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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-2922F
Plant ID No.:	069-00109
Applicant:	SWN Production Company, LLC
Facility Name:	Charles Frye
Location:	Ohio County
NAICS Code:	212111
Application Type:	Modification
Received Date:	April 27, 2015
Engineer Assigned:	Joe Kessler
Fee Amount:	$2,000
Date Received:	May 1, 2015
Complete Date:	May 27, 2015
Due Date:	August 25, 2015
Applicant Ad Date:	April 27, 2015
Newspaper:	*The Intelligencer*
UTM's:	536.049 km Easting • 4,333.731 km Northing • Zone 17
Latitude/Longitude:	40.05305/-80.57735
Description:	Addition of one (1) 145 horsepower (hp) compressor engine, three (3) additional 1.0 mmBtu/hr Gas Processing Units (GPUs), and a Vapor Recovery Unit (VRU) to control emissions from the storage tanks and truck loading operations.

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On April 27, 2015, SWN Production Company, LLC (SWN) submitted a permit application to modify the Charles Frye natural gas production facility located near Wheeling, Ohio County, WV. The facility was originally permitted under Permit Number R13-2922A (R13-2922 was withdrawn) on October 17, 2012. Since the issuance of R13-2922A, the facility has been the subject of several other new source review (NSR) permitting actions:

- On January 4, 2013, SWN was issued a Class II Administrative Update as Permit Number R13-2922B for the removal of one of the two (2) originally permitted vapor combustors;
- On March 14, 2013, SWN was issued a Class I Administrative Update as Permit Number R13-2922C to correct topographical errors in the permit;

- On June 26, 2013, SWN was issued a Class I Administrative Update as Permit Number R13-2922D to correct topographical errors in the permit;

SWN submitted permit application R13-2922E but this application was withdrawn on September 16, 2013.

DESCRIPTION OF PROCESS

Existing Facility

The existing Charles Frye facility is a standard well-pad with an associated natural gas production facility. The existing facility consists of one (1) Caterpillar G3306 NA 4-Stroke Rich Burn (4SRB) 145 hp compressor engine (EU-MC4219), three (3) 1.0 mmBtu/hr Gas Processing Units (EU-GPU1 though EU-GPU3), three (3) 1.5 mmBtu/hr Line Heaters (EU-LH1 through EU-LH3), two (2) 0.5 mmBtu/hr Heater-Treaters, six (6) 16,800 gallon condensate and six (6) 16,800 gallon produced water storage tanks, and one (1) 15.0 mmBtu/hr Vapor Combustor. Truck loading of condensate and produced water also occurs at the facility.

Proposed Modifications

SWN is now proposing to modify the existing facility by adding three (3) additional wells which will require the addition of one (1) Caterpillar G3306 NA 4SRB 145 hp compressor engine (EU-MC4220) that will utilize an EMIT Technologies EAH-1200T-0404F-21CEE catalytic converter for emissions control (NO_x - 93.58%, CO - 85.15%), three (3) additional 1.0 mmBtu/hr Gas Processing Units (EU-GPU4 though EU-GPU6), increasing the potential throughput of condensate and produced water (both in the storage tanks and as loaded out), and the addition of a VRU to capture and recycle vapors from the storage tanks and truck loading operations.

Post-Modification Process Description

Condensate, gas and water pass from the wellheads to the GPUs, where the first stage of separation occurs. Fluids (condensate and produced water) that are separated in the GPUs are sent to the heater treaters for further separation and the gas is sent to the sales line. The flash gas from the heater-treater is captured by the existing Caterpillar G3306 NA 145 hp compressor engine for recycling. Produced water from the heater treater flows into one of the six (6) 16,800 gallon produced water storage tanks. Condensate flows from the heater-treaters into the low pressure separators where still further separation occurs, and where additional flash gas is routed to the existing compressor engine. Condensate is then sent to one of the six (6) 16,800 gallon condensate storage tanks.

Vapors from all storage tanks will be routed to the new VRU (which will utilize the new Caterpillar G3306 NA 145 hp compressor engine). An existing 15 mmBtu/hr enclosed vapor combustor will be used to control emissions (minimum control percentage of 98%) from the tanks in the event of any downtime of the VRU. The vapor combustor has natural gas fired pilots to ensure a constant flame for combustion. The natural gas stream exits the facility for transmission via pipeline. Condensate and produced water are transported offsite via truck (22,075,200 and 15,330,00 gallons/year, respectively). Truck loading emissions will be controlled with a vapor return

system, with a minimum of 70% capture efficiency, and will be routed to the VRU (with vapor combustor backup). SWN has applied a 95% control efficiency to the VRU/vapor combustor combination.

SITE INSPECTION

Due to the nature of the source and the proposed changes, the writer deemed a site inspection as not necessary. The facility was last inspected by DAQ Compliance/ Enforcement (C/E) Inspector Michael Wade on May 14, 2014. This inspection found the facility be "Status 30 - In Compliance."

AIR EMISSIONS AND CALCULATION METHODOLOGIES

SWN provided in Attachment N of the permit application an air emissions estimate for equipment added and modified as part of this permitting action. The proposed changes were noted above. The following will discuss in detail only those emission units proposed to be added or modified as part of this permitting process.

Natural Gas-Fired GPUs

Potential emissions from the natural gas-fired GPUs (EP-GPU4 though EP-GPU6) 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. 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 905 Btu/scf was used in the calculations.

Compressor Engines

Potential emissions from the new Caterpillar G3306 NA 4SRB 145 hp VRU compressor engine (EP-MC4220) were based on post-control emission factors provided by the catalyst vendor and as given in AP-42, Section 3.2. Hourly emissions were based on the (as calculated using a fuel heat rating of 8,625 Btu/hp-hr) MDHI of the engines and the maximum hp rating. Annual emissions were based on 8,760 hours of operation per year. The following tables detail the potential-to-emit (PTE) of each compressor engine:

Table 1: Caterpillar G3306 NA 4SRB 145 hp Compressor Engine PTE

Pollutant	Emission Factor	Source	Hourly (lb/hr)	Annual (ton/yr)
CO	2.00 g/hp-hr	Catalyst Vendor	0.64	2.80
NO_X	1.00 g/hp-hr	Catalyst Vendor	0.32	1.40
$PM_{2.5}$(1)	19.41×10^{-3} lb/mmBtu	AP-42, Table 3.2-2	0.02	0.11
PM_{10}(1)	19.41×10^{-3} lb/mmBtu	AP-42, Table 3.2-2	0.02	0.11
PM(1)	19.41×10^{-3} lb/mmBtu	AP-42, Table 3.2-2	0.02	0.11
SO_2	5.88×10^{-4} lb/mmBtu	AP-42, Table 3.2-2	0.001	0.003

Pollutant	Emission Factor	Source	Hourly (lb/hr)	Annual (ton/yr)
VOCs(2)	0.49 g/hp-hr	Engine Vendor	0.16	0.69
Total HAPs	Various	AP-42, Table 3.2-2	0.10	0.44
Formaldehyde	0.27 g/hp-hr	Engine Vendor	0.09	0.38

(1) Includes condensables.
(2) Includes Formaldehyde.

Storage Tanks

Uncontrolled working, breathing, and flashing emissions from the twelve (12) condensate/produced-water storage tanks were based on the ProMax software. Maximum hourly throughputs of 1,750 gallons and 2,520 gallons of produced water and condensate, respectively were used in the calculations. Annual throughputs of 15,330,000 gallons of produced water and 22,075,200 gallons of condensate, respectively were used.

As noted above, the uncontrolled emissions from the storage tanks are captured by the VRU and sent to the VRU compressor engine for recycling into the sales gas line. When this system goes down (and the normal expectation is for the system to be down approximately 5% of the time), the storage tanks emissions will be routed to the vapor combustor (with a minimum control efficiency of 98%) for control. Pursuant to DAQ policy, a control system set up with a VRU with a combustion device backup is eligible for a 98% control percentage to be applied to the uncontrolled emissions. SWN, however, only applied a 95% control percentage to the uncontrolled emissions. Additionally, SWN then increased controlled emissions by a factor of 50% to provide a safety margin.

Truck Loading

Air emissions from condensate and water truck loading operations occur as fugitive emissions generated by displacement of vapors when loading trucks. SWN used ProMax to calculate the uncontrolled emissions. ProMax, however, uses the emission factor based on Equation (1) of AP-42 Section 5.2-1. In this equation, ProMax uses variables specific to the liquids loaded and to the method of loading - in this case "submerged filling - dedicated normal service." Based on the use of the VRU compressor, and according to guidance in AP-42, Section 5.2-1, a capture efficiency of 70% was applied to the uncontrolled condensate loading emissions. As noted above, however, the captured 70% of loading emissions is sent to VRU for recycling. When in operation, the VRU is considered to recycle 100% of the loading vapors. When this system goes down (and the normal expectation is for the system to be down approximately 5% of the time), the loading vapors will be routed to the vapor combustor (with a minimum control efficiency of 98%) for control. Therefore, to account for the overall control percentage of the truck loading system, SWN applied a 68.6% (0.7 x 0.98) control percentage to the uncontrolled emissions.

Annual loadout throughputs of 15,330,000 gallons of produced water and 22,075,200 gallons of condensate, respectively were used.

Vapor Combustor Combustion Exhaust

Criteria Pollutant emissions from the combustion exhaust of the vapor combustor (both combustion of the waste gases and the combustion of natural gas in the pilot lights) was based on emission factors as given in AP-42 Section 1.4. (As this is an enclosed combustor, Section 1.4 emission factors were determined to be more representative than Section 13.5). Hourly emissions from were based on the MDHI of the unit (15.0 mmBtu/hr). Annual emissions were based on operating 8,760 hours (considered very conservative based on the expected downtime of the VRU). Pilot light emissions (nominal) were calculated at MDHI and 8,760 hours per year.

Emissions Summary

The facility-wide post-modification PTE of the Charles Frye natural gas production facility is given in Attachment A. The change in annual facility-wide PTE as a result of the modifications evaluated herein is given in the following table:

Table 2: Change In Facility-Wide Annual PTE

Pollutant	R13-2922B(1)		R13-2922F		Change	
	lbs/hour	tons/year	lbs/hour	tons/year	lbs/hour	tons/year
CO	5.56	24.35	3.74	16.40	-1.82	-7.95
NO_X	3.35	14.69	3.59	15.70	0.24	1.01
PM(2)	0.14	0.62	0.27	1.19	0.13	0.57
SO_2	0.01	0.03	0.02	0.09	0.01	0.06
VOCs	8.00	35.04	8.45	37.01	0.45	1.97
HAPs	0.71	3.12	0.37	1.61	-0.34	-1.51

(1) Facility-wide annual PTE taken from R13-2922B Fact Sheet. No hourly emissions given so estimated by writer at PTE/8,760 hours/year. No emissions changes in any subsequent permitting actions.

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

REGULATORY APPLICABILITY

The following will discuss only the regulatory applicability of general rules and specific rules to the emission units that have been proposed to be modified as part of this permitting action.

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

The new GPUs 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 GPUs 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 SO_2 emissions from "fuel burning units," limiting in-stack SO_2 concentrations of "manufacturing processes," and limiting H_2S concentrations in process gas streams. The only potential applicability of 45CSR10 to the Charles Fry 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 new GPUs - 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 proposed modification of the Charles Frye natural gas production facility has the potential to increase a regulated pollutant (see Table 2 above). However, no regulated pollutant is increased in excess of six (6) lbs/hour and ten (10) TPY and, therefore, the proposed changes would normally be eligible to be reviewed as a Class II Administrative Update. However, SWN voluntarily submitted the application as a modification and it was reviewed as such. Pursuant to §45-13-5.1, "[n]o person shall cause, suffer, allow or permit the construction, modification, relocation and operation of any stationary source to be commenced without . . . obtaining a permit to construct." Therefore, SWN is required to obtain a permit under 45CSR13 for the modification of the Charles Frye facility.

As required under §45-13-8.3 ("Notice Level A"), SWN placed a Class I legal advertisement in a "newspaper of general circulation in the area where the source is . . . located." The ad ran on April 27, 2015 in *The Intelligencer* and the affidavit of publication for this legal advertisement was submitted on May 21, 2015.

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

The facility-wide potential-to-emit of the Charles Frye natural gas production facility (see Attachment A) is below the levels that would define the source as "major" under 45CSR14 (as a "non-listed" source, the major stationary source threshold is a PTE of 250 TPY of any criteria pollutant) and, therefore, the construction evaluated herein is not subject to the provisions of 45CSR14.

<u>Potential Source Aggregation</u>

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 Charles Frye natural gas production facility will be located approximately 0.54 miles from the known nearest other SWN facility (Deborah Craig well-pad and production facility). Charles Frye shares the same SIC code as Deborah Craig and is owned by SWN. Therefore, the potential classification of the Charles Frye facility as one stationary source with Deborah Craig 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 Charles Frye natural gas production facility is not located contiguous with, or *directly* adjacent to the Deborah Craig facility. As noted above, the facilities are 0.54 miles apart. Facilities separated by this distance do not meet the common sense notion of a single plant. Therefore, the Charles Frye and Deborah Craig 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 (see Attachment A and footnotes). However, as the facility is subject to several New Source Performance Standards (NSPS) and Maximum Achievable Control Technology (MACT) rule, the facility would, in most cases, be subject to Title V as a "deferred source." However, pursuant to provisions in each rule, as a non-major source, SWN is specifically exempted from having to obtain a Title V permit for the facility. Therefore, the Charles Frye natural gas production facility is not subject to 45CSR30.

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

SWN's proposed new Caterpillar G3306 NA 4SRB 145 hp compressor engine is defined under 40 CFR 60, Subpart JJJJ as stationary spark-ignition internal combustion engines (SI ICE) and is , pursuant to §60.4230(a)(4)(iii), subject to the applicable provisions of the rule. Pursuant to §60.4233(e): "Owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to this subpart for their stationary SI ICE." Therefore, as the proposed engine is greater than 100 hp and was manufactured (according to SWN) in November

2013, the engine must comply with the emission standards under Table 1 for "Non-Emergency SI ICE 100 ≤hp ≥ 500 manufactured after January 1, 2011:" NO_x - 1.0 g/HP-hr, CO - 2.0 g/HP-hr, and VOC - 0.7 g/HP-hr. The emission standards and the proposed compliance therewith of the engine is given in the following table:

Table 3: Caterpillar G3306 NA Subpart JJJJ Compliance

Pollutant	Standard (g/HP-hr)	Uncontrolled Emissions (g/bhp)(1)	Control Percentage	Controlled Emissions (g/bhp)(1)	JJJJ Compliant?
NO_x	1.0	13.47	92.58%	1.00	Yes
CO	2.0	13.47	85.15%	2.00	Yes
VOC	0.7	0.49	0.00%	0.49	Yes

(1) Based on the EMIT Technologies EAH-1200T-0404F-21CEE catalytic converter specification sheet. VOC emissions based on NMNEHC + CH_2O emission factors.

The Caterpillar G3306 NA is not a "certified" engine under Subpart JJJJ so SWN will have to show compliance with the emission standards pursuant to §60.4243(b)(2)(ii): conducting an initial performance test and thereafter conducting subsequent performance testing every 8,760 hours or 3 years, whichever comes first, to demonstrate compliance. Performance testing requirements are given under §60.4244 of Subpart JJJJ. SWN will additionally have to meet all applicable monitoring, recording, and record-keeping requirements under Subpart JJJJ.

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, September 23, 2013, and December 31, 2014) that consists of federal air quality 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 were previously not regulated at the federal level. Each potentially applicable section of Subpart OOOO is discussed below.

Compressor Engines (NON APPLICABILITY)

Pursuant to §60.5365(c), "[e]ach 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. 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." that commenced construction, modification or reconstruction after August 23, 2011 is subject to the applicable provisions of Subpart OOOO. As the new compressor engine proposed for Charles Frye is to be located at a well-site, the engine is not subject to the requirements of OOOO.

Gas Wells - §60.5370

SWN has previously drilled three (3) gas wells at the Charles Frye well-pad (after August 23, 2011) and, therefore, these are defined as "affected facilities" under Subpart OOOO and are subject to applicable provisions. SWN is now proposing to drill an additional three (3) gas wells at the facility and these will also be defined as "affected facilities" under Subpart OOOO. For the new wells, the primary requirements for gas wells hydraulically fractured after January 1, 2015 are given

under §60.5375(a)(1) through (4) of the rule. It primarily requires that flowback emissions (gas produced from the well after fracturing) must be directed to the flow line, collected and stored, reinjected back into the well, or otherwise not emitted.

Storage Tanks - §60.5395 (NON APPLICABILITY)

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 of greater. . ." Based on a letter from USEPA to the American Petroleum Instituted dated September 28, 2012, the *applicability* of storage vessels to Subpart OOOO is based on individual tank PTE - which includes federally enforceable control devices.

The six (6) condensate and six (6) produced-water storage tanks are each calculated to have a federally enforceable PTE (including controls) of less than 6 TPY of VOCs and, therefore, are not considered applicable affected sources under Subpart OOOO.

Pneumatic Controllers (NON APPLICABILITY)

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. SWN has stated that "[n]o pneumatic controllers installed will meet the definition of a pneumatic controller affected facility. Therefore, these units are not subject to the requirements of Subpart OOOO."

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

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

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

§63.6590(c)(1) specifies that "[a] new or reconstructed stationary RICE located at an area source" is defined as a RICE that shows compliance with the requirements of Subpart ZZZZ by "meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines." Pursuant to §63.6590(a)(2)(iii), a "stationary RICE located at an area source of HAP emissions is new if [the applicant] commenced construction of the stationary RICE on or after June 12, 2006." The Caterpillar G3306 NA is defined as a new stationary RICE (SWN has stated the engine was manufactured in November 2013) and, therefore,

will show compliance with Subpart ZZZZ by meeting the requirements of 40 CFR 60, Subpart JJJJ. Compliance with this rule is discussed above.

TOXICITY ANALYSIS OF NON-CRITERIA REGULATED POLLUTANTS

The facility-wide emission rate of non-criteria regulated pollutants (for the Charles Frye facility will consist of HAPs) will decrease (see Table 2 above) as a result of the permitting action evaluated herein.

AIR QUALITY IMPACT ANALYSIS

The estimated maximum emissions from the proposed Charles Frye 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 modification, modeling was not required under 45CSR13, Section 7.

MONITORING, COMPLIANCE DEMONSTRATIONS, REPORTING, AND RECORDING OF OPERATIONS

No substantive changes to the existing monitoring, compliance demonstrations, reporting or record-keeping requirements.

PERFORMANCE TESTING OF OPERATIONS

No substantive changes to the existing performance testing requirements.

CHANGES TO PERMIT R13-2922D

The substantive changes to Permit Number R13-2922D are the following:

- The new compressor engine and the new GPUs were added to Table 1.0 Emission Units;
- The condensate and produced water throughputs were revised in Table 1.0 Emission Units;
- The use of a VRU system was added to Table 1.0 Emission Units;
- New requirements relating to the use of the VRU system on the storage tanks and truck loading operations were added to 9.1.1. and 9.1.2;

- New requirements specifying the emission limits from the storage tanks and truck loading operations of the 9.1.6. and 9.1.7;

- A submerged loading requirement was added to 9.1.9.

RECOMMENDATION TO DIRECTOR

The information provided in permit application R13-2922F indicates that compliance with all applicable federal and state air quality regulations will be achieved. Therefore, I recommend to the Director the issuance of Permit Number R13-2922F to SWN Production Company LLC for the modification and operation of the Charles Frye natural gas production facility located near Wheeling, Ohio County, WV.

Joe Kessler, PE
Engineer

7/20/15
Date

Attachment A: Facility-Wide PTE

SWN Production Company, LLC: Charles Frye
Permit Number R13-2922F: Facility ID 069-00109

Emission Unit	EP ID	CO		NO_x		PM[1]		SO_x		VOC		Total HAPs	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
Engine	EP-MC4219	0.64	2.80	0.32	1.40	0.02	0.11	0.001	0.004	0.16	0.69	0.100	0.438
Engine	EP-MC4220	0.64	2.80	0.32	1.40	0.02	0.11	0.001	0.004	0.16	0.69	0.100	0.438
GPU	EP-GPU1	0.09	0.41	0.11	0.48	0.01	0.04	0.001	0.003	0.01	0.03	0.002	0.009
GPU	EP-GPU2	0.09	0.41	0.11	0.48	0.01	0.04	0.001	0.003	0.01	0.03	0.002	0.009
GPU	EP-GPU3	0.09	0.41	0.11	0.48	0.01	0.04	0.001	0.003	0.01	0.03	0.002	0.009
GPU	EP-GPU4	0.09	0.41	0.11	0.48	0.01	0.04	0.001	0.003	0.01	0.03	0.002	0.009
GPU	EP-GPU5	0.09	0.41	0.11	0.48	0.01	0.04	0.001	0.003	0.01	0.03	0.002	0.009
GPU	EP-GPU6	0.09	0.41	0.11	0.48	0.01	0.04	0.001	0.003	0.01	0.03	0.002	0.009
Line Heater	EP-LH1	0.14	0.61	0.17	0.74	0.01	0.06	0.001	0.004	0.01	0.04	0.003	0.014
Line Heater	EP-LH2	0.14	0.61	0.17	0.74	0.01	0.06	0.001	0.004	0.01	0.04	0.003	0.014
Line Heater	EP-LH3	0.14	0.61	0.17	0.74	0.01	0.06	0.001	0.004	0.01	0.04	0.003	0.014
Heater-Treater	EP-HT1	0.05	0.20	0.06	0.24	0.00	0.02	0.000	0.001	0.00	0.01	0.001	0.004
Heater-Treater	EP-HT2	0.05	0.20	0.06	0.24	0.00	0.02	0.000	0.001	0.00	0.01	0.001	0.004
Condensate Tanks[2]	EP-TANKS-COND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87	8.17	0.04	0.17
Water Tanks[2]	EP-TANKS-PW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.87	0.001	0.004
Condensate Loading[2]	EP-LOAD-COND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.40	19.28	0.09	0.38
Water Loading[2]	EP-LOAD-PW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	2.98	0.00	0.01
Vapor Combustion[3]	APC-COMB-TKLD	1.39	6.11	1.67	7.29	0.13	0.55	0.010	0.044	0.00	0.00	0.000	0.000
Fugitives[4]	n/a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	4.03	0.016	0.070
Facility-Wide Total →		***3.74***	***16.40***	***3.59***	***15.70***	***0.27***	***1.19***	***0.02***	***0.09***	***8.45***	***37.01***	***0.37***	***1.61***
Facility-Wide PTE[5] →		***3.74***	***16.40***	***3.59***	***15.70***	***0.27***	***1.19***	***0.02***	***0.09***	***7.53***	***32.98***	***0.35***	***1.54***

(1) All particular matter emissions are assumed to be 2.5 microns or less.
(2) As emitted from the vapor combustor if VRU is down.
(3) Does not include pass-through emissions. Products of combustion only.
(4) PTE does not include fugitive emissions. No individual HAP has a PTE over 10 TPY. As the PTE of all individual HAPs are less than 10 TPY the PTE of total HAPs is less than 25 TPY, and the PTE of each criteria pollutant is less than 100 TPY,the Charles Frye Facility is defined as a minor (area) source for purposes of 40 CFR 61, 40CFR63, and Title V.