quality permitting system consistent with the requirements of Title V of the Clean Air Act. The proposed facility does not meet the definition of a "major source under § 112 of the Clean Air Act" as outlined under §45-30-2.26 and clarified (fugitive policy) under 45CSR30b. However, as the facility is subject to a New Source Performance Standard (NSPS) - Subpart OOOO - and a Maximum Achievable Control Technology (MACT) rules - 40 CFR 63, Subpart HH - the facility would, in most cases, be subject to Title V as a "deferred source." However, pursuant to §60.5370(c) and §63.760(h) as a non-major "area source," EQT is not required to obtain a Title V permit for the proposed facility. Therefore, the BIG-57 natural gas production facility is not subject to 45CSR30.

Subpart Kb—Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984 - (NON APPLICABILITY)

Pursuant to §60.110b, 40 CFR 60, Subpart Kb applies to "each storage vessel with a capacity greater than or equal to 75 cubic meters (m³) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984." The storage tanks located at the BIG-57 facility are each 8,820 gallons, or 34 m³. Therefore, Subpart Kb does not apply to the proposed storage tanks.

40 CFR 60, Subpart OOOO: Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution

On April 27, 2012 the USEPA issued a final rule (with amendments finalized on August 16, 2012) that consists of federal air standards for natural gas wells that are hydraulically fractured, along with requirements for several other sources of pollution in the oil and gas industry that currently are not regulated at the federal level. Pursuant to §60.5365(a) each "gas well affected facility, which is a single natural gas well" that is constructed after August 23, 2011 is subject to the applicable provisions of Subpart OOOO as well as "[e]ach 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." Each potentially applicable section of Subpart OOOO is discussed below.

Gas Wells - §60.5370

EQT has drilled gas wells at the BIG-57 well-pad (and may in the future drill additional wells) and, therefore, these are defined as “affected facilities” under Subpart OOOO and subject to applicable provisions. The substantive requirements for gas wells drilled prior to January 1, 2015 are given under §60.5375(a)(3) of the rule. It requires that flowback emissions (gas produced from the well after fracturing) must be directed to the flow line or a completion combustion device. Other requirements pertaining to the gas wells include:

- EQT must maintain a log for each well completion operation at each gas well affected facility. The log must be completed on a daily basis for the duration of the well completion operation and must contain the records specified in §60.5420(c)(1)(iii).
[40CFR§60.5375(b)]
- EQT must demonstrate initial compliance with the standards that apply to gas well affected facilities as required by §60.5410.
[40CFR§60.5375(c)]
- EQT must demonstrate continuous compliance with the standards that apply to gas well affected facilities as required by §60.5415.
[40CFR§60.5375(d)]
- EQT must perform the required notification, recordkeeping and reporting as required by §60.5420.
[40CFR§60.5375(e)]

Storage Tanks (NON APPLICABILITY)

Under §60.5395, the requirements for storage tanks take effect on October 15, 2013. However, as the site is expected to be in production at that time, the storage tank requirements will be reviewed. The substantive requirement for storage tanks is given under §60.5395(a) of the rule. It requires that for each storage vessel “emitting more than 6 tpy VOC, [the permittee] must reduce VOC emissions by 95.0 percent or greater. . .” Based on a letter from USEPA to the American Petroleum Institute dated September 28, 2012, applicability of storage vessels to Subpart OOOO is based on individual tank PTE - which includes federally enforceable control devices.

The six (6) condensate/produced-water storage tanks are each calculated to have a PTE (uncontrolled) of less than 6 TPY of VOCs and, therefore, are not subject to Subpart OOOO.

Pneumatic Controllers

Pursuant to §60.5365(d)(2), “[f]or the natural gas production segment (between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not including natural gas processing plants), 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” that is constructed after August 23, 2011 is subject to the applicable provisions of Subpart OOOO. The substantive requirements for pneumatic controllers are given under §60.5390. While not identified, it is assumed the facility will use pneumatic controllers and will be required to meet this requirement.

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

On June 1, 2013 the DAQ took delegation of the area source provisions of 40 CFR 63, Subpart HH. Pursuant to §63.760(a)(3), as the BIG-57 natural gas production facility - an area source of HAPs (see Table 2) - “process[es], upgrade[s], or store[s] natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category or is delivered to a final end user,” it is defined as an area source subject to the applicable provisions under Subpart HH.

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

Pursuant to information in the permit application, the maximum aggregate PTE of benzene emissions from the GDU process vent is 0.32 TPY. Therefore, the GDU is exempt from the Subpart HH requirements given under §63.764(d).

TOXICITY ANALYSIS OF NON-CRITERIA REGULATED POLLUTANTS

This section provides an analysis for those regulated pollutants that may be emitted from the BIG-57 natural gas production facility and that are not classified as “criteria pollutants.” Criteria pollutants are defined as Carbon Monoxide (CO), Lead (Pb), Oxides of Nitrogen (NO_x), Ozone, Particulate Matter (PM), Particulate Matter less than 10 microns (PM₁₀), Particulate Matter less than 2.5 microns (PM_{2.5}), and Sulfur Dioxide (SO₂). These pollutants have National Ambient Air Quality Standards (NAAQS) set for each that are designed to protect the public health and welfare. Other pollutants of concern, although designated as non-criteria and without national concentration standards, are regulated through various federal programs designed to limit their emissions and public exposure. These programs include federal source-specific Hazardous Air Pollutants (HAPs) standards promulgated under 40 CFR 61 (NESHAPS) and 40 CFR 63 (MACT). Any potential applicability to these programs were discussed above under REGULATORY APPLICABILITY.

The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. EQT included the following HAPs as emitted in substantive amounts in their emissions estimate: Benzene, n-Hexane, Toluene, and Xylenes. The following table lists each HAP’s carcinogenic risk (as based on analysis provided in the Integrated Risk Information System (IRIS)):

Table 4: Potential HAPs - Carcinogenic Risk

HAPs	Type	Known/Suspected Carcinogen	Classification
n-Hexane	VOC	No	Inadequate Data
Benzene	VOC	Yes	Category A - Known Human Carcinogen
Toluene	VOC	No	Inadequate Data
Ethyl-benzene	VOC	No	Category D - Not Classifiable
Xylenes	VOC	No	Inadequate Data

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

AIR QUALITY IMPACT ANALYSIS

The estimated maximum emissions from the proposed BIG-57 natural gas production facility are less than applicability thresholds that would define the proposed facility as a “major stationary source” under 45CSR14 and, therefore, no air quality impacts modeling analysis was required. Additionally, based on the nature of the proposed construction, modeling was not required under 45CSR13, Section 7.

MONITORING, COMPLIANCE DEMONSTRATIONS, REPORTING, AND RECORDING OF OPERATIONS

The following substantive monitoring, compliance demonstration, and record-keeping requirements (MRR) shall be required:

- For the purposes of demonstrating compliance with maximum limit for the aggregate production of condensate/liquids from the wells set forth in 4.1.3 of the draft permit, EQT shall be required to monitor and record the monthly and rolling twelve month total of condensate/produced-water (in gallons) produced in the wells. Monitoring and recording the monthly and rolling twelve month total of condensate/liquids (in gallons) unloaded from the storage tanks can be used to show compliance with this requirement.
- For the purposes of demonstrating compliance with the maximum wet gas throughput limit set forth in 4.1.(a) of the draft permit, EQT shall be required to monitor daily, monthly and rolling twelve month records of the wet gas throughput of the Glycol Dehydration Unit.

- In order to demonstrate compliance with 4.1.4(b) of the draft permit, upon request of the Director, EQT shall be required to demonstrate compliance with the VOC/HAP emissions limits using GLYCalc Version 4.0, ProMax Simulation Software, or another appropriate emissions estimation method upon approval of the Director.
- For the purposes of demonstrating compliance with visible emissions limitations set forth in 4.1.4(g) of the draft permit, EQT shall be required to:
 - Conduct monthly Method 22 visible emission observations of Reboiler exhaust to ensure proper operation for a minimum of ten (10) minutes each month the units are in operation;
 - In the event visible emissions are observed in excess of the limitations given under 4.1.6(d) of the draft permit, EQT shall be required to take immediate corrective action;
 - Maintain records of the visible emission opacity tests conducted per Section 4.2.3. of the draft permit; and
 - Any deviation(s) from the allowable visible emission requirement for any emission source discovered during observations using 40CFR Part 60, Appendix A, Method 9 or 22 shall be reported in writing to the Director of the Division of Air Quality as soon as practicable, but in any case within ten (10) calendar days of the occurrence and shall include at least the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.
- EQT shall be required to meet all applicable Monitoring, Compliance Demonstration and Source-Specific Recordkeeping and Reporting Requirements as given under 45CSR2, 40 CFR 60, Subpart OOOO, and 40 CFR 63, Subpart HH.

PERFORMANCE TESTING OF OPERATIONS

The following substantive performance testing requirements shall be required:

- Within one hundred eighty (180) days of the issuance date of the final permit, EQT shall be required to use a site specific sample to determine the potential emissions of the storage tanks. The type and location of the sample shall be appropriate for the calculation methodology or model being used to calculate the emissions. The sample location shall be equipped with appropriate sampling access and temperature and pressure instrumentation. EQT shall be required to re-evaluate the VOC and HAP potential emissions based on the site specific sample within 90 days of receiving the analysis of the site specific sample pursuant to 40 CFR 60,

Section 5365(e). If the VOC potential emissions are higher than the potential emissions given in permit application R13-3088, the DAQ shall be notified. The notification shall include whether or not this change in emissions affects applicability determination to 40 CFR 60, Subpart OOOO for any storage tank. The notification to the Director shall be provided no later than 30 days from the date of discovery of the increased emissions.

- EQT shall be required to meet all applicable Testing Requirements as given under 40 CFR 60, Subpart OOOO.

RECOMMENDATION TO DIRECTOR

The information provided in permit application R13-3088 indicates that compliance with all applicable state and federal air quality regulations will be achieved. Therefore, I recommend to the Director the issuance of Permit Number R13-3088 to EQT Production Company for the after-the-fact construction and operation of the BIG-57 natural gas production facility located near Smithfield, Wetzel County, WV.

Joe Kessler, PE
Engineer

Date