



west virginia department of environmental protection

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BACKGROUND INFORMATION

Application No.: 13-2991C
Plant ID No.: 009-00111
Applicant: SWN Production Company, LLC
Facility Name: Nick Ballato Pad
Location: County Route 14 St. Johns Run Road, Follansbee, WV 26035
NAICS Code: 211111
Application Type: NSR Class I Administrative Update
Received Date: October 24, 2016
Engineer Assigned: Jonathan Carney
Fee Amount: \$0.00
Date Received: N/A
Complete Date: November 18, 2016
Due Date: January 1, 2016
Applicant Ad Date: N/A
Newspaper: N/A
UTM's: Easting: 536.923 Northing: 4,462.300 Zone: 17T
Description: Permit R13-2991C will supersede and replace R13-2991B. It is proposed in this application to remove one (1) 145-bhp compressor engine, reduce the condensate throughput estimate from 800 bbl/d to 274 bbl/d and revise tank emission estimates. Additionally, the application includes changes to truck loading, fugitive, and haul road emissions and changes to global warming emissions using Global Warming Potential multipliers and other recent revisions of 40 CFR Part 98 – Greenhouse Gas Reporting rule.

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-2991C:

The facility is an oil and natural gas exploration and production facility, responsible for the production of condensate and natural gas. Storage of condensate and produced water will also occur on site. A description of the facility process is as follows: Condensate, gas, and water come from the wellhead(s) to the production units, where the first stage of separation occurs. From the production units, gas is routed to

pipeline and produced water is routed to the produced water storage tanks. Condensate and trace amounts of residual water will be sent to the heater treater(s). From the heater treaters(s), condensate is routed to the low pressure tower(s). Produced water from the heater treater(s) flows into the produced water storage tanks. Condensate flows to the condensate storage tank(s). Condensate and produced water are transported offsite via truck.

Loading emissions will be controlled with vapor return, which has at least 70% capture efficiency, and will be routed to the vapor combustor for at least 98% destruction efficiency. Working, breathing and flashing vapors from the condensate and produced water storage tanks will be routed to the remaining vapor combustor with a 100% capture efficiency to be burned with at least 98% destruction efficiency. The vapor combustor has two (2) natural gas-fired pilots to ensure a constant flame for combustion.

SITE INSPECTION

A site inspection was performed by DEP DAQ's Compliance and Enforcement NPRO Michael Wade on October 16, 2013. Mr. Wade determined that the facility was in compliance.

Directions as given in the permit application are as follows:

From I-70 take exit 1A to SR-2 North 19.8 miles to Alt SR-27 intersection and turn right on Alt SR-27. Travel Alt 27 for 4.3 miles to CR-14,(St. Johns Rd), and turn right on CR-14. Travel 2.3 miles to access road on right.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emission changes associated with this administrative amendment application consists of removal of combustion emissions from the compressor engine (EU-MC4247) and reduction in emissions from the six (6) condensate tanks (EU-TANKS-COND), six (6) produced water tanks (EU-TANKS-PW), condensate truck loading (EU-LOAD-COND), produced water truck loading (EU-LOAD-PW), vapor combustor (APC-COMB-LPT & APC-COMB-TKLD), fugitive emissions (EU-FUG), and fugitive haul road emissions. The following table indicates which methodology was used in the emissions determination:

Emission Unit ID#	Process Equipment	Calculation Methodology	Change
EU-MC4247	145 hp Caterpillar G3306 NA Compressor Engine w/ NSCR	Manufacturer's Data	Removal
EU-TANKS-COND	Six (6) 400 bbl Condensate Tanks	EPA Tanks 4.09 Emission Estimation Software, Promax Process Simulation	Modification (Throughput decrease)
EU-TANKS-PW	Six (6) 400 bbl Produced Water Tanks	EPA Tanks 4.09 Emission Estimation Software, Promax Process Simulation	Modification (Throughput decrease)
EU-LOAD-COND	Condensate Truck Loading	EPA AP-42 Emission Factors	Modification (Throughput decrease)
EU-LOAD-PW	Produced Water Truck Loading	EPA AP-42 Emission Factors	Modification (Throughput decrease)
APC-COMB-LPT & APC-COMB-TKLD	One (1) 20.0 MMBTU/hr	EPA AP-42 Emission Factors	Modification (Throughput decrease)

Fugitive emissions for the facility are based on calculation methodologies presented in the 2009 American Petroleum Institute Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry. The factors presented in the API Compendium are for methane emissions. Therefore, the fugitive VOC and HAP emissions were calculated using a representative gas analysis and the weight percent of each respective pollutant.

Maximum controlled point source emissions from the revised changes were calculated by SWN Production and checked for accuracy by the writer and are summarized in the table below.

Emission Point ID	Emission Unit ID	Process Unit	Pollutant	Maximum Controlled Emission Rate	
				Hourly (lb/hr)	Annual (ton/year)
EP-MC4247	EU-MC4247	145 HP Caterpillar G3306 Compressor Engine	Nitrogen Oxides	0	0
			Carbon Monoxide	0	0
			Sulfur Dioxide	0	0
			Particulate Matter-10	0	0
			Volatile Organic Compounds	0	0
			Formaldehyde	0	0
			Total HAPs	0	0
Carbon Dioxide Equivalent	0	0			
EP-TANKS-COND	EU-TANKS-COND	6 – 400 bbl Condensate Tanks	Volatile Organic Compounds	*	*
			Total HAPs	*	*
EP-TANKS-PW	EU-TANKS-PW	6 -400 bbl Produced Water Tanks	Volatile Organic Compounds	*	*
			Total HAPs	*	*
EU-LOAD-COND	EP-LOAD-COND	Condensate Truck Loading	Volatile Organic Compounds	0.97	4.26
			Total HAPs	0.08	0.34
			Carbon Dioxide Equivalent	0.13	0.58
EU-LOAD-PW	EP-LOAD-PW	Produced Water Truck Loading	Volatile Organic Compounds	0.03	0.14
			Total HAPs	<0.01	0.01
			Carbon Dioxide Equivalent	0.39	1.69

*These used to have values assigned to them but these values have been removed because the applicant has changed the capture efficiency from 98% to 100%.

Emission Point ID	Emission Unit ID	Process Unit	Pollutant	Maximum Controlled Emission Rate	
				Hourly (lb/hr)	Annual (ton/year)
APC-COMB-TKLD	APC-COMB-TKLD	Vapor Combustors Tank/Load Stream	Nitrogen Oxides	2.76	12.09
			Carbon Monoxide	5.51	24.13
			Particulate Matter	0.06	0.25
			Volatile Organic Compounds	6.36	27.84
			n-Hexane	0.37	1.61
			Benzene	<0.01	0.02
			Toluene	0.02	0.11
			Ethylbenzene	0.03	0.12
			Xylenes	0.09	0.40
			Carbon Dioxide Equivalent	2,341.96	10,257.78
EP-PILOTS	EU-PILOTS	Vapor Combustor Pilots	Nitrogen Oxides	0.01	0.04
			Carbon Monoxide	0.01	0.04
			Particulate Matter	<0.01	<0.01
			Volatile Organic Compounds	<0.01	<0.01
			Sulfur Dioxide	<0.01	<0.01
			Carbon Dioxide Equivalent	10.60	46.42
EU-FUG	EP-FUG	Fugitive Emissions	Volatile Organic Compounds	0.71	3.09
			Total HAPs	0.05	0.21
			Carbon Dioxide Equivalent	11.06	48.42

The following table represents the total facility emissions:

Pollutant	Maximum Pre-Modification Annual Facility Wide Emissions (tons/year)	Maximum Post-Modification Annual Facility Wide Emissions (tons/year)	Net Facility Wide Emissions Changes (tons/year)
Nitrogen Oxides	16.23	14.79	-1.44
Carbon Monoxide	29.19	26.37	-2.82
Volatile Organic Compounds	38.74	35.47	-3.27
Particulate Matter	0.56	0.25	-0.31
Sulfur Dioxide	0.02	0.02	0.0
Formaldehyde	0.09	0.00	-0.09
Benzene	0.03	0.02	-0.01
Ethylbenzene	0.15	0.12	-0.03
n-Hexane	2.18	1.61	-0.57
Toluene	0.15	0.11	-0.04
Xylenes	0.52	0.40	-0.12
Total HAPs	3.17	2.66	-0.51
Carbon Dioxide Equivalent	13,845	13,149.54	-695.46

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

Emission Unit	Pollutant	Control Device	Control Efficiency
EU-TANKS-COND, EU-TANKS-PW Storage Tanks	Volatile Organic Compounds	Vapor Combustor	98.00 %
	Total HAPs		98.00 %
EU-LOAD-COND, EU-LOAD-PW Loadout Racks	Volatile Organic Compounds	Vapor Return/ Combustion	70.00 %

REGULATORY APPLICABILITY

In accordance with the proposed administrative updates, the applicability of rules and regulations to this facility have changed as follows:

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

40CFR60.4230 states that a source that commenced construction after June 12, 2006 whose SI ICE was less than 500 hp and was manufactured on or after July

1, 2008 is subject to this rule. SWN has proposed to remove one (1) 145-HP SI ICE. Since no other SI ICE are on site that are subject to this rule, SWN is not subject to this rule. The section of the permit that pertains to this rule has been removed.

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

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (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 facility is a minor source of hazardous air pollutants (HAPS < 10 tpy of an individual HAP and < 25 tpy of aggregate HAPs) as can be seen in Table 3. The facility is therefore considered an area source (§63.6585(c)).

Stationary RICE subject to Regulations under 40 CFR Part 60 must meet the requirements of those subparts that apply (40 CFR 60 Subpart JJJJ, for spark ignition engines) if the engine is a new stationary RICE located at an area source (§63.6590(c)(1)). No additional requirements apply for this engine under this subpart.

SWN has proposed to remove one (1) 145-HP SI ICE. No other SI ICE are on site that are subject to this rule.

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. There will be a decrease in the already small amounts of various non-criteria regulated pollutants emitted from the combustion of natural gas with the removal of the natural gas-driven engine that is part of this administrative amendment.

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).

MONITORING OF OPERATIONS

Monitoring requirements in this permit are no longer applicable to EP-MC4247 Caterpillar G3306 NA engine because it has been removed from the facility.

CHANGES TO PERMIT R13-2991B

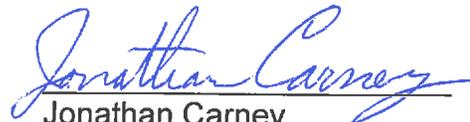
Emission Unit EP-MC4247 Caterpillar G3306 NA engine was removed from section 1.0 Emission Units table. Permit sections applicable to the engine were also removed from the permit specifically Section 5.0, Section 9.1.6, and Section 10.

The condensate throughput limit was reduced in Section 8.1.4.

Emission limits were reduced in Section 8.1.12.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates SWN's Nick Ballato Pad meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Brooke County location should be granted a 45CSR13 construction permit for their facility.


Jonathan Carney
Permit Writer

12/9/2016
DATE