



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-3183
Plant ID No.: 103-00093
Applicant: Stone Energy Corporation (Stone)
Facility Name: Stone Well Pad Production Facility
Location: New Martinsville, Wetzel County
NAICS Code: 211111 (Natural Gas Extraction)
Application Type: Construction
Received Date: April 10, 2014
Engineer Assigned: Jerry Williams, P.E.
Fee Amount: \$2,000.00
Date Received: April 10, 2014
Complete Date: May 8, 2014
Due Date: August 6, 2014
Applicant Ad Date: April 23, 2014
Newspaper: *The Wetzel Chronicle*
UTM's: Easting: 518.705 km Northing: 4,389.051 km Zone: 17
Description: This permitting action is for a natural gas production facility.

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-3183:

Natural gas and produced fluids (condensate and water) will be received from ten (10) wells on this location at approximately 500 psi and pass through heaters (one (1) per well) to avoid ice formation during subsequent pressure drops. These materials will then pass through a three way separator where gas, condensate and water are separated. The gas will be routed to a gathering pipeline and routed to Stone's Winters Compressor Station, approximately 1.5 miles from this site.

Promoting a healthy environment.

Condensate will normally be injected into a liquids pipeline and also routed to the Winters Compressor Station. However, as a backup to this pipeline, provisions will be made to stabilize the condensate through heating and pressure reduction, coupled with vapor recovery. The stabilized condensate will be accumulated in four (4) 400 barrel (bbl) tanks, pending truck transportation by others to a regional processing facility for separation into individual products. Flashing, working and breathing losses from these tanks will be routed to a pair of vapor recovery units (VRUs) with the captured vapors routed back to the discharge line. In the event of shut down of the VRUs due to maintenance or equipment failure, the vapors from the condensate tanks will be routed to two (2) vapor combustion units operating in parallel. Vapors generated during truck loading of condensate will be routed to the two (2) vapor combustion units. Stone calculated their emissions from truck loading in that each truck loaded will have passed annual MACT level leak tests. Therefore, all trucks loaded will be required to have this documentation.

A capture and control efficiency of 99% is being claimed for the VRUs. The following additional measures will be taken to account for the default 95% accepted control:

- Additional sensing equipment to monitor the run status of the VRUs will be present. If the VRU shuts down, the well shuts in.
- Bypass system which operates automatically whereby discharge is re-routed back to the inlet of the VRU until the appropriate pressure is established for the compressor to turn on.
- Run a blanket gas and have automatic throttling to ensure oxygen does not enter the tanks.
- Continuous monitoring and recordkeeping of the pressure in the tanks to demonstrate the gas is not escaping through pressure relief valves. Installation of gas detection on the vents, and if gas is detected, the wells will be shut in until the problem is found and resolved.

The produced water and water generated during the fuel conditioning process will be accumulated in two (2) 400 bbl tanks pending transportation via pipeline to a Stone water management facility. Nominal flash gas vapors from these tanks (modeled at 8 standard cubic feet per day (scfd) during steady state operations but conservatively estimated at 120 scfd for permitting purposes to account for temporary surges in the system) will be vented to the atmosphere. These vapors are comprised solely of flash gases generated during the drop to atmospheric pressure.

Three (3) gas fired generators will be present to provide electric service for facility instrumentation and controllers to operate pumps.

The control systems proposed will ensure VOC emissions from the two (2) water tanks will be below six (6) tons per year.

Fugitive emissions from component leaks and emissions from venting or blowdown events will also occur.

SITE INSPECTION

A site inspection was conducted on June 3, 2014 by Doug Hammell of the DAQ Enforcement Section. According to Mr. Hammell, the site location is appropriate for the proposed facility.

Latitude: 39.651050
Longitude: -80.781972

Directions as given in the permit application are as follows:

From the intersection of Route 2 and North Street in New Martinsville, head east on North Street 0.2 miles until it becomes Doolin Run Road/Doolin Ridge Road (CR 3). Travel east on Doolin for 5.2 miles and turn left on Huff Ridge Road (CR 3/1). Travel 0.2 miles on Huff Ridge Road and the access road will be on your left.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this construction application consist of the emissions from seven (7) natural gas fired compressor engines (CE-1, CE-2, CE-3, CE-4, GN-1, GN-2, GN-3), two (2) enclosed combustors (VCU-1, VCU-2), one (1) product loadout rack, four (4) condensate tanks (T01-T04), two (2) produced water tanks (T05, T06), eight (8) line heaters (HTR-1 – HTR-8), two (2) condensate heaters (HTR-9 – HTR-10) and fugitive emissions. Fugitive emissions for the facility are based on calculation methodologies presented in 40CFR Part 98 and the American Petroleum Institute Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Gas Industry. The following table indicates which methodology was used in the emissions determination:

Emission Unit ID#	Process Equipment	Calculation Methodology
CE-1, CE-2	225 hp Cummins GTA855 Reciprocating Internal Combustion Engine (RICE) w/ NSCR	Manufacturer's Data, EPA AP-42 Emission Factors
CE-3, CE-4	118 hp Cummins G8.3 RICE w/ NSCR	Manufacturer's Data, EPA AP-42 Emission Factors
GN-1, GN-2	25 hp Power Solutions Generator	Manufacturer's Data, EPA AP-42 Emission Factors
GN-3	637 hp Caterpillar 3412 Generator w/ SCR	Manufacturer's Data, EPA AP-42 Emission Factors
HTR-1 – HTR-10	0.75 MMBTU/hr Line Heaters and Condensate Heaters	EPA AP-42 Emission Factors
NA	50 mmscfd TEG Dehydrator Still Vent w/ Condenser/Recycle	GRI-GlyCalc 4.0
T01 – T04	400 bbl (16,800 gal) Condensate Storage Tanks	HYSYS Model (Working, Breathing, and Flashing)
T05 – T06	400 bbl (16,800 gal) Produced Water Tanks	HYSYS Model (Working, Breathing, and Flashing)
NA	10,000,000 gal/yr Product Loadout Rack	EPA AP-42 Emission Factors
VCU-1, VCU-2	Enclosed Vapor Combustion Units	EPA AP-42 Emission Factors

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

Emission Unit	Pollutant	Control Device	Control Efficiency
225 hp Cummins GTA855 RICE w/ NSCR (CE-1, CE-2)	Nitrogen Oxides	NSCR	92 %
	Carbon Monoxide		31 %
118 hp Cummins G8.3 RICE w/ NSCR (CE-3, CE-4)	Nitrogen Oxides	NSCR	92 %
	Carbon Monoxide		77 %
637 hp Caterpillar 3412 RICE w/ SCR (GN-3)	Volatile Organic Compounds	SCR	50 %
	Carbon Monoxide		20 %
	Formaldehyde		50 %
Truck Loading	Volatile Organic Compounds	Vapor Combustion Units	98 %
	Hazardous Air Pollutants		98 %
Condensate Tanks (T01-T04)	Volatile Organic Compounds	Vapor Recovery Units	99 %
	Hazardous Air Pollutants		99 %

The total facility PTE, including fugitive emissions for the Stone Well Pad is shown in the following table:

Pollutant	Facility Wide PTE (tons/year)
Nitrogen Oxides	17.50
Carbon Monoxide	41.59
Volatile Organic Compounds	47.44
Particulate Matter-10/2.5	0.46
Sulfur Dioxide	0.04
Formaldehyde	2.29
Total HAPs	3.74
Carbon Dioxide Equivalent	10,834

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

Stone Energy Corporation – Stone Well Pad (R13-3183)

Emission Unit 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	ton/year
CE-1	225 hp VRU Compressor Engine	0.50	2.17	0.99	4.35	0.35	1.52	0.02	0.08	<0.01	<0.01	0.05	0.22	0.07	0.31	1156
CE-2	225 hp VRU Compressor Engine	0.50	2.17	0.99	4.35	0.35	1.52	0.02	0.08	<0.01	<0.01	0.05	0.22	0.07	0.31	1156
CE-3	118 hp VRU Compressor Engine	0.26	1.14	0.52	2.28	3.80	16.65	<0.01	0.04	<0.01	<0.01	0.02	0.09	0.11	0.49	542
CE-4	118 hp VRU Compressor Engine	0.26	1.14	0.52	2.28	3.80	16.65	<0.01	0.04	<0.01	<0.01	0.02	0.09	0.11	0.49	542
GN-1	25 hp Generator Engine	0.20	0.87	1.39	6.05	0.09	0.37	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	116
GN-2	25 hp Generator Engine	0.20	0.87	1.39	6.05	0.09	0.37	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	116
GN-3	637 hp Generator Engine	1.40	6.15	2.77	12.12	0.31	1.35	<0.01	<0.01	<0.01	0.01	0.38	1.66	0.46	1.99	3352
VCU-1, VCU-2	Enclosed Combustors	1.22	0.35	6.64	1.90	16.12	4.54	0.05	0.02	<0.01	<0.01	<0.01	<0.01	0.34	0.06	600
T05, T06	Produced Water Tanks	-	-	-	-	0.32	1.40	-	-	-	-	-	-	-	-	17
TL	Truck Loadout	-	-	-	-	0.72	0.86	-	-	-	-	-	-	0.89	0.09	-
HTR-1 - HTR8	0.75 MMBTU/hr Line Heater	0.49	2.12	0.41	1.78	0.03	0.12	0.04	0.16	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	2560
HTR-9 - HTR-10	0.75 MMBTU/hr Condensate Htr	0.12	0.53	0.11	0.45	<0.01	0.03	0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	640
FUG	Fugitives/Blowdowns	-	-	-	-	NA	2.04	-	-	-	-	-	-	-	-	35
Total	Total Facility PTE	5.14	17.50	15.70	41.59	26.43	47.44	0.15	0.46	0.00	0.04	0.52	2.29	2.04	3.74	10834

REGULATORY APPLICABILITY

The following rules apply to the facility:

45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units. 45CSR2 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the proposed line heaters (HTR-1 – HTR-8) and condensate heaters (HTR-9 – HTR-10) are below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR2.

Stone would also be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average.

45CSR6 (To Prevent and Control Air Pollution from the Combustion of Refuse)

The purpose of this rule is to prevent and control air pollution from combustion of refuse.

Stone has two (2) vapor combustion units (VCUs) at the Stone well pad site. These units are subject to section 4, emission standards for incinerators. These units have negligible particulate matter emissions. Therefore, the facility's VCUs should demonstrate compliance with this section. The facility will demonstrate compliance by maintaining records of the amount of natural gas consumed by the VCUs and the hours of operation. The facility will also monitor the flame of the VCUs and record any malfunctions that may cause no flame to be present during operation.

45CSR10 (To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides)

The purpose of 45CSR10 is to establish emission limitations for sulfur dioxide which are discharged from fuel burning units. 45CSR10 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 3 (weight emission standard), 6 (registration), 7 (permits), and 8 (testing, monitoring, recordkeeping, reporting). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the proposed line heaters (HTR-1 – HTR-8) and condensate heaters (HTR-9 – HTR-10) are below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 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)

45CSR13 applies to this source due to the fact that Stone exceeds the regulatory emission threshold for criteria pollutants of 6 lb/hr and 10 ton/year, and they are also subject to a substantive requirement of an emission control rule promulgated by the Secretary (40CFR60 Subparts JJJJ and OOOO, 40CFR63 Subpart ZZZZ).

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

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

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

45CSR22 (Air Quality Management Fee Program)

Stone is not subject to 45CSR30. The Stone Well Pad is subject to 40CFR60 Subparts JJJJ and OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

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

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

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

- The 225 hp Cummins GTA855 engines (CE-1, CE-2) were manufactured after the July 1, 2011 date for engines with a maximum rated power capacity less than 500 hp. The proposed 225 hp Cummins GTA855 engines (CE-1, CE-2) will be subject to the following emission limits: NO_x – 1.0 g/hp-hr (0.50 lb/hr); CO – 2.0 g/hp-hr (0.992 lb/hr); and VOC – 0.7 g/hp-hr (0.35 lb/hr). Based on the manufacturer's specifications for this engine, the emission standards will be met.
- The 118 hp Cummins G8.3 engines (CE-3, CE-4) were manufactured after the July 1, 2011 date for engines with a maximum rated power capacity less than 500 hp. The proposed 118 hp Cummins G8.3 engines (CE-3, CE-4) will be subject to the following emission limits: NO_x – 1.0 g/hp-hr (0.26 lb/hr); CO – 2.0 g/hp-hr (0.52 lb/hr); and VOC – 0.7 g/hp-hr (0.18 lb/hr). Based on the manufacturer's specifications for this engine, the emission standards will be met.
- The 25 hp Power Solutions generators (GN-1, GN-2) were manufactured after the July 1, 2011 date for engines with a maximum rated power capacity less than 500

hp. In accordance with this rule, these units are subject to the requirements of 40 CFR 60.4233(a). These engines each have a capacity of 1.6 L, and it is stipulated that the engines must meet the requirements of 40 CFR 1054. These requirements are HC + NO_x must be less than or equal to 8.0 g/kW-hr and CO must be less than or equal to 610 g/kW-hr. The engines are rated at 6.89 and 33.7 respectively. Therefore, based on the manufacturer's specifications for this engine, the emission standards will be met. In addition, these engines are designated as 'certified engines' to meet the standards of this rule.

- The 637 hp Caterpillar 3412 engine (GN-3) was manufactured after the July 1, 2011 date for engines with a maximum rated power capacity less than 500 hp. The proposed 637 hp Caterpillar 3412 engine (GN-3) will be subject to the following emission limits: NO_x – 1.0 g/hp-hr (1.41 lb/hr); CO – 2.0 g/hp-hr (2.81 lb/hr); and VOC – 0.7 g/hp-hr (0.98 lb/hr). Based on the manufacturer's specifications for this engine, the emission standards will be met.

The units that are not certified by the manufacturer to meet the emission standards listed in 40CFR60 Subpart JJJJ are required to conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or three (3) years, whichever comes first, to demonstrate compliance.

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 (SO₂) 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: Each gas well affected facility, which is a single natural gas well.

- a. Each gas well affected facility, which is a single natural gas well.

The gas wells that currently exist at the Stone Well Pad were drilled principally for the production of natural gas and were done so after August 23, 2011. Therefore, these wells would be considered affected facilities under this subpart. The compliance date for these hydraulically fractured wells is October 15, 2012. Stone is required under §60.5410 to submit an initial notification, initial annual report, maintain a log of records for each well completion, and maintain records of location and method of compliance. §60.5420 requires Stone demonstrate continuous compliance by submitting reports and maintaining records for each completion operation.

- 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 at the Stone Well Pad. Therefore, all requirements regarding centrifugal compressors under 40 CFR 60 Subpart OOOO would not apply.

- 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 applicable reciprocating internal combustion engine located at the Stone Well Pad. These engines will be delivered after the effective date of this rule. However, §60.5365(c) states that 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. Therefore, all requirements regarding reciprocating compressors under 40 CFR 60 Subpart OOOO would not apply.

- 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.

All pneumatic controllers at the facility should meet these criteria.

- 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 non-earthen 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 Stone Well Pad will be controlled by a VCU which will reduce the potential to emit to less than 6 tpy of VOC. Therefore, Stone 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 Stone Well Pad 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 Stone Well Pad. Therefore, all requirements regarding sweetening units under 40 CFR 60 Subpart OOOO would not apply.

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

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

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

The following rules do not apply to the facility:

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 Stone Well Pad is located in Wetzel County, which is an attainment county (unclassified) for all criteria pollutants, therefore the Stone Well Pad is not applicable to 45CSR19.

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

Pollutant	PSD (45CSR14) Threshold (tpy)	NANSR (45CSR19) Threshold (tpy)	Stone Pad PTE (tpy)	45CSR14 or 45CSR19 Review Required?
Carbon Monoxide	250	NA	41.59	No
Nitrogen Oxides	250	NA	17.50	No
Sulfur Dioxide	250	NA	0.04	No
Particulate Matter 2.5	250	NA	0.46	No
Ozone (VOC)	250	NA	46.25	No
Greenhouse Gas (CO ₂ e)	100,000	NA	10,797	No

45CSR30 (Requirements for Operating Permits)

Stone is not subject to 45CSR30. The Stone Well Pad is subject to 40CFR60 Subparts JJJJ and OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

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

40CFR60 Subpart Kb does not apply to storage vessels with a capacity less than 75 cubic meters. The largest tanks that Stone has proposed to install are 63.60 cubic meters each. Therefore, Stone is not subject to this rule.

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 Stone Well Pad is not a natural gas processing facility, therefore, Stone is not subject to this rule.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. HAPs are those pollutants that are specifically identified in section 112(b) of the Clean Air Act. To be listed as a HAP, EPA must find that the chemical in question may present a threat to human health and cause adverse environmental effects. If the facility has the potential to emit 10 tons per year of any pollutant on the HAP list, or any combination of pollutants on that list for a total of 25 tons per year, the facility is considered a major source of HAPs. Otherwise, it is considered an area source.

Stone included the following HAPs as emitted in substantive amounts in their emissions estimate: Formaldehyde. The following table lists each HAP's carcinogenic risk (as based on analysis provided in the Integrated Risk Information System (IRIS)):

HAPs	Type	Known/Suspected Carcinogen	Classification
Formaldehyde	VOC	Yes	Category B1 - Probable Human Carcinogen

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

AIR QUALITY IMPACT ANALYSIS

Modeling was not required of this source due to the fact that the facility is not subject to 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants) or 45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment) as shown in the table listed in the Regulatory Discussion section under 45CSR14/45CSR19.

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 Stone Well Pad is located in Wetzel County and will be operated by Stone.

1. There are other facilities operated by Stone that share the same two-digit major SIC code. Therefore, the Stone Well Pad does share the same SIC code as other Stone facilities.
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.

There are no Stone properties in question that are considered to be on contiguous or adjacent property with the Stone Well Pad. The closest Stone well site is more than one (1) mile from this site. The land between these sites is not owned or managed by Stone. 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. Common control. The natural gas from the Stone Well Pad is injected into a gathering line and sent to the Stone Winters Compressor Station. The Winters Compressor Station is approximately 1.5 miles from the Stone Well Pad.

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

MONITORING OF OPERATIONS

Stone will be required to perform the following monitoring and recordkeeping:

- Monitor and record quantity of natural gas consumed and hours of operation for all combustion sources.
- Monitor the presence of the vapor combustor pilot flame with a thermocouple or equivalent.
- Monitor opacity from all fuel burning units.
- Monitor the condensate tanks to ensure that all vapors are sent to the vapor recovery units.
- Monitor the condensate truck loading to ensure all vapors are sent to the vapor combustion units.
- Maintain records of testing conducted in accordance with the permit. Said records shall be maintained on-site or in a readily accessible off-site location
- Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
- Maintain records of the visible emission opacity tests conducted per the permit.
- Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility. These records shall include the natural gas compressor engine and ancillary equipment.
- Maintain records of all applicable requirements of 40CFR60 Subpart JJJJ, and 40CFR63 Subpart ZZZZ.
- The records shall be maintained on site or in a readily available off-site location maintained by Williams for a period of five (5) years.

RECOMMENDATION TO DIRECTOR

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

Jerry Williams, P.E.
Engineer

Date