

**VENTEX OPERATING CORPORATION**  
**ATIC 34-12 No. 1 OIL AND GAS PRODUCTION FACILITY**  
SW ¼ SECTION 34, TOWNSHIP 4 NORTH, RANGE 7E,  
CONECUH COUNTY, AL  
FACILITY NO.: 103-0046

---

## **ENGINEERING ANALYSIS**

### **PROJECT DESCRIPTION**

On December 2, 2024, the Department received a permit application from Ventex Operating Corporation for the ATIC 34-12 No. 1 Oil and Gas Production Facility. The well is located at SW/4 of Section 34, Township 4 North, Range 7 East, in Conecuh County, Alabama. The well was expected to process approximately 400 thousand standard cubic feet per day (MScf/day) of gas resulting in 146 million Scf (MMScf) per year of natural gas and 400 barrels of oil per day (146,000 barrels of oil per year). Air Permit No. 103-0046-X001 was issued for this project on February 14, 2025.

Based on production data (gas analysis completed on May 7, 2025), after the well began production, Ventex determined that the well was capable of producing a maximum of 852 MScf/day of natural gas (310.98 MMScf/yr) and 675 barrels of oil per day (246,375 bbl per year). Due to the increase in production from what the facility was originally permitted, Ventex reduced its production rate at the well until a gas plant could be constructed and the gas could be processed and sold rather than burned in the facility flare as originally designed. The permit application for this project was received at the Department on July 16, 2025. A complete application was received on October 2, 2025. The proposed gas processing and treating facility will be located on contiguous property a few feet from the entrance of the production well, and it will be owned and operated by Ventex.

The permitted production well is currently equipped with the following emissions sources:

- 0.5 million British thermal unit (MMBtu) per hour (hr) heater treater (HT-01)
- Process Flare (FL-01) with closed vent system (CVS)
- Four (4), 400-barrel (bbl) condensate storage vessel
- One (1), 500 bbl power oil storage vessel
- One (1), 400 bbl saltwater storage vessel

The following equipment along with associated fugitive components will be added to the existing production wellsite for this proposed project:

- 202 HP (150 kilowatts (kW), Caterpillar, Model No. 3306B, four stroke, rich burn, spark ignition compressor engine (ENG-01) equipped with non-selective catalytic reduction (NSCR/3-way catalyst). The associated compressor will be a reciprocating compressor.
- Fugitive emission components associated with the addition of the gas plant
- Inlet separator and low-pressure separator
- Vapor Recovery Unit (VRU) with closed vent system (CVS)
- JT refrigeration skid
- Sulfa Treat Tower consisting of two pressure vessels
- Water knockout vessel

- 30,000 -gallon, pressurized NGL storage tank

## PROCESS DESCRIPTION

For the proposed modification, all of the gas that was originally going to be flared (including the separator gas and vapors from the tanks) will be collected via the closed vent system and vapor recovery unit (VRU) and routed to the proposed gas plant via pipeline where it will be sweetened. A Sulfa-Treat Tower is proposed to remove any traces of hydrogen sulfide ( $H_2S$ ) from the gas (the most recent analysis indicates that the well gas has a British thermal unit (Btu) heat content of 1107 Btu per Scf and a  $H_2S$  content of 12 parts per million volume (ppmv) (~0.0012 mole percent (mol%)). The sweetened natural gas (high Btu gas) will be processed to drop out any heavy hydrocarbon liquids in the gas using the Joule-Thompson (JT) unit. The natural gas liquids (NGLs) will be routed to a proposed NGL tank until transported via truck to market. The low Btu/residue gas will be used as fuel for the existing heater treater, proposed compressor engine, and to maintain the pilot light on the flare via a fuel line located at the well. The remaining gas will be routed through the proposed compressor to a gathering line for distribution and sale by South Alabama Gas District.

The flare will now serve as an emergency flare. Gas from the pilot for the flare will be the only continuous stream routed to the flare. The emergency flare will be used intermittently for emergencies, for compressor blowdowns, for facility maintenance, for equipment repairs and for gas plant and/or well shutdowns.

## EMISSIONS

Table 1 below shows a comparison of the uncontrolled emissions before and after this modification and based on the recent production records. These emissions are based on the facility not burning produced gas in the facility flare for combustion.

|                                     | Pollutant        | Total Uncontrolled Emissions Before Modification | Total Uncontrolled Emissions After Modification |
|-------------------------------------|------------------|--------------------------------------------------|-------------------------------------------------|
| Regulated Pollutant Emissions (TPY) | PM <sub>10</sub> | 0.22                                             | 0.60                                            |
|                                     | PM               | 0.055                                            | 0.154                                           |
|                                     | SO <sub>2</sub>  | 0.13                                             | 0.315                                           |
|                                     | NO <sub>x</sub>  | 6.91                                             | 44.69                                           |
|                                     | CO               | 36.62                                            | 95.03                                           |
|                                     | VOC              | 1,740.31                                         | 4,909.07                                        |
|                                     | Total HAPs       | 97.45                                            | 140.97                                          |
| GHG Emissions (TPY)                 | CO <sub>2</sub>  | 13,010.78                                        | 26,344.42                                       |
|                                     | N <sub>2</sub> O | 6.61                                             | 0.047                                           |
|                                     | CH <sub>4</sub>  | 2,162.32                                         | 4,832.93                                        |
|                                     | Mass Sum         | 15, 172.69                                       | 31,177.39                                       |
|                                     | CO <sub>2e</sub> | 67,075.20                                        | 147,181.48                                      |

Table 1

Uncontrolled emissions from facility before this modification can be found in the February 14, 2025, engineering analysis. The uncontrolled potential emissions found in Table 2 are based on venting the full gas stream to atmosphere 8,760 hours per year and operating the engine with no controls. In Table 2, the majority of uncontrolled emissions for this project are based on flash gas volatile organic compound (VOC) emissions from the 500-barrel, power oil tank. Ventex used the Vasquez-Beggs equation to determine emissions from this tank. EPA's Tank 4.0d software was used to determine working and breathing loss emissions from each of the storage vessels. Engine emissions were calculated based on AP-42 emission

factors, greenhouse gas (GHG) emissions factors found in Table C-1 and C-2 Part 98 Subpart C, and the fuel gas analysis submitted with the proposed application.

| Total Facility-wide Potential Uncontrolled Emissions (TPY) |                                     |         |             |        |           |                   |
|------------------------------------------------------------|-------------------------------------|---------|-------------|--------|-----------|-------------------|
|                                                            | Pollutant                           | Heater  | Separator   | Engine | ALL Tanks | Total Emissions   |
| Criteria Pollutant Emissions (TPY)                         | PM <sub>2.5</sub>  PM <sub>10</sub> | 0.016   | 0.40        | 0.16   | 0.033     | <b>0.60</b>       |
|                                                            | PM                                  | 0.004   | 0.10        | 0.04   | 0.01      | <b>0.154</b>      |
|                                                            | SO <sub>2</sub>                     | 0.01    | 0.314       | 0.000  | 0.000     | <b>0.315</b>      |
|                                                            | NO <sub>x</sub>                     | 0.215   | 11.705      | 30.81  | 1.962     | <b>44.69</b>      |
|                                                            | CO                                  | 0.180   | 63.687      | 20.485 | 10.673    | <b>95.03</b>      |
|                                                            | VOC                                 | 0.012   | 3,962.72    | 0.722  | 945.62    | <b>4,909.07</b>   |
|                                                            | Total HAPs                          | 0.004   | 78.850      | 0.371  | 61.74     | <b>140.97</b>     |
| GHG Emissions (TPY)                                        | CO <sub>2</sub>                     | 255.984 | 21,309.07   | 939.23 | 3,840.124 | <b>26,344.42</b>  |
|                                                            | N <sub>2</sub> O                    | 0.000   | 0.038       | 0.00   | 0.006     | <b>0.047</b>      |
|                                                            | CH <sub>4</sub>                     | 0.005   | 4,664.82    | 0.59   | 167.521   | <b>4,832.93</b>   |
|                                                            | Mass Sum                            | 255.990 | 25,973.929  | 939.82 | 4,007.651 | <b>31,177.39</b>  |
|                                                            | CO <sub>2e</sub>                    | 256.249 | 137,940.795 | 954.39 | 8,030.044 | <b>147,181.48</b> |

Table 2

Table 3 emissions are based on the separator and tank vapors being routed to a flare with a 98% destruction efficiency and the engine being equipped with a NSCR. The engine emissions were based on provided manufacturer's data for the NSCR and emissions standards found under 40 CFR 60 Subpart JJJJ [NSPS JJJJ]. This table demonstrates that, even if Ventex flared the gas as opposed to sending it to the gas plant to be processed, the facility would remain below any applicable major source thresholds.

| Total Facility-wide Potential Controlled Emissions (TPY) |                                     |        |           |        |                  |
|----------------------------------------------------------|-------------------------------------|--------|-----------|--------|------------------|
|                                                          | Pollutant                           | Heater | Flare     | Engine | Total Emissions  |
| Criteria Pollutant Emissions (TPY)                       | PM <sub>2.5</sub>  PM <sub>10</sub> | 0.016  | 0.44      | 0.16   | <b>0.62</b>      |
|                                                          | PM                                  | 0.004  | 0.11      | 0.04   | <b>0.154</b>     |
|                                                          | SO <sub>2</sub>                     | 0.00   | 0.32      | 0.00   | <b>0.32</b>      |
|                                                          | NO <sub>x</sub>                     | 0.21   | 13.75     | 1.95   | <b>15.92</b>     |
|                                                          | CO                                  | 0.18   | 74.83     | 3.90   | <b>78.91</b>     |
|                                                          | VOC                                 | 0.01   | 56.90     | 0.72   | <b>57.63</b>     |
|                                                          | Total HAPs                          | 0.00   | 1.77      | 0.47   | <b>2.24</b>      |
| GHG Emissions (TPY)                                      | CO <sub>2</sub>                     | 255.98 | 25,436.77 | 939.23 | <b>26,631.99</b> |
|                                                          | N <sub>2</sub> O                    | 0.00   | 0.04      | 0.00   | <b>0.05</b>      |
|                                                          | CH <sub>4</sub>                     | 0.00   | 99.96     | 0.02   | <b>99.99</b>     |
|                                                          | Mass Sum                            | 255.99 | 25,536.78 | 939.25 | <b>26,732.02</b> |
|                                                          | CO <sub>2e</sub>                    | 256.25 | 27,949.14 | 954.39 | <b>29,159.78</b> |

Table 3

Table 4 provides the proposed expected emissions from this project when all produced gas is routed to the proposed natural gas processing plant, and the engine emissions are controlled by the NSCR. The only emissions from the flare would be from pilot gas being burned. Ventex has stated that if the gas plant is not in service, the production well will be shut-in to avoid flaring.

| Total Facility-wide Expected Emissions (TPY) |                                     |        |             |        |                 |
|----------------------------------------------|-------------------------------------|--------|-------------|--------|-----------------|
|                                              | Pollutant                           | Heater | Flare Pilot | Engine | Total Emissions |
| Criteria Pollutant Emissions (TPY)           | PM <sub>2.5</sub>  PM <sub>10</sub> | 0.02   | 0.00        | 0.16   | 0.18            |
|                                              | PM                                  | 0.005  | 0.00        | 0.04   | 0.05            |
|                                              | SO <sub>2</sub>                     | 0.00   | 0.00        | 0.00   | 0.00            |
|                                              | NO <sub>x</sub>                     | 0.21   | 0.09        | 1.95   | 2.25            |
|                                              | CO                                  | 0.18   | 0.47        | 3.90   | 4.55            |
|                                              | VOC                                 | 0.01   | 0.11        | 0.72   | 0.85            |
|                                              | Total HAPs                          | 0.00   | 0.07        | 0.47   | 0.54            |
| GHG Emissions (TPY)                          | CO <sub>2</sub>                     | 255.98 | 151.53      | 939.23 | 1,346.75        |
|                                              | N <sub>2</sub> O                    | 0.00   | 0.00        | 0.00   | 0.00            |
|                                              | CH <sub>4</sub>                     | 0.00   | 0.82        | 0.59   | 1.41            |
|                                              | Mass Sum                            | 255.99 | 152.36      | 939.82 | 1,348.17        |
|                                              | CO <sub>2e</sub>                    | 256.25 | 172.16      | 954.39 | 1,382.80        |

Table 4

## REGULATIONS

The following regulations may be applicable to the existing production well and the proposed natural gas processing facility:

### **ADEM Admin. Code r. 335-3-4-.01(1) (a and b), "Visible Emissions"**

**ADEM Admin. Code r. 335-3-4-.01(1)(a)** states that except for one six-minute period in any sixty-minute period, no person shall emit particulate emissions to the atmosphere of an opacity of greater than twenty percent (20%) as determined by a six (6) minute average.

**ADEM Admin. Code r. 335-3-4-.01(1)(b)** states that a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than that designated as forty percent (40%) opacity as determined by a six(6) minute average.

**ADEM Admin. Code r. 335-3-4-.01(2)** states that if visible emissions are observed, opacity should be determined using Method 9 of 40 CFR Part 60, Appendix A-4. Method 9 must be completed by a person certified to conduct it.

The existing heater treater and proposed engine will be subject to these regulations. The flare will comply with the requirements of this regulation by complying with the more stringent opacity standards and design requirements found in 40 CFR 60 Subpart OOOOb.

***ADEM Admin. Code r. 335-3-4-.03(1) and (4) "Fuel Burning Equipment"***

**ADEM Admin. Code r. 335-3-4-.03(1)** states that no person shall cause or permit the emission of particulate matter from fuel-burning equipment in a Class 2 County in excess of the amount shown in Table 4-1 for the heat input allocated to such source. **ADEM Admin. Code r. 335-3-4-.03(4)** states that new fuel-burning sources emitting particulate sources are subject to the rules and regulations for Class 1 Counties regardless of their location. Per ADEM Admin. r. 335-3-Appendix A, Conecuh County is a Class 2 County.

The existing heater treater will be subject to this rule. The allowable emission rate from Table 4-1 in ADEM Admin r. 335-3-4-.03 is 0.5 lbs/MMBtu. The heater treater will comply with this rule by burning only natural gas as fuel.

***ADEM Admin. Code r. 335-3-5-.01(1)(b), "Fuel Combustion"***

**ADEM Admin. Code r. 335-3-5-.01(1)(b)** states that no person shall cause or permit the operation of a fuel burning installation in a Sulfur Dioxide Category II County in such a manner that sulfur oxides, measured as sulfur dioxide (SO<sub>2</sub>), are emitted in excess of 4.0 pounds per million BTU heat input.

Per ADEM Admin. r. 335-3-Appendix B, Conecuh County is a Category II County. The existing heater treater will remain subject to this rule and will comply with this rule by burning only natural gas as fuel.

***ADEM Admin. Code r. 335-3-5-.03(1), "Petroleum Production"***

**ADEM Admin. Code r. 335-3-5-.03(1)**, applies to facilities that handle natural gas that contain more than 0.10 grain of hydrogen sulfide (H<sub>2</sub>S) per standard cubic foot (SCF) (approximately 160 parts per million volume (ppmv). According to the May 7, 2025 gas analysis included in the application submitted to the Department, the proposed well is only expected to contain 12 ppmv of H<sub>2</sub>S; therefore, this well will not be subject to this regulation.

***ADEM Admin. Code r. 335-3-6, "Control of Organic Emissions"***

This chapter is applicable to all sources of VOC with the potential VOC emission rate of 100 tons per year (TPY) or greater [ADEM Admin. Rule Nos. 335-3-6.01]. The uncontrolled potential VOC emissions from this project would be greater than 100 TPY (see Emission section). Only the potential applicable sections under Chapter 6 for the proposed project will be discussed.

**ADEM Admin. Code r. 335-3-6-.03** covers loading and storage of VOC and applies to liquids with a VOC true vapor pressure greater than or equal to 1.5 psia under storage conditions; however, the loading or storage of crude petroleum produced, separated, treated or stored in the field is exempt from this rule [ADEM Admin. Rule No. 335-3-6-.03(1) and (4)]. Therefore, the proposed crude storage vessels would not be subject to this subpart. The saltwater tank would not be subject to this rule because it would not meet the vapor pressure requirements.

**ADEM Admin. Code r. 335-3-6-.04** covers fixed-roof petroleum liquid storage vessels with a design capacity greater than 150,000 liters (40,000 gallons) containing petroleum liquid whose true vapor pressure (TVP) is greater than 10.5 kilo Pascals (1.52 psia). None of the existing storage vessels would meet the design capacity requirements under this subpart. Also, this rule would not apply to storage vessels at the facility because the capacity of the storage vessels will be less than 423,000 gallons and the produced oil and/or condensate will be stored prior to lease custody transfer [ADEM Admin. Rule No. 335-3-6-.04(2) and (3)(b)]. Therefore, this rule would not apply.

***ADEM Admin. Code r. 335-3-10 | 40 CFR Part 60, "Standards of Performance for New Stationary Sources [NSPS]"***

This chapter covers standards under 40 CFR 60 and its Appendices as designated in Alabama Administrative Code rules 335-3-10-.02 and -.03 incorporated by reference as they exist in 40 CFR 60 (July 1, 2024), and 89 FR 70505 [8/30/2024; amendments to Subparts IIII and JJJJ], and 89 FR 74135 [9/12/2024; amendments to Subparts A, and K<sub>b</sub> and addition of Subpart Kc], as amended by the word or phrase substitutions given in Alabama Administrative Code r. 335-3-10-.04. The emission standards in this chapter supersede the emissions standards in Chapters 335-3-3, -4, -5, -6, -7, and -8 provided that both the criteria in ADEM Admin. Code r. 335-3-10-.01(2) are met: a source category is subject to the regulations in this Chapter for a specific pollutant to which an emission standard under this chapter applies and the emission standard under Chapters 335-3-3, -4, -5, -6, -7, and -8 is more stringent than the emission standards in this chapter for the specific pollutant regulated.

***ADEM Admin. Code r. 335-3-10-.02(1) | 40 CFR 60 Subpart A, "General Provisions"***

The requirements under this subpart are subject by reference in an applicable subpart. 40 CFR §60.5425b and Table 5 under 40 CFR 60 Subpart OOOOb indicate the applicable requirements under this subpart for the compressor, fugitive components, and storage vessels. Table 3 under 40 CFR 60 Subpart JJJJ indicates the applicable requirements under this subpart for the proposed engine.

***ADEM Admin. Code r. 335-3-10-.02(9)(b) | 40 CFR Part 60 Subpart Kb, "Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) [NSPS Kb]"***

This subpart applies to each storage vessel with a capacity greater than or equal to 19,813 gallons (75 cubic meters (m<sup>3</sup>)) that is used to store volatile organic liquid (VOL) for which construction, reconstruction, or modification commenced after July 23, 1984, and on or before October 4, 2023 [40 CFR §60.110b(a)]. The existing 21,000-gallon power oil tank (T-01) was constructed in 2014, at another location, during the effective period for this subpart, and it is the only storage vessel that meets the design capacity requirement under this subpart. However, storage vessels with a design capacity less than or equal to 1,589.874 m<sup>3</sup> (420,000 gallons) used for petroleum or condensate stored, processed, or treated prior to custody transfer are not subject to this subpart [40 CFR §60.110b(d)].

***ADEM Admin. Code r. 335-3-10-.02(9)(c) | 40 CFR Part 60 Subpart Kc, "Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) [NSPS Kc]"***

This subpart was adopted by the Department, effective October 13, 2025. The requirements under this subpart may be applicable to the storage vessels. This subpart applies to each storage vessel with a capacity greater than or equal to 20,000 gallons (75.7 m<sup>3</sup>) that is used to store volatile organic liquid (VOL) for which construction, reconstruction, or modification commenced after October 4, 2023 [40 CFR §60.110c(a)]. As stated before, the proposed 21,000-gallon storage vessel was constructed in 2014, prior to the effective date for this subpart, so it would not be subject to this subpart. All the other proposed tanks would not have a design capacity greater than 20,000 gallons; therefore, they would not be subject as well.

***ADEM Admin. Code r. 335-3-10-.02(88) | 40 CFR 60 Subpart JJJJ, "Standards of Performance for Stationary Spark Ignition Internal Combustion Engines" [SI RICE, NSPS JJJJ]"***

This subpart is applicable to owners and operators that commences construction, reconstruction or modification after June 12, 2006, where the stationary ICE is manufactured on or after July 1, 2008, for engines with a maximum engine power less than 500 HP [40 CFR §60.4230(a)(4)(iii)]. According to the permit application, the engine is not certified, and it is a non-emergency engine that was manufactured in 2013.

The proposed engine has not been previously located at another site, and it has not been reconstructed or modified.

The following emission standards must be met for the proposed engine:

- The provisions of 40 CFR §60.4236 shall be applicable [40 CFR §60.4230(a)(6)]
- For an engine with an engine rating greater than or equal to 100 HP (75kW) (except gasoline and rich burn engines that use LPG), the requirements specified in 40 CFR §60.4233(e) shall be met by complying with Table 1 of NSPS JJJJ. For engines with a rating greater than or equal to 100 HP or less than 500 HP and a manufacture date after January 1, 2011, the following emissions standards under NSPS JJJJ shall be met:

| EMISSION STANDARDS | POLLUTANTS                                   |                                               |                                              |
|--------------------|----------------------------------------------|-----------------------------------------------|----------------------------------------------|
|                    | NO <sub>x</sub>                              | CO                                            | VOC*                                         |
| NSPS JJJJ          | 1.0 g/HP-hr (82 ppmvd @ 15% O <sub>2</sub> ) | 2.0 g/HP-hr (270 ppmvd @ 15% O <sub>2</sub> ) | 0.7 g/HP-hr (60 ppmvd @ 15% O <sub>2</sub> ) |

\*NOTE-When calculating VOC, emissions of formaldehyde should not be included

Table 5

Ventex has elected to equip the engine with a non-selective catalytic reduction NSCR/3-way catalyst that will reduce NO<sub>x</sub> emissions by 93.7% and CO emissions by 81% to comply with these standards. The emission standards must be met the entire life of the engine [40 CFR §60.4234].

SI natural gas fired engines may operate using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but records of such use shall be kept. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, a performance test must be conducted to demonstrate compliance with the emission standards of 40 CFR §60.4233(e) [40 CFR §60.4243(e)].

An air-to-fuel ratio (AFR) controller is used with the operation of three-way catalysts/non-selective catalytic reduction; therefore, the controller must be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times [40 CFR §60.4243(g)].

Since the proposed engine will be a non-certified engine, in order to demonstrate compliance with this subpart, Ventex must conduct the following [40 CFR §60.4233(e); 40 CFR §60.4243(b), (b)(2)(i)]:

- Keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions
- Conduct an initial performance test to demonstrate compliance.
  - Performance testing shall be conducted on the proposed engine using the methods and procedures specified in 40 CFR §60.4244(a) through (f) [40 CFR §60.4244(a)].
    - Performance test reports using EPA Method 18, EPA Method 320, or ASTM D6348-03 (incorporated by reference—see 40 CFR 60.17) to measure VOC require reporting of all QA/QC data [40 CFR §60.4245(d)].
    - For Method 18, report results from sections 8.4 and 11.1.1.4; for Method 320, report results from sections 8.6.2, 9.0, and 13.0; and for ASTM D6348-03 report results of all QA/QC procedures in Annexes 1-7 [40 CFR §60.4245(d)].

- Subsequent performance tests are not required unless the engine undergoes rebuild, major repair or maintenance [40 CFR 60.4243(f)].
  - Engine rebuilding means to overhaul an engine or to otherwise perform extensive service on the engine (or on a portion of the engine or engine system).
  - Perform extensive service means to disassemble the engine (or portion of the engine or engine system), inspect and/or replace many of the parts, and reassemble the engine (or portion of the engine or engine system) in such a manner that significantly increases the service life of the resultant engine.
- Within 60 days after the date of completing each performance test, Ventex must submit the results following the procedures specified in 40 CFR §60.4245(g) to EPA and to the Department and be available for onsite inspections [40 CFR §60.4245(f), (j)].

The records specified in 40 CFR §60.4245(a)(1), (2), and (4) shall be maintained to demonstrate compliance with the notification, reporting and recordkeeping requirements under this subpart [40 CFR §60.4245(a)]. If notification or reports are required to be submitted to EPA, they must be reported according to 40 CFR §60.4245(g) and submitted to the Department [40 CFR §60.4245(j)]. Issues with timely electronic submittals of reports for system outages may be addressed as specified in 40 CFR §60.4245(h). A claim of force majeure for failure to comply with reporting requirements may be asserted as specified in 40 CFR §60.4245(i).

**ADEM Admin. Code r. 335-3-10-.02(91) | 40 CFR 60 Subpart OOOO, “Standards of Performance for Crude Oil and Natural Gas Facilities” [NSPS OOOO]** for which construction, reconstruction, or modification occurred after August 23, 2011, and on or before September 18, 2015 [40 CFR §60.5360]. According to the Permittee, the 21,000-gallon (T-01) tank was previously constructed at a different location in 2014. However, in the original permit for this facility, the tank should have been subject to 40 CFR 60 Subpart OOOOb [NSPS OOOOb] because this tank was manifolded together with other tanks in the tank battery that were covered under NSPS OOOOb during the effective period for that subpart; therefore, it is subject to NSPS OOOOb. The requirements for NSPS OOOO will be removed from the revised permit.

**ADEM Admin. Code r. 335-3-10-.02(91)(a) | 40 CFR 60 Subpart OOOOa, “Standards of Performance for Crude Oil and Natural Gas Facilities” [NSPS OOOOa]** for which construction, reconstruction, or modification occurred after September 18, 2015, and on or before December 6, 2022 [40 CFR §60.5360a]. None of the proposed emission sources would be subject to the requirements of this subpart. However, if EPA rescinds 40 CFR 60 Subpart OOOOb, the requirements under this subpart would apply.

**40 CFR 60 Subpart OOOOb, “Standards of Performance for Crude Oil and Natural Gas Facilities” [NSPS OOOOb]** for which construction, reconstruction, or modification occurred after December 6, 2022. This subpart has not been adopted by the Department.

This subpart established emission standards and compliance schedules for the control of greenhouse gases (GHG) through the limitation of methane (CH<sub>3</sub>) and for the control of VOC and SO<sub>2</sub> emissions [40 CFR §60.5360b(a)]. Compliance with the requirements of this subpart shall be met upon initial startup of affected facilities, except as specified in the applicable sections of 40 CFR §60.5370b(a)(1) through (7) and (c) [40 CFR §60.5370b(a)].

At all times, including periods of startup, shutdown, and malfunction, owners and operators shall maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions [40 CFR §60.5370b(c)].

- Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.
- The provisions for exemption from compliance during periods of startup, shutdown and malfunctions provided in 40 CFR §60.8(c) do not apply to this subpart.

Alternative means of emission limitations for GHG and VOC emissions from liquids unloading operations, and fugitive emissions components may be elected as specified in 40 CFR §60.5399b.

Initial compliance with the standards for each affected facility shall be met as specified in 40 CFR §60.5410b. Except as otherwise provided in this section, the initial compliance period begins on the date specified in 40 CFR §60.5370b and ends no later than 1 year after that date. The initial compliance period may be less than one full year [40 CFR §60.5410b]. The additional requirements specified in 40 CFR §60.5411b must be met to determine initial compliance for covers and closed vent systems. The additional requirements specified in 40 CFR §60.5412b must be met to determine initial compliance for control devices.

#### APPLICABILITY

For this proposed project, the facility has been determined to continue to be classified as a production well and not a centralized processing facility (CPF) nor a natural gas processing facility under this subpart. Because there is only one oil and gas production well that gathers crude oil, condensate, produced water or intermediate hydrocarbon liquid for the purpose of sale or processing to sell, the facility would not meet the definition of a CPF. If additional wells are fed into the 34-12 Well, the facilities' status could change. Ventex has proposed the use of a Joule-Thompson (JT) Unit, to recover natural gas liquids from the produced gas. A JT unit does not meet the definition of a natural gas processing plant (gas plant); therefore, it would not be an affected facility under this subpart.

Only the requirements for an affected well facility would apply to the modified ATIC 34-12 Well.

#### *Well Affected Facility Requirements*

#### APPLICABILITY

This well was drilled for the purpose of producing oil or natural gas located within the Crude Oil and Natural Gas source category; therefore, it is an affected facility. Facilities located inside and including the local distribution company (LDC) custody transfer station are not subject to NSPS OOOOb [40 CFR §60.5365b(a), 40 CFR §60.5430b(a)]. The well will remain an affected facility under this subpart.

#### *WELL COMPLETIONS AT WELL AFFECTED FACILITY*

No well completion with hydraulic fracturing or refracturing is expected to occur for this project. If either was to occur, the requirements in 40 CFR §60.5475b shall be met. In addition to 40 CFR 60.14, a modification at an existing well occurs if it is hydraulically fractured or hydraulically refractured [40 CFR §60.5365b(a)(1)(i) or (ii)]. Except as provided in 40 CFR § 60.5365b(e)(3)(ii)(C) and (i)(3)(ii), any action described by 40 CFR §60.5365b (a)(1)(i) and (ii), by itself, does not affect the modification status of process unit equipment, centrifugal or reciprocating compressors, pumps, or process controllers.

#### *LIQUID UNLOADING OPERATIONS AT WELL AFFECTED FACILITY*

For an affected well facility, there are requirements and standards under 40 CFR §60.5376b for liquids unloading operations at well affected facilities depending on if loading operations results in venting of methane and VOC emissions to the atmosphere [40 CFR §60.5376b]. Liquid unloading is not expected to occur at this well; however, if it occurs, the requirements specified in 40 CFR §60.5376b must be met.

For the purposes of a well affected facility, a liquids unloading event is not considered to be a modification [40 CFR §60.5365b(a)(2)].

#### *ASSOCIATED GAS WELLS AT WELL AFFECTED FACILITY*

The 34-12 Well was constructed between May 7, 2024, and May 7, 2026. Originally, Ventex requested to comply with 40 CFR §60.5377b(b) by complying with the requirements specified in 40 CFR §60.5377b(f)(1). 40 CFR §60.5377b(f)(1) required the facility to temporarily route the associated gas to a control device that reduces methane and VOC emissions by at least 95.0 percent continually upon startup. The associated gas had to be routed through a closed vent system that meets the requirements of 40 CFR §60.5411b(a) and (c) and the control device had to meet the conditions specified in 40 CFR §60.5412b.

In the original project, Ventex elected to route the vapors from the separator and tanks through a closed vent system to the flare for combustion. In order to demonstrated compliance with 40 CFR §60.5377b(b) by complying with the requirements specified in 40 CFR §60.5377b(f)(1), Ventex provided a detailed analysis to the Department dated March 21, 2025 documenting and certifying the technical reasons for this infeasibility to comply with 40 CFR §60.5377b(a) [40 CFR §60.5377b(a), (f), (f)(1), (g)]. Ventex was required to comply with one of the options in 40 CFR §60.5377b(a) after May 7, 2026, at all times.

#### EMISSION STANDARDS

For this project, Ventex is electing to comply with the requirements for associated wells at well affected facilities by complying with 40 CFR §60.5377b(a)(1) and (2). The gas from the separator and tank vapors will be collected by a vapor recovery unit and sent to the proposed plant where the gas will be sweetened, natural gas liquids (NGL) will be removed, and the sweet gas will be sold to the South Alabama Gas District distribution system or used for fuel in the engine, heater treater and as pilot gas fuel for the flare. The NGLs and produced crude oil will be stored until transferred offsite by truck.

#### *Temporary Flaring*

Ventex will be allowed to temporarily route the associated gas to a flare or other control device that achieves a 95.0 percent reduction in VOC and methane emissions in the following situations and for the durations specified [40 CFR §60.5377b(d)(1)-(4)]:

- During a malfunction or incident that endangers the safety of operator personnel or the public you are allowed to route to a flare or control device for 24 hours or less per incident.
- During repair, maintenance including blow downs, a production test, or commissioning, you are allowed to route to a flare or control device for 24 hours or less per incident.
- When Ventex is unable to send the gas to distribution systems sales line, during a temporary interruption in service from the gathering or pipeline system, the facility is allowed to route the associated gas to a flare or route to a control device for the duration of the temporary interruption not to exceed 30 days per incident.

- During periods when the composition of the associated gas does not meet pipeline specifications, or when the composition of the associated gas does not meet the quality requirements for use as a fuel for in the heater treater, engine, or pilot light, Ventex is allowed to route to a flare or control device until the associated gas meets the required specifications or for 72 hours per incident, whichever is less.
- During this period, the associated gas must be routed through a closed vent system that meets the requirements of 40 CFR §60.5411b(a) and (c) and the control device must meet the conditions specified in 40 CFR §60.5412b during the period when the associated gas is routed to the flare.
- Records must be kept of all instances in which associated gas is temporarily routed to a flare or to a control device in accordance with 40 CFR §60.5420b(c)(3)(i)(B) and reported in the annual report in accordance with 40 CFR §60.5420b(b)(4)(i)(B).

#### *Temporary Venting*

Ventex may vent the associated gas in the situations and for the durations identified in 40 CFR §60.5377b(e)(1), (2), or (3), per incident and as follows [40 CFR §60.5377b(a), (e)].

- For up to 12 hours per incident to protect the safety of personnel.
- For up to 30 minutes per incident during bradenhead monitoring.
- For up to 30 minutes per incident during a packer leakage test.

The cumulative period of venting must not exceed 24 hours for any calendar year.

Records must be kept of all venting instances in accordance with 40 CFR §60.5420b(c)(3)(ii) and reported in the annual report in accordance with 40 CFR §60.5420b(b)(4)(ii).

#### EMISSIONS MONITORING

Initial compliance with the standards that apply to associated gas wells as required by 40 CFR § 60.5410b(c) must be demonstrated [40 CFR §60.5377b(h), 40 CFR §60.5410b(c)].

Continuous compliance with the standards that apply to associated gas wells as required by 40 CFR §60.5415b(c) must be demonstrated [40 CFR §60.5377b(i)]. Additional continuous compliance requirements for associated gas well must be met as specified in 40 CFR § 60.5415b(f).

#### RECORDKEEPING AND REPORTING REQUIREMENTS

The notification requirements specified in 40 CFR §60.5420b(a) shall be met where applicable.

The reporting requirements specified in 40 CFR §60.5420b(b)(1) and (4), and (b)(11) and (12), as applicable must be met [40 CFR §60.5377b(j), 40 CFR § 60.5420b(b)]. If a well affected facility undergoes a change of ownership during the reporting period, the reporting requirements under 40 CFR §60.5420b(b)(2)-(4) must be met.

The recordkeeping requirements specified in 40 CFR §60.5420b(c)(3) and (8), and (c)(10) through (13), as applicable must be met [40 CFR §60.5377b(j), 40 CFR §60.5420b(c)]. Also, records must be kept of all venting instances in accordance with 40 CFR §60.5420b(c)(3)(ii) and reported in the annual report in accordance with 40 CFR §60.5420b(b)(4)(ii) [40 CFR §60.5377b(e)].

## **CONTROL DEVICE REQUIREMENTS**

### ***Controls for Associated Gas Wells***

Associated gas wells at well affected facilities are allowed to temporarily route associated gas to either a flare or control device that achieves a 95.0 percent reduction in VOC and methane emissions in the situations and for the durations identified in 40 CFR §60.5377b(d). The conditions specified in 40 CFR §60.5412b must be met during the period when the associated gas is routed to the flare or other control device [40 CFR §60.5377b(d), 40 CFR §60.5412b(a), (d)]. A flare used to comply with 40 CFR §60.5412b(a), must be designed and operated according to 40 CFR §60.5412b(a)(3)(i) through (viii) or alternatively meet the requirements specified in 40 CFR §60.5412b(d) as follows [40 CFR §60.5412b(a)(3), (d)]:

- The flare shall meet the applicable assist requirements found in 40 CFR §60.5412b(a)(3)(i)-(v)
- The flare shall be operated at or above the minimum inlet gas flow rate established based on manufacturer recommendations [40 CFR §60.5412b(a)(3)(vi)]
- The flare shall be operated with no visible emissions, except for periods not to exceed a total of 1 minute during any 15-minute period. The compliance determination with the visible emission limits using Method 22 of appendix A-7 to this part must be conducted, or the flare must be monitored according to 40 CFR § 60.5417b(h) [40 CFR §60.5412b(a)(3)(vii)]
- After January 22, 2027, Ventex must install and operate a continuous burning pilot or combustion flame. After January 22, 2027, an alert must be sent to the nearest control room whenever the pilot or combustion flame is unlit [40 CFR §60.5412b(a)(3)(viii)]

To demonstrate that a flare or enclosed combustion device reduces methane and VOC in the gases vented to the device by 95.0 percent by weight or greater, as outlined in 40 CFR §60.8(b), a request following the requirements outline in 40 CFR §60.5412b(d)(1)-(5) for an alternative test method may be submitted [40 CFR §60.5412b(d)]

Records must be kept of all instances in which associated gas is temporarily routed to a flare or to a control device in accordance with 40 CFR §60.5420b(c)(3)(i)(B) and reported in the annual report in accordance with 40 CFR § 60.5420b(b)(4)(i)(B) [40 CFR §60.5377b(d)].

## **COMPRESSOR REQUIREMENTS**

### ***Reciprocating Compressor***

Each reciprocating compressor, which is a single reciprocating compressor, is an affected facility under this subpart [40 CFR §60.5365b(c)]. A reciprocating compressor located at a well site is not an affected facility under this subpart. A reciprocating compressor located at a centralized production facility is an affected facility under this subpart. Since the proposed compressor would be located at a wellsite and not a CPF, it would not be an affected facility under this subpart.

## **PROCESS CONTROLLER REQUIREMENTS**

The requirements for natural gas driven process controllers are covered as an affected facility under 40 CFR §60.5365b(d). If Ventex proposes the installation of natural gas-driven process controllers at this facility, they would be subject to the requirements of this subpart. Natural gas-driven process controllers that function as emergency shutdown devices and process controllers that are not driven by natural gas are not included

in the affected facility. Vertex did not specify the use of natural gas process controllers in their permit application.

A non-natural gas-driven process controller is an instrument that is actuated using other sources of power than pressurized natural gas; examples include solar, electric, and instrument air.

#### *SWEETENING UNIT REQUIREMENTS*

Sweetening unit means a process device that removes hydrogen sulfide (H<sub>2</sub>S) and/or carbon dioxide (CO<sub>2</sub>) from the sour natural gas stream. Each sweetening unit that processes natural gas produced from either onshore or offshore wells is an affected facility. Ventex has proposed the addition of a SulfaTreat Tower to remove H<sub>2</sub>S from the 34-12 Well produced gas. A SulfurTreat Tower uses an iron oxide adsorbent to remove H<sub>2</sub>S from the gas stream. The H<sub>2</sub>S in the gas flows through the tower, and a chemical reaction occurs. The H<sub>2</sub>S attaches to the dry, granular, iron oxide sulfur bed inside the tower, and the H<sub>2</sub>S is unable to escape from the iron oxide adsorbent. Once the bed life has come to an end, a replacement bed of SulfaTreat is installed, and the used adsorbent will be removed offsite for disposal. Since there would not be a release of acid to the atmosphere from the SulfurTreat Tower, it would not be subject to the requirement under 40 CFR §60.5405b through 40 CFR §60.5407b, 40 CFR §60.5410b(i), 40 CFR §60.5415b(k), and 40 CFR §60.5423b [40 CFR §60.5365b(g)(4)].

#### *STORAGE VESSEL REQUIREMENTS*

##### APPLICABILITY

Each storage vessel (or tank battery) that has the potential for VOC emissions equal to or greater than six (6) tons per year (TPY) or the potential for methane (CH<sub>4</sub>) emissions equal to or greater than 20 TPY as determined by 40 CFR §60.5365b(e)(2) is an affected facility under this subpart [40 CFR §60.5365b(e)(1)(i) and (ii)]. A storage vessel affected facility that subsequently has its potential for VOC emissions decrease to less than 6 TPY shall remain an affected facility under this subpart [40 CFR §60.5365b(e)(4)]. The storage vessels located at the facility and the max TVP for the liquids stored are found in Table 6 below. Since the tank battery has the potential to emit greater than 6 TPY of VOC after processing and treating the gas (see expected emissions in Table 8), the storage vessels will be considered an affected facility under this subpart.

The proposed 30,000-gallon natural gas liquid (NGL) storage vessel would not be considered a storage vessel based on the definition under this subpart because it is a pressure vessel designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere [40 CFR §60.5430b]. The design pressure range for this unit is 205-215 psi.

| SOURCE ID | TANKS CAPACITY<br>GALLONS (BARRELS) | ROOF TYPE      | LIQUID STORED | MAX TVP<br>(PSIA) |
|-----------|-------------------------------------|----------------|---------------|-------------------|
| T-01      | 21,000 (500)                        | Vertical Fixed | Crude Oil     | 4.5               |
| T-02      | 16,800 (400)                        | Vertical Fixed | Crude Oil     | 4.5               |
| T-03      | 16,800 (400)                        | Vertical Fixed | Crude Oil     | 4.5               |
| T-04      | 16,800 (400)                        | Vertical Fixed | Crude Oil     | 4.5               |
| T-05      | 16,800 (400)                        | Vertical Fixed | Crude Oil     | 4.5               |
| T-06      | 16,800 (400)                        | Vertical Fixed | Salt Water    | 0.35              |

*Table 6*

Uncontrolled tanks emissions are found below in Table 7. These emissions are based on the facility releasing all the produced gas from the separator and from the storage vessels to atmosphere. Only the T-01 power oil tank would have the potential for flash loss due to it being open to atmosphere.

| UNCONTROLLED VOC EMISSIONS FROM TANKS<br>(TPY) |              |                |                 |                 |
|------------------------------------------------|--------------|----------------|-----------------|-----------------|
| SOURCE ID                                      | WORKING LOSS | BREATHING LOSS | FLASH EMISSIONS | TOTAL EMISSIONS |
| T-01                                           | 3.77         | 0.45           | 933.92          | <b>938.14</b>   |
| T-02                                           | 1.45         | 0.42           | -               | 1.87            |
| T-03                                           | 1.45         | 0.42           | -               | 1.87            |
| T-04                                           | 1.45         | 0.42           | -               | 1.87            |
| T-05                                           | 1.45         | 0.42           | -               | 1.87            |
| T-06                                           | -            | -              | -               | -               |
|                                                | 9.57         | 2.13           | 933.92          | <b>945.62</b>   |

Table 7

In the original project, Ventex proposed routing the vapors from the separator and the tanks to the flare for combustion. The flare was designed to have a destruction efficiency of 98%. The potential VOC emissions after the flash emissions are controlled by the flare are found in Table 8.

| SOURCE ID | VOC EMISSIONS (TPY)               |                                       |                                          |                                                           |
|-----------|-----------------------------------|---------------------------------------|------------------------------------------|-----------------------------------------------------------|
|           | UNCONTROLLED EMISSIONS FROM TANKS | CONTROLLED FLASH EMISSIONS FROM TANKS | TANK EMISSIONS AFTER GAS ROUTED TO FLARE | EXPECTED EMISSIONS FROM TANKS AFTER GAS ROUTED TO PROCESS |
| T-01      | 938.14                            | 18.68                                 | 22.9                                     | 4.22                                                      |
| T-02      | 1.87                              | -                                     | 1.87                                     | 1.87                                                      |
| T-03      | 1.87                              | -                                     | 1.87                                     | 1.87                                                      |
| T-04      | 1.87                              | -                                     | 1.87                                     | 1.87                                                      |
| T-05      | 1.87                              | -                                     | 1.87                                     | 1.87                                                      |
| T-06      | -                                 | -                                     | -                                        | -                                                         |
| Total     | <b>945.62</b>                     | <b>18.68</b>                          | <b>30.38</b>                             | <b>11.7</b>                                               |

Table 8

After the installation of equipment to process and treat the gas from the well for this project, the expected emissions from the tanks would be 11.7 TPY since the tank vapors will be collected through the vapor recovery unit (VRU) and processed rather than combusted in the flare. Working and breathing loss emissions are not controlled.

The following requirements shall apply to each storage vessel affected facility immediately upon startup, startup of production, or return to service [40 CFR §60.5365b(e)(6)]:

- A storage vessel affected facility or portion of a storage vessel affected facility that is reconnected to the original source of liquids remains a storage vessel affected facility subject to the same requirements that applied before being removed from service.

- Any storage vessel that is used to replace a storage vessel affected facility, or portion of a storage vessel affected facility, or used to expand a storage vessel affected facility, assumes the affected facility status of the storage vessel affected facility being replaced or expanded.

#### EMISSION STANDARDS

Legally and practicably enforceable limits in an operating permit or other requirements established under a Federal, State, local or Tribal authority may be taken into account when determining emissions for affected storage vessels [40 CFR §60.5365b(e)(2)(i)]. Ventex has not requested to take an enforceable limit on the storage vessels.

For storage vessels not subject to a legally and practicably enforceable limit in an operating permit or other requirements established under a Federal, state, local or Tribal authority, any vapor from the storage vessel that is recovered and routed to a process through a vapor recovery unit designed and operated as specified in this section is not required to be included in the determination of potential for VOC or methane emissions for purposes of determining affected facility status, provided that the following requirements are met [40 CFR §60.5365b(e)(5)]:

- Cover requirements specified in 40 CFR §60.5411b(b) [40 CFR §60.5365b(e)(5)(i), 40 CFR §60.5411b]
- Closed vent system requirements specified in 40 CFR §60.5411b(a)(2) through (4) and (c) [40 CFR §60.5365b(e)(5)(ii)]
- Records that document compliance with the cover and CVS requirements are maintained [40 CFR §60.5365b(e)(5)(iii)]

Except as specified in 40 CFR §60.5395b(e), each storage affected facility must comply with the requirements in 40 CFR §60.5395b to comply with GHG and VOC standards under this subpart. The facility was determined to not be a major source of HAP under MACT HH and the T-01 tank, with flash emissions, is not considered an affected facility under MACT HH; therefore, the storage vessels will not be exempt from NSPS OOOOb and must meet the following requirements [40 CFR §60.5395b(e)]:

- Meet the general requirements in 40 CFR §60.5395b(a)
- Meet the control requirement in 40 CFR §60.5395b(b)
- Storage vessel affected facilities that are removed from service or returned to service must meet the requirements in 40 CFR §60.5395b(c). A storage vessel is not an affected facility during the period it is removed from service.

#### EMISSION MONITORING

In order to determine the potential VOC and methane emissions, emissions must be calculated based on the cumulative emissions from all storage vessels within the tank battery [40 CFR §60.5365b(e)(2), §60.5395b(a)(1)].

- For a tank battery located at a well, the potential for VOC and methane emissions must be determined within 30 days after startup of production. The potential for VOC and methane emissions must be calculated using a generally accepted model or calculation methodology that accounts for flashing, working, and breathing losses, based on the maximum average daily throughput to the tank battery determined for a 30-day period of production at the well [40 CFR §60.5365b(e)(2)(ii)]. On August 8, 2025, Ventex provided the VOC and methane estimated emission for the first 30 days of production. The calculated uncontrolled emissions for VOC in this document

were 322.82 TPY and for methane emissions were 56.68 TPY. This production data was based on the facility only producing 608 Mscf/day of natural gas and 483 barrels of oil per day (bopd). The production of this well has been limited until the gas can be processed, treated, and sold to an end user rather than flared as originally proposed. According to this data provided, the uncontrolled tank battery emissions for VOC would exceed 6 tons per year (based on working and breathing loss emissions alone), and methane emissions from the tank battery would exceed 20 tons per year (see Table 2). However, when the gas is processed and sold rather than burned, the expected emissions for VOC and methane are expected to be below the threshold (see Table 4).

- Provided that there is a removal of apparatus that recovers and routes vapor to a process, or operation that is inconsistent with the conditions in 40 CFR §60.5365b(e)(5)(i) and (ii), the storage vessels potential for VOC emissions according to this section shall be determined within 30 days of such removal or operation [40 CFR §60.5365b(e)(2)(ii), 40 CFR §60.5365b(e)(5)(i), (ii), and (iv)].

For storage vessel affected facilities, demonstrate compliance with this subpart by complying with the standards in 40 CFR §60.5410b(j) for initial compliance and complying with the standards in 40 CFR §60.5415b(i) for continuous compliance [40 CFR §60.5365b(d)(1), (2), 40 CFR § 60.5410b(i), 40 CFR § 60.5410b(j)]. Additional continuous compliance requirement for storage vessels must be met as specified in 40 CFR § 60.5415b(f).

#### RECORDKEEPING AND REPORTING REQUIREMENTS

For storage vessel affected facilities, the applicable recordkeeping requirements as required by 40 §60.5420b(c)(7) and (c)(8) through (13) must be met [40 CFR §60.5365b(d)(3), 40 CFR §60.5420(c)].

For storage vessel affected facilities, the applicable reporting requirements as required by 40 CFR §60.5420b(b)(1) and (8) and (b)(11) must be met [40 CFR §60.5365b(d)(3), 40 CFR §60.5420(b)].

#### *Controls for Storage Vessels*

If Vertex uses a control device to reduce methane and VOC emissions by 95.0% from a storage vessel affected facility, all the design and operational criteria specified in 40 CFR §60.5395b(b)(1) shall be met [40 CFR 60.5395b(a)(2), (b)(1)]. The vapors must be collected in a closed vent system and routed to a control device that meets the conditions in 40 CFR §60.5412b. As an alternative to routing the closed vent system to a control device, Vertex may route the closed vent system to a process [40 CFR §60.5395b(b)(1)(ii), (iii)]. Vertex has elected to route the tank vapors through a closed vent system to a process to reduce methane and VOC emissions; however, a flare can be used during certain situations.

Performance testing procedures for control devices must be met as specified in 40 CFR §60.5413b. Vertex is exempt from the requirement to conduct an initial and periodic performance tests and design analyses if it uses any of the control devices specified in 40 CFR §60.5413b(a)(1)-(6) [40 CFR 60.5413b(a)]. For a flare designed and operated in accordance with the requirements in 40 CFR §60.5412b(a)(3), a compliance determination must be conducted using Method 22 of appendix A-7 to Part 60 to determine visible emissions or monitor the flare according to 40 CFR §60.5417b(h). The net heating value (NHV) of the vent gas must be determined according to 40 CFR §60.5417b(d)(8)(ii)\* [40 CFR §60.5413b(a)(1)]. \*NOTE: EPA extended the compliance dates related to NHV monitoring of flares found in 40 CFR §60.5417b(d)(8)(i) through (iv) until November 28, 2025; EPA intends to propose amendments to NSPS OOOOb related to NHV requirements.

Continuous monitoring requirements for control devices shall be met as specified in 40 CFR §60.5417b for storage vessel affected facilities by installing and operating a continuous parameter monitoring system for

each control device as specified in 40 CFR §60.5417b(c) through (h). If you install and operate a flare in accordance with 40 CFR § 60.5412b(a)(3), you are exempt from the requirements of 40 CFR §60.5417b(f). If the flare is operated using an alternative test method approved under 40 CFR § 60.5412b(d), the flare must be operated as specified in 40 CFR §60.5417b(i) instead of using the procedures specified in 40 CFR §60.5417b (c) through (h). Ventex must keep records and reports in accordance with 40 CFR §60.5417b(j) [40 CFR §60.5417b(a)].

#### *PUMP REQUIREMENTS*

The requirements for natural gas driven pumps are covered under 40 CFR §60.5365b(h). However, there are no natural gas driven pumps that will be located at the proposed well; therefore, there are no requirements under this section [40 CFR §60.5365b(h)].

#### *FUGITIVE EMISSION COMPONENTS REQUIREMENTS AT A WELL SITE*

##### APPLICABILITY

Each fugitive emissions component affected facility, is the collection of fugitive emissions components at a well site, centralized production facility, or a compressor station [40 CFR §60.5365b(i)]. As stated previously, this facility would not be defined as an onshore natural gas processing plant after implementation of the project even though gas is being processed prior to being sent to the end user. The facility will remain a well affected facility under this subpart.

For purposes of 40 CFR § 60.5397b and 40 CFR § 60.5398b, a “modification” to a well site occurs as specified in 40 CFR § 60.5365b(i):

- A new well is drilled at an existing well site;
- A well at an existing well site is hydraulically fractured; or
- A well at an existing well site is hydraulically refractured.

##### EMISSION STANDARDS

Fugitive emissions components affected facilities must comply with the requirements in 40 CFR §60.5397b and as follows to reduce fugitive emissions of methane and VOC [40 CFR §60.5397b]:

- Comply with the general requirements specified in 40 CFR §60.5397b(a)
- The requirements of 40 CFR §60.5397b(a) through (1) are independent of the cover and closed vent system requirements in 40 CFR §60.5411b [40 CFR §60.5397b(a)]
- The requirement in 40 CFR §60.5398b(a) may be elected as an alternative to GHG and VOC standards in 40 CFR §60.5397b(a) and the alternative continuous inspection and monitoring requirements for covers and closed vent systems in 40 CFR §60.5416b(a)(1)(ii) and (iii), (2)(ii) through (iv), and (3)(iii) and (iv) [40 CFR §60.5398b(a)].
- Meet the requirements for well closures in accordance with 40 CFR §60.5397b(l) [40 CFR §60.5397b(a), (l)].

##### EMISSION MONITORING

To demonstrate compliance with the monitoring requirements under this subpart, the following must be met [40 CFR §60.5397b(a)]:

- All fugitive emissions components must be monitored in accordance with 40 CFR §60.5397b(b) through (g).
- All sources of fugitive emissions must be repaired in accordance with 40 CFR §60.5397b(h).

#### COMPLIANCE AND PERFORMANCE TESTING REQUIREMENTS

- Initial compliance with this subpart must be demonstrated by complying with the standards in 40 CFR §60.5410b(k) for fugitive emissions components affected facilities [40 CFR §60.5397b(a), (i), 40 CFR § 60.5410b(k)]
- Continuous compliance with this subpart must be demonstrated by complying with the standards in 40 CFR §60.5397b(j) for fugitive emissions components affected facilities [40 CFR §60.5397b(a), (j)]

#### RECORDKEEPING AND REPORTING REQUIREMENTS

Notifications for well closures shall be submitted as specified in 40 CFR §60.5420b(a)(4)].

For fugitive emission components affected facilities, the applicable recordkeeping requirements as specified in 40 CFR §60.5420b(c)(14) must be met [40 CFR §60.5397b(a), (k), 40 CFR §60.5420b(c)].

For fugitive emission components affected facilities, the applicable reporting requirements as specified in 40 CFR §60.5420b(b)(1) and (9), must be met [40 CFR §60.5397b(a), (k), 40 CFR §60.5420b(b)].

If the alternative GHG and VOC standards for fugitive emission components affected facilities are chosen, the additional recordkeeping and reporting requirements under 40 CFR 60.5424b must be met.

#### *PROCESS UNIT EQUIPMENT REQUIREMENTS AT ONSHORE NATURAL GAS PROCESSING PLANTS*

The requirements under 40 CFR 60.5400b apply to fugitive emissions components at onshore natural gas processing plants. As previously stated, the proposed project would not trigger applicability to these requirements because this is a well affected facility, not a natural gas processing plant [40 CFR §60.5400b, 40 CFR §60.5430b]. Equipment associated with a compressor station, dehydration unit, sweetening unit, underground storage vessel, field gas gathering system, or liquefied natural gas unit not located at the onshore natural gas processing plant site is exempt from the provisions of 40 CFR §60.5400b, 40 CFR §60.5401b, 40 CFR §60.5402b, 40 CFR §60.5421b, and 40 CFR §60.5422b. [40 CFR 60.5365b(f)(2)].

#### *COVERS AND CLOSED VENT SYSTEM REQUIREMENTS*

For associated gas wells at well affected facilities, Ventex may temporarily route associated gas through a closed vent system that meets the requirements of 40 CFR §60.5411b(a) and design requirements of 40 CFR §60.5411(b) and (c) [40 CFR §60.5377b(d), 40 CFR §60.5411b(a),(c)]. For initial compliance for associated gas wells, the closed vent system must be designed to capture and route all gases, vapors, and fumes to a process or a control device that meets the requirements specified in § 60.5412b(a) through (d) [40 CFR §60.5411b(a)(2)].

For initial compliance, each storage vessel in the tank battery must be equipped with a cover that meets the requirements specified in 40 CFR §60.5411b(b) [40 CFR §60.5395b(b)(1)(i)]. The tank battery must be equipped with one or more closed vent system that meets the requirements of 40 CFR §60.5411b(a) and (c) [40 CFR §60.5395b(b)(1)(ii)].

Initial and continuous closed vent system inspection and monitoring requirements specified in 40 CFR §60.5416b must be met. If a control devices is installed or emissions are route to a process, each closed vent system must be inspected according to the procedures and schedule specified in 40 CFR §60.5416b (a)(1)

and (2), each cover shall be inspected according to the procedures and schedule specified in 40 CFR §60.5416b(a)(3), and each bypass device must be inspected according to the procedures of 40 CFR §60.5416b(a)(4), except as provided in 40 CFR §60.5416b(b)(7) for unsafe to inspect requirements and 40 CFR §60.5416b(b)(8) for difficult to inspect requirements. After January 22, 2027, Ventex must meet the requirements of 40 CFR §60.5416b(b)(1) through (9) if an inspection of the closed vent system and cover is required as specified in 40 CFR §60.5416b(a)(1), (2) or (3) or 40 CFR §60.5398b(b) [40 CFR §60.5416b(b)].

The inspection and monitoring requirements found in 40 CFR §60.5398b apply to covers and closed vent systems when using an alternative technology. The requirements in 40 CFR §60.5398b(a) may be elected as an alternative to the continuous inspection and monitoring requirements for covers and closed vent systems in 40 CFR §60.5416b(a)(1)(ii) and (iii), (2)(ii) through (iv), and (3)(iii) and (iv) [40 CFR §60.5398b(a)]. If the alternative GHG and VOC standards for covers and closed vent system are elected, the notification required under 40 CFR §60.5398b(a) must be submitted. The notification, reporting and recordkeeping requirements under 40 CFR 60.5424b must be met for alternative continuous inspection and monitoring requirements for covers and closed vent systems.

#### *ALL AFFECTED FACILITIES*

An annual report, where applicable, must be submitted via the Compliance and Emission Data Reporting Interface (CEDRI) website according to the requirements in 40 CFR §60.5420b(b)(15).

- The initial annual report is due no later than 90 days after the end of the initial compliance period as determined according to 40 CFR §60.5410b.
- Subsequent annual reports are due no later than the same date each year as the initial annual report.

Electronic reporting is required for notifications and reports according to 40 CFR §60.5420b(d).

#### **ADEM Admin. Code r. 335-3-11 | 40 CFR 63, “National Emission Standards for Hazardous Air Pollutants [NESHAPS] “**

This chapter covers standards under 40 CFR, Part 61 and Appendices, designated in rules 335-3-11-.02 and 335-3-11-.03 and 40 CFR Part 63, and Appendices designated in rules 335-3-11-.06 and 335-3-11-.07 are incorporated by reference as they exist in 40 CFR 61 (2021), and 40 CFR 63 (July 1, 2024), and 89 FR 55684, 89 FR 70505 [08/30/2024; amendments to Subpart ZZZZ], 89 FR 73293 [09/10/2024; amendments to Subpart A], 89 FR 84291 [10/22/2024; amendments to Subparts HH], and 90 FR 1040 [01/07/2025; amendments to Subpart A] , as amended by the word or phrase substitutions given in rule 335-3-11-.04. If any conflicts exist between the regulations contained in this Chapter and regulations contained in other Chapters, the more stringent regulation will take precedence.

#### **ADEM Admin. Code r. 335-3-11-.06(1) | 40 CFR 63 Subpart A, “General Provisions”**

The requirements under this subpart are subject by reference in an applicable subpart [40 CFR §63.1].

#### **ADEM Admin. Code r. 335-3-11-.06(33) | 40 CFR 63 Subpart HH, “National Emission Standards for Hazardous Air Pollutants (HAPs) from Oil and Natural Gas Production Facilities” (MACT HH)**

This subpart applies to affected sources that are located at oil and natural gas production facilities and that meet the applicable criteria in 40 CFR §63.760(a). The requirements under this subpart apply to sources that are either a major source of HAPs or an area source of HAPs that either process, upgrade, or store

hydrocarbon liquids and/or process, upgrade, or store 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.

Affected sources for a major source under MACT HH are as follows [40 CFR §63.2, 40 CFR §63.760(b)]:

- Each glycol dehydration unit [40 CFR §63.760(b)(1)(i)];
- Each storage vessel with the potential for flash emissions [40 CFR §63.760(b)(1)(ii)];
- The group of all ancillary equipment, except compressors, intended to operate in volatile hazardous air pollutant service (as defined in 40 CFR § 63.761), which are located at natural gas processing plants [40 CFR §63.760(b)(1)(iii)];
- Compressors intended to operate in volatile hazardous air pollutant service (as defined in 40 CFR § 63.761), which are located at natural gas processing plants.

The definition of a major source under 40 CFR §63.2 of Subpart A means any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants.

To determine major source status for production field facilities (facilities located prior to the point of custody transfer), only HAP emissions from a glycol dehydration unit and storage vessels with the potential for flash emissions shall be aggregated [40 CFR §63.2, 40 CFR §63.761]. The Ventex well is not equipped with a glycol dehydration unit; however, it does have a storage vessel that is an affected facility under this subpart [40 CFR 63.760(b)(1)(ii), 40 CFR §63.761]. The 500-barrel, T-01 storage vessel has the potential for flash emissions (see Table 6 above). If controls are considered, the emissions from the T-01 storage vessel, with flash emissions, would be less than the major source thresholds for HAPs (see Table 9). The majority of VOC emissions from all tanks are from the T-01 flash emissions. Emissions for all other pollutants for Tank T-01 are based on one-fifth of the total tank emissions (see Table 2).

| POLLUTANT        | TANK T-01 EMISSIONS    |                      |
|------------------|------------------------|----------------------|
|                  | TPY                    |                      |
|                  | UNCONTROLLED EMISSIONS | CONTROLLED EMISSIONS |
| PM <sub>10</sub> | 0.12                   | 0.12                 |
| PM               | 0.03                   | 0.03                 |
| SO <sub>2</sub>  | 0.000                  | 0.000                |
| NO <sub>x</sub>  | 0.39                   | 0.39                 |
| CO               | 2.13                   | 2.13                 |
| VOC              | 938.14                 | 18.76                |
| TOTAL HAPs       | 17.44                  | 0.34                 |
| CO <sub>2</sub>  | 768.02                 | 752.67               |
| N <sub>2</sub> O | 0.0012                 | 0.0012               |
| CH <sub>4</sub>  | 33.50                  | 0.67                 |
| MASS SUM         | 801.53                 | 753.35               |
| CO <sub>2e</sub> | 1,606.01               | 769.81               |

Table 9

Since the aggregated controlled emission from the storage vessel with flash emissions would be below the major source threshold, the facility would be an area source of HAPs with respect to this subpart. Since the facility is not equipped with a tri-ethylene glycol (TEG) dehydration unit, the facility will not have an affected source and will not be subject MACT HH [40 CFR §63.761, 40 CFR §63.760(b)(2), 40 CFR §63.760(d)].

**ADEM Admin. Code r. 335-3-11-.06(103) | 40 CFR 63 Subpart ZZZZ, “National Emission Standards for Hazardous Air Pollutant (HAP) for Stationary Reciprocating Internal Combustion Engines (RICE)” [aka RICE MACT]**

This subpart applies to a major source of HAP or an area source of HAP. As shown in Table 1, the uncontrolled emissions from the facility based on all gases venting to atmosphere would result in the total HAP emission from the facility greater than 25 TPY. However, the facility will only operate when the gas from the well can be processed and treated and routed to a sales line to the end user. The gas would only be combusted in the facility flare under certain circumstances. When the gas is routed to the flare (Table 3, controlled emissions) or routed to the process (Table 4, expected emissions), total HAPs emissions would be less than the major source threshold. Therefore, the facility would be an area source of HAPs under this subpart.

40 CFR §63.6590(c)(1) requires that new or reconstructed stationary RICE located at and area source of HAPs must meet the requirement under this subpart by complying with 40 CFR 60 Subpart JJJJ for spark ignition engines. There are no further requirements under this subpart [40 CFR §63.6590].

**ADEM Admin. Code r. 335-3-14-.04, “Prevention of Significant Deterioration (PSD) Permitting”**

Based on the emissions found in Table 1, uncontrolled emissions of VOC for the wellsite would be greater than 250 TPY major source threshold for this type of facility (oil wells and their associated equipment are not one of the 28 source categories listed in Rule 335-3-14-.04). In order to limit emissions for this facility below the PSD threshold, Ventex has requested to limit facility-wide VOC to 99 Tons per 12 consecutive rolling month. Therefore, a PSD review will not be warranted for this project.

**ADEM Admin. Code r. 335-3-14-.06, “Determination’s for Major Sources in Accordance with Clean Air Act Section 112(g)”**

HAP emissions greater than 10 tons per year (TPY) of any single HAP or 25 TPY of any combination of HAPs are not expected from the wellsite after the gas vapors from the separator and tanks are captured and routed to a process; therefore, a 112(g) case by case MACT review would not be required.

**ADEM Admin. Code r. 335-3-15, “Synthetic Minor Operating Permits (SMOP)”**

A synthetic minor source means a source whose potential to emit is restricted to less than a major source threshold as defined in Chapter 335-3-16. Based on the uncontrolled emission for this facility found in Table 1, this project has the potential to emission greater than 100 tons per year for VOC and CO and greater than 10 TPY for a single HAPs or 25 TPY for a combination of HAP. However, Ventex will reduce emissions for the facility below both major source thresholds by collecting all gas vapors and routing them to a system for processing, treatment, and for sale to an end user, rather than burning the gas in the flare (see expected facility-wide emissions in Table 4). Ventex has requested a limit of 99 tons for VOC and CO per 12 consecutive rolling month average. The limit on VOCs will necessarily limit HAP emissions below the major source thresholds. Therefore, HAP limits are not necessary.

Ventex will be required to calculate emissions from each emission source monthly, maintain emissions based on a 12-month rolling average, and maintain a record of deviations any time an emissions standard, limit, or permit requirement is not met. Per ADEM Admin. Code r. 335-3-16-.01(1)(q)2.(xxvii), fugitive

emissions must be included as part of the calculations since the facility is regulated by a standard promulgated under Chapter 10 (NSPS OOOOb) and Chapter 11 (MACT ZZZZ). Ventex would also be required to submit a semi-annual report to report any deviations from a permit condition during the six-month calendar period from January 1 – June 30 and from July 1-December 31. A 15-day public comment period will be required for this project.

***ADEM Admin. Code r. 335-3-16, “Major Source Operating Permits”***

To become a major source under this regulation, the facility must have the potential to emit greater than 100 TPY of a regulated air pollutant, 10 TPY of a single HAP, or 25 TPY of a combination of HAPs. Based on the potential uncontrolled emissions found in Table 1, Ventex has the potential to exceed the major source thresholds for CO, VOC, and for HAPs. Even though the production for the well significantly increased from the original design of the plant based on the production data, Ventex is still able to maintain the emissions from this project below the major source thresholds by processing the gas rather than burning it in the flare and equipping the proposed engine with a control device (see expected emissions in Table 4). Provided that the gas plant is not operational, Ventex will shut in the well rather than flaring the gas although flaring is allowed under certain circumstance under 40 CFR 60 Subpart OOOOb.

**CLASS 1 AREA**

The nearest Class I Area would be the Breton Wildlife Refuge. However, the facility is located more than 100 km from this area.

**RECOMMENDATIONS**

I recommend that the Department issue Synthetic Minor Operating Permit No. 103-0046-X001 to Ventex Operating Corporation for the modification of the existing ATIC 34-12 Oil and Gas Production Well to include processing and treating equipment at the existing well. The owner/operator should be able to comply with all federal and state rules and regulations for this project. Once the 15-day public comment period has ended and comments, if any are received have been addressed, Ventex will be issued the SMOP to replace Air Permit No. 103-0046-X001 issued on February 14, 2025.

---

Harlotte Bolden-Wright  
Industrial Minerals Section  
Energy Branch  
Air Division

November 12, 2025  
Draft Date

## **ATTACHMENT A: CALCULATIONS**

## ENGINE CALCULATIONS

| DATA:                                             |                        |                  |                       | AP-42 Ch. 3.2 & 3.3 Emission Factors |                      |                                                          |                              |                 |         |         |                   |                       |  |
|---------------------------------------------------|------------------------|------------------|-----------------------|--------------------------------------|----------------------|----------------------------------------------------------|------------------------------|-----------------|---------|---------|-------------------|-----------------------|--|
| ENGINE TYPE                                       | =                      | Engine           |                       | (lb/MMBtu)                           |                      |                                                          |                              |                 |         |         |                   |                       |  |
|                                                   |                        | 4SRB             | NG                    | Type                                 | PM <sub>filt</sub>   | PM <sub>con</sub> <sup>2</sup>                           | SO <sub>2</sub> <sup>1</sup> | NO <sub>x</sub> | CO      | VOC     | CH <sub>2</sub> O | Other HAPs            |  |
| FUEL HEAT CONTENT                                 | =                      | 993 Btu/Scf      |                       | Diesel                               | 3.10E-1              | 2.02E-1                                                  | [By Mass]                    | 4.41E+0         | 9.50E-1 | 3.50E-1 | 1.18E-3           | 2.69E-3               |  |
| FUEL H2S CONTENT                                  | =                      | 0.0 gr/100scf    |                       | 2SLB                                 | 3.84E-2              | 9.91E-3                                                  | 5.88E-4                      | 3.17E+0         | 3.86E-1 | 1.20E-1 | 5.52E-2           | 2.53E-2               |  |
| MAXIMUM ENGINE HP                                 | =                      | 202 HP           |                       | 4SLB                                 | 7.71E-5              | 9.91E-3                                                  | 5.88E-4                      | 4.08E+0         | 3.17E-1 | 1.18E-1 | 5.28E-2           | 2.10E-2               |  |
| ENGINE OP HOURS                                   | =                      | 8,760 Hr         |                       | 4SRB                                 | 9.50E-3              | 9.91E-3                                                  | 5.88E-4                      | 2.27E+0         | 3.72E+0 | 2.96E-2 | 2.05E-2           | 1.20E-2               |  |
| ENGINE RATING                                     | =                      | 1.83 MMBtu/hr    |                       |                                      |                      |                                                          |                              |                 |         |         |                   |                       |  |
| BRAKE-SPECIFIC FUEL CONSUMPTION                   | =                      | 9,075 Btu/ HP-hr |                       |                                      |                      | 40 CFR Part 98 Subpart C Greenhouse Gas Emission Factors |                              |                 |         |         |                   | GWP                   |  |
| CALCULATION BASIS                                 | =                      | Uncontrolled     |                       |                                      |                      | Tables C-1 & C-2                                         |                              |                 |         |         |                   | N <sub>2</sub> O= 298 |  |
| EMISSION FACTORS (EF)                             |                        |                  |                       | MANUFACTURER'S EF                    |                      | (kg/MMBtu)                                               |                              |                 |         |         |                   | CO <sub>2</sub> = 1   |  |
|                                                   |                        | Uncontrolled     | Controlled            |                                      |                      | N <sub>2</sub> O                                         | CO <sub>2</sub>              | CH <sub>4</sub> |         |         |                   | CH <sub>4</sub> = 25  |  |
| NO <sub>x</sub>                                   | =                      | g/HP-hr          | 1 g/HP-hr             |                                      | Diesel               | 0.0006                                                   | 75.04                        | 0.003           |         |         |                   |                       |  |
| CO                                                | =                      | g/HP-hr          | 2 g/HP-hr             |                                      | NG                   | 0.0001                                                   | 53.06                        | 0.001           |         |         |                   |                       |  |
| VOC                                               | =                      | g/HP-hr          | 0.37 g/HP-hr          |                                      | LPG                  | 0.0006                                                   | 62.72                        | 0.003           |         |         |                   |                       |  |
| CH <sub>2</sub> O                                 | =                      | g/HP-hr          | 0.19 g/HP-hr          |                                      | Propane              | 0.0006                                                   | 61.46                        | 0.003           |         |         |                   |                       |  |
| PM                                                | =                      | g/HP-hr          | g/HP-hr               |                                      |                      |                                                          |                              |                 |         |         |                   |                       |  |
| CH <sub>4</sub>                                   | =                      | g/HP-hr          | g/HP-hr               |                                      |                      |                                                          |                              |                 |         |         |                   |                       |  |
| assume 2:1 NOX to NMHC                            |                        |                  |                       |                                      |                      |                                                          |                              |                 |         |         |                   |                       |  |
| Uncontrolled 202 HP Engine Emissions Calculations |                        |                  |                       |                                      |                      |                                                          |                              |                 |         |         |                   |                       |  |
| PM <sub>1, filt</sub>                             | 9.50E-3 lb             | 1.83 MMBtu       |                       | 8,760 Hr                             | 1 Ton                |                                                          |                              |                 |         |         | Uncontrolled      |                       |  |
|                                                   | MMBtu                  | hr               |                       | Year                                 | 2000 Lb              |                                                          |                              |                 |         |         | 0.076 Tons        |                       |  |
| PM <sub>con</sub>                                 | 9.91E-3 lb             | 1.83 MMBtu       |                       | 8,760 Hr                             | 1 Ton                |                                                          |                              |                 |         |         | 0.080 Tons        |                       |  |
|                                                   | MMBtu                  | hr               |                       | Year                                 | 2000 Lb              |                                                          |                              |                 |         |         | Year              |                       |  |
| SO <sub>2</sub>                                   | 0.0006 lb              | 1.83 MMBtu       | 8760 Hrs              | 1 Ton                                | S.F.                 | 0.0 gr/100scf                                            |                              |                 |         |         | 0.00 Tons         |                       |  |
|                                                   | MMBtu                  | Hr               | Year                  | 2000 Lb                              |                      | 0.2 gr/100scf                                            |                              |                 |         |         | Year              |                       |  |
| NO <sub>x</sub>                                   | 2.27E+0 lb             | 1.83 MMBtu       |                       | 8,760 Hr                             | 1 Ton                |                                                          | S.F.                         |                 |         |         | 18.23 Tons        |                       |  |
|                                                   | MMBtu                  | hr               |                       | Year                                 | 2000 Lb              |                                                          |                              |                 |         |         | Year              |                       |  |
| CO                                                | 3.72E+0 lb             | 1.83 MMBtu       |                       | 8,760 Hr                             | 1 Ton                |                                                          | S.F.                         |                 |         |         | 29.87 Tons        |                       |  |
|                                                   | MMBtu                  | hr               |                       | Year                                 | 2000 Lb              |                                                          |                              |                 |         |         | Year              |                       |  |
| VOC                                               | 0.03 lb                | 1.83 MMBtu       |                       | 8,760 Hr                             | 1 Ton                |                                                          | S.F.                         |                 |         |         | 0.24 Tons         |                       |  |
|                                                   | MMBtu                  | hr               |                       | Year                                 | 2000 Lb              |                                                          |                              |                 |         |         | Year              |                       |  |
| CH <sub>2</sub> O                                 | 0.0205 lb              | 1.83 MMBtu       |                       | 8,760 Hr                             | 1 Ton                |                                                          | S.F.                         |                 |         |         | 0.16 Tons         |                       |  |
|                                                   | MMBtu                  | hr               |                       | Year                                 | 2000 Lb              |                                                          |                              |                 |         |         | Year              |                       |  |
| non-CH <sub>2</sub> O HAPs                        | 0.0120 lb              | 1.83 MMBtu       |                       | 8,760 Hr                             | 1 Ton                |                                                          | S.F.                         |                 |         |         | 0.10 Tons         |                       |  |
|                                                   | MMBtu                  | Hr               |                       | Year                                 | 2000 Lb              |                                                          |                              |                 |         |         | Year              |                       |  |
| CO <sub>2</sub>                                   | 1.83 MMBtu             | 53.06 kg         | 0.001 Metric Ton      | 8,760 Hr                             | 1.1023 Tons          |                                                          |                              |                 |         |         | 939.23 Tons       |                       |  |
|                                                   | Hr                     | MMBtu            | kg                    | Year                                 | 1 M Ton              |                                                          |                              |                 |         |         | Year              |                       |  |
| N <sub>2</sub> O                                  | 1.83 MMBtu             | 0.0001 kg        | 0.001 Metric Ton      | 8,760 Hr                             | 1.1023 Tons          |                                                          |                              |                 |         |         | 0.00 Tons         |                       |  |
|                                                   | Hr                     | MMBtu            | kg                    | Year                                 | 1 M Ton              |                                                          |                              |                 |         |         | Year              |                       |  |
| CH <sub>4</sub>                                   | 1.83 MMBtu             | 0.001 kg         | 0.001 Metric Ton      | 8,760 Hr                             | 1.1023 Tons          |                                                          |                              |                 |         |         | 0.02 Tons         |                       |  |
|                                                   | Hr                     | MMBtu            | kg                    | Year                                 | 1 M Ton              |                                                          |                              |                 |         |         | Year              |                       |  |
| Mass Sum                                          | 939.23 Tons            | +                | 0.0018 Tons           | +                                    | 0.0177 Tons          |                                                          |                              |                 |         |         | 939.25 Tons       |                       |  |
|                                                   | Year                   |                  | Year                  |                                      | Year                 |                                                          |                              |                 |         |         | Year              |                       |  |
| CO <sub>2</sub> e                                 | 939.23 TPY*1           |                  | 0.0018 TPY*298        | +                                    | 0.018 TPY*25         |                                                          |                              |                 |         |         | 940.20 Tons       |                       |  |
|                                                   | 939.23 CO <sub>2</sub> | +                | 0.53 N <sub>2</sub> O |                                      | 0.44 CH <sub>4</sub> |                                                          |                              |                 |         |         | Year              |                       |  |

<sup>1</sup> EPA AP-42 factors assume gas to have 2000 gr S/MMScf (at EPA STP). AP-42 factor can be corrected to sulfur value of facility gas by comparing actual sulfur values to EPA reference point.

<sup>2</sup> EPA AP-42 Ch. 3.3 & 3.4 factors account only for filterable particulate matter. In absence of PMcon factors for engines, applying ratio of PMfilt to PMcon factors from AP-42 Ch. 1.3 (for diesel) to PMfilt factors from Ch. 3.3 & 3.4

**VENTEX OPERATING CORPORATION-ATIC 34-12 No. 1 OIL AND GAS PRODUCTION AND PROCESSING FACILITY**

FACILITY NO.: 103-0046

PERMIT NO.: X001

ENGINEERING ANALYSIS

| DATA:                                           |                        |                   |                       | AP-42 Ch. 3.2 & 3.3 Emission Factors                     |                        |                                |                              |                 |         |         |                   |            |                   |     |    |
|-------------------------------------------------|------------------------|-------------------|-----------------------|----------------------------------------------------------|------------------------|--------------------------------|------------------------------|-----------------|---------|---------|-------------------|------------|-------------------|-----|----|
|                                                 |                        | Engine            |                       | (lb/MMBtu)                                               |                        |                                |                              |                 |         |         |                   |            |                   |     |    |
| ENGINE TYPE                                     | =                      | 4SRB              | NG                    | Type                                                     | PM <sub>filt</sub>     | PM <sub>con</sub> <sup>2</sup> | SO <sub>2</sub> <sup>1</sup> | NO <sub>x</sub> | CO      | VOC     | CH <sub>2</sub> O | Other HAPs |                   |     |    |
| FUEL HEAT CONTENT                               | =                      | 993 Btu/Scf       |                       | Diesel                                                   | 3.10E-1                | 2.02E-1                        | [By Mass]                    | 4.41E+0         | 9.50E-1 | 3.50E-1 | 1.18E-3           | 2.69E-3    |                   |     |    |
| FUEL H2S CONTENT                                | =                      | 0.0 gr/100scf     |                       | 2SLB                                                     | 3.84E-2                | 9.91E-3                        | 5.88E-4                      | 3.17E+0         | 3.86E-1 | 1.20E-1 | 5.52E-2           | 2.53E-2    |                   |     |    |
| MAXIMUM ENGINE HP                               | =                      | 202 HP            |                       | 4SLB                                                     | 7.71E-5                | 9.91E-3                        | 5.88E-4                      | 4.08E+0         | 3.17E-1 | 1.18E-1 | 5.28E-2           | 2.10E-2    |                   |     |    |
| ENGINE OP HOURS                                 | =                      | 8,760 Hr          |                       | 4SRB                                                     | 9.50E-3                | 9.91E-3                        | 5.88E-4                      | 2.27E+0         | 3.72E+0 | 2.96E-2 | 2.05E-2           | 1.20E-2    |                   |     |    |
| ENGINE RATING                                   | =                      | 1.83 MMBtu/hr     |                       | 40 CFR Part 98 Subpart C Greenhouse Gas Emission Factors |                        |                                |                              |                 |         |         |                   |            | GWP               |     |    |
| BRAKE-SPECIFIC FUEL CONSUMPTION                 | =                      | 9,075 Btu/ HP-hr  |                       |                                                          |                        |                                |                              |                 |         |         |                   |            | N <sub>2</sub> O= | 298 |    |
| CALCULATION BASIS                               | =                      | Controlled        |                       | Tables C-1 & C-2                                         |                        |                                |                              |                 |         |         |                   |            | CO <sub>2</sub> = | 1   |    |
| EMISSION FACTORS (EF)                           |                        | MANUFACTURER'S EF |                       | (kg/MMBtu)                                               |                        |                                |                              |                 |         |         |                   |            | CH <sub>4</sub> = |     | 25 |
|                                                 |                        | Controlled        |                       |                                                          |                        |                                |                              |                 |         |         |                   |            |                   |     |    |
| NO <sub>x</sub>                                 | =                      | 1 g/HP-hr         |                       | g/HP-hr                                                  | Diesel                 | 0.0006                         | 75.04                        | 0.003           |         |         |                   |            |                   |     |    |
| CO                                              | =                      | 2 g/HP-hr         |                       | g/HP-hr                                                  | NG                     | 0.0001                         | 53.06                        | 0.001           |         |         |                   |            |                   |     |    |
| VOC                                             | =                      | 0.37 g/HP-hr      |                       | g/HP-hr                                                  | LPG                    | 0.0006                         | 62.72                        | 0.003           |         |         |                   |            |                   |     |    |
| CH <sub>2</sub> O                               | =                      | 0.19 g/HP-hr      |                       | g/HP-hr                                                  | Propane                | 0.0006                         | 61.46                        | 0.003           |         |         |                   |            |                   |     |    |
| PM                                              | =                      | g/HP-hr           |                       | g/HP-hr                                                  |                        |                                |                              |                 |         |         |                   |            |                   |     |    |
| CH <sub>4</sub>                                 | =                      | g/HP-hr           |                       | g/HP-hr                                                  | assume 2:1 NOX to NMHC |                                |                              |                 |         |         |                   |            |                   |     |    |
| Controlled 202 HP Engine Emissions Calculations |                        |                   |                       |                                                          |                        |                                |                              |                 |         |         |                   |            |                   |     |    |
| PM <sub>1, filt</sub>                           | 0.0095 lb              | 1.83 MMBtu        |                       | 8,760 Hr                                                 | 1 Ton                  |                                |                              |                 |         |         |                   |            | Controlled        |     |    |
|                                                 | MMBtu                  | hr                |                       | Year                                                     | 2000 Lb                |                                |                              |                 |         |         |                   |            | 0.08 Tons         |     |    |
| PM <sub>con</sub>                               | 0.00991 lb             | 1.83 MMBtu        |                       | 8,760 Hr                                                 | 1 Ton                  |                                |                              |                 |         |         |                   |            | 0.08 Tons         |     |    |
|                                                 | MMBtu                  | hr                |                       | Year                                                     | 2000 Lb                |                                |                              |                 |         |         |                   |            | Year              |     |    |
| SO <sub>2</sub>                                 | 0.0006 lb              | 1.83 MMBtu        | 8760 Hrs              | 1 Ton                                                    |                        | S.F.                           | 0.0 gr/100scf                |                 |         |         |                   |            | 0.00 Tons         |     |    |
|                                                 | MMBtu                  | Hr                | Year                  | 2000 Lb                                                  |                        |                                | 0.2 gr/100scf                |                 |         |         |                   |            | Year              |     |    |
| NO <sub>x</sub>                                 | 1 g                    | 202.00 HP         | 1 Lb                  | 8,760 Hr                                                 | 1 Ton                  |                                | S.F.                         |                 |         |         |                   |            | 1.95 Tons         |     |    |
|                                                 | HP-Hr                  |                   | 453.6 g               | Year                                                     | 2000 Lb                |                                |                              |                 |         |         |                   |            | Year              |     |    |
| CO                                              | 2 g                    | 202.00 HP         | 1 Lb                  | 8,760 Hr                                                 | 1 Ton                  |                                | S.F.                         |                 |         |         |                   |            | 3.90 Tons         |     |    |
|                                                 | HP-Hr                  |                   | 453.6 g               | Year                                                     | 2000 Lb                |                                |                              |                 |         |         |                   |            | Year              |     |    |
| VOC                                             | 0.37 g                 | 202.00 HP         | 1 Lb                  | 8,760 Hr                                                 | 1 Ton                  |                                | S.F.                         |                 |         |         |                   |            | 0.72 Tons         |     |    |
|                                                 | HP-Hr                  |                   | 453.6 g               | Year                                                     | 2000 Lb                |                                |                              |                 |         |         |                   |            | Year              |     |    |
| CH <sub>2</sub> O                               | 0.1900 g               | 202.00 HP         | 1 Lb                  | 8,760 Hr                                                 | 1 Ton                  |                                | S.F.                         |                 |         |         |                   |            | 0.37 Tons         |     |    |
|                                                 | HP-Hr                  |                   | 453.6 g               | Year                                                     | 2000 Lb                |                                |                              |                 |         |         |                   |            | Year              |     |    |
| non-CH <sub>2</sub> O HAPs                      | 0.0120 lb              | 1.83 MMBtu        |                       | 8,760 Hr                                                 | 1 Ton                  |                                | S.F.                         |                 |         |         |                   |            | 0.10 Tons         |     |    |
|                                                 | MMBtu                  | Hr                |                       | Year                                                     | 2000 Lb                |                                |                              |                 |         |         |                   |            | Year              |     |    |
| CO <sub>2</sub>                                 | 1.83 MMBtu             | 53.06 kg          | 0.001 Metric Ton      | 8,760 Hr                                                 | 1.1023 Tons            |                                |                              |                 |         |         |                   |            | 939.23 Tons       |     |    |
|                                                 | Hr                     | MMBtu             | kg                    | Year                                                     | 1 M Ton                |                                |                              |                 |         |         |                   |            | Year              |     |    |
| N <sub>2</sub> O                                | 1.83 MMBtu             | 0.0001 kg         | 0.001 Metric Ton      | 8,760 Hr                                                 | 1.1023 Tons            |                                |                              |                 |         |         |                   |            | 0.00 Tons         |     |    |
|                                                 | Hr                     | MMBtu             | kg                    | Year                                                     | 1 M Ton                |                                |                              |                 |         |         |                   |            | Year              |     |    |
| CH <sub>4</sub>                                 | 1.83 MMBtu             | 0.001 kg          | 0.001 Metric Ton      | 8,760 Hr                                                 | 1.1023 Tons            |                                |                              |                 |         |         |                   |            | 0.02 Tons         |     |    |
|                                                 | Hr                     | MMBtu             | kg                    | Year                                                     | 1 M Ton                |                                |                              |                 |         |         |                   |            | Year              |     |    |
| Mass Sum                                        | 939.23 Tons            | +                 | 0.0018 Tons           | +                                                        | 0.0177 Tons            |                                |                              |                 |         |         |                   |            | 939.25 Tons       |     |    |
|                                                 | Year                   |                   | Year                  |                                                          | Year                   |                                |                              |                 |         |         |                   |            | Year              |     |    |
| CO <sub>2</sub> e                               | 939.23 TPY*1           |                   | 0.0018 TPY*298        | +                                                        | 0.018 TPY*25           |                                |                              |                 |         |         |                   |            | 940.20 Tons       |     |    |
|                                                 | 939.23 CO <sub>2</sub> | +                 | 0.53 N <sub>2</sub> O |                                                          | 0.44 CH <sub>4</sub>   |                                |                              |                 |         |         |                   |            | Year              |     |    |

<sup>1</sup> EPA AP-42 factors assume gas to have 2000 gr S/MMScf (at EPA STP). AP-42 factor can be corrected to sulfur value of facility gas by comparing actual sulfur values to EPA reference point.

<sup>2</sup> EPA AP-42 Ch. 3.3 & 3.4 factors account only for filterable particulate matter. In absence of PMcon factors for engines, applying ratio of PMfilt to PMcon factors from AP-42 Ch. 1.3 (for diesel) to PMfilt factors from Ch. 3.3 & 3.4

**VENTEX OPERATING CORPORATION-ATIC 34-12 No. 1 OIL AND GAS PRODUCTION AND PROCESSING FACILITY**

FACILITY NO.: 103-0046

PERMIT NO.: X001

ENGINEERING ANALYSIS

## FLARE CALCULATIONS

| Data                                         | Total                                 | Separator Gas               | Tank Gas                              | Pilot Gas                   | GWP (11/29/2013)             | 40 CFR Part 98 Sub C GHG Emission Factors (Table C-1) |               |                     |                  |
|----------------------------------------------|---------------------------------------|-----------------------------|---------------------------------------|-----------------------------|------------------------------|-------------------------------------------------------|---------------|---------------------|------------------|
| Volume                                       | 38,814.167 scf/hr (Ind.)              | 852.0 Mscf/day              | 72.5 Mscf/day                         | 7.0 Mscf/day                | N <sub>2</sub> O= 298        | N <sub>2</sub> O= 0.0001 kg/MMBtu                     |               |                     |                  |
| H <sub>2</sub> S mol%                        | 0.0011 mol%                           | 0.0012 mol%                 | 0.0000 mol%                           | 0.0000 mol%                 | CO <sub>2</sub> = 1          | CO <sub>2</sub> = 1                                   |               |                     |                  |
| Heat Content                                 | 1189.62 Btu/scf (Ind.)                | 1107.00 Btu/scf (Ind.)      | 2179.00 Btu/scf (Ind.)                | 993.30 Btu/scf (Ind.)       | CH <sub>4</sub> = 25         | CH <sub>4</sub> = 25                                  |               |                     |                  |
| VOC MW                                       | 6.21 lb/lb-mol <sup>2</sup>           | 4.47 lb/lb-mol <sup>2</sup> | 27.16 lb/lb-mol <sup>2</sup>          | 1.69 lb/lb-mol <sup>2</sup> |                              |                                                       |               |                     |                  |
| CO <sub>2</sub>                              | 1.07% mol%                            | 1.14% mol%                  | 0.18% mol%                            | 1.22% mol%                  |                              |                                                       |               |                     |                  |
| CH <sub>4</sub>                              | 68.02% mol%                           | 71.19% mol%                 | 30.03% mol%                           | 76.30% mol%                 |                              |                                                       |               |                     |                  |
| C <sub>6</sub>                               | 0.19 lb/lb-mol <sup>2</sup>           | 0.19 lb/lb-mol <sup>2</sup> | 2.51 lb/lb-mol <sup>2</sup>           | 1.03 lb/lb-mol <sup>2</sup> |                              |                                                       |               |                     |                  |
| OP Hours                                     | 8760 Hrs                              |                             |                                       |                             | (Ind. STP) scf/lbmol= 371.17 | 60 °F                                                 | 15.025 psia   |                     |                  |
| Destruction Eff                              | 98.00% DRE                            | Heat Input                  | 46.17 MMBtu/hr <sup>1</sup>           |                             | (EPA STP) scf/lbmol= 385.5   | 68 °F                                                 | 14.696 psia   |                     |                  |
| Potential Flare Emission Calculations        |                                       |                             |                                       |                             |                              |                                                       |               |                     |                  |
| Pollutants                                   | 40 µg                                 | 38814.2 scf (Ind.)          | 2.2E-9 lb                             | 8,760 Hr                    | 1 Ton                        | 28.31685 L                                            | 1.04 scf(EPA) | CONTROLLED          | UNCONTROLLED     |
| PM <sub>1</sub>                              | L                                     | Hr                          | µg                                    | Year                        | 2,000 Lb                     | scf (EPA)                                             | 1 scf(Ind.)   | 0.441 Tons Year     | 0.441 Tons Year  |
| SO <sub>2</sub>                              | 172.6 Lb SO <sub>2</sub> <sup>4</sup> | 38.814 MScf (Ind.)          | 0.001% H <sub>2</sub> S Mol%          | 8,760 Hr                    | 1 Ton                        |                                                       |               | 0.322 Tons Year     | 0.322 Tons Year  |
|                                              | MScf (Ind.)                           | Hr                          |                                       | Year                        | 2,000 Lb                     |                                                       |               |                     |                  |
| NO <sub>x</sub>                              | 0.068 lb                              | 46.174 MMBtu                | 8,760 Hr                              | 1 Ton                       |                              |                                                       |               | 13.753 Tons Year    | 13.753 Tons Year |
|                                              | MMBtu                                 | Hr                          | Year                                  | 2,000 Lb                    |                              |                                                       |               |                     |                  |
| CO                                           | 0.37 lb                               | 46.174 MMBtu                | 8,760 Hr                              | 1 Ton                       |                              |                                                       |               | 74.830 Tons Year    | 74.830 Tons Year |
|                                              | MMBtu                                 | Hr                          | Year                                  | 2,000 Lb                    |                              |                                                       |               |                     |                  |
| VOC <sup>5</sup>                             | 38,814.2 Scf (Ind.)                   | 1 lb-mol                    | 6.21 Lb VOC                           | 8,760 Hr                    | 1 Ton                        | 2.00%                                                 | Inv. DRE      | 56.899 Tons Year    | 2,844.97 TPY     |
|                                              | Hr                                    | 371.17 scf (Ind.)           | Lb-Mole                               | Year                        | 2,000 Lb                     |                                                       |               |                     |                  |
| HAPs <sup>6</sup>                            | 38,814.2 Scf (Ind.)                   | 1 lb-mol                    | 0.19 Lb C <sub>6</sub>                | 8,760 Hr                    | 1 Ton                        | 2.00%                                                 | Inv. DRE      | 1.768 Tons Year     | 88.42 TPY        |
|                                              | Hr                                    | 371.17 scf (Ind.)           | Lb-Mole                               | Year                        | 2,000 Lb                     |                                                       |               |                     |                  |
| CO <sub>2</sub> <sup>5,6</sup> of Combustion | 98.00% DRE                            | 3.40E+08 Scf (Ind.)         | 1.28 lb-mol CO <sub>2</sub> (stoich.) | 1 lb-mol gas                | 44.01 lb CO <sub>2</sub>     | 1 Ton                                                 |               | 25,221.58 Tons Year | 25,736.31 TPY    |
|                                              |                                       | Yr                          | 1 lb-mol gas (stoich.)                | 371.17 scf (Ind.)           | lb-mole CO <sub>2</sub>      | 2,000 Lb                                              |               |                     |                  |
| CO <sub>2</sub> of Fuel                      | 3.40E+08 Scf (Ind.)                   | 1.07% mol% CO <sub>2</sub>  | 1 lb-mol                              | 44.01 Lb CO <sub>2</sub>    | 1 Ton                        |                                                       |               | 215.19 Tons Year    |                  |
|                                              | Yr                                    |                             | 371.17 scf (Ind.)                     | Lb-mole                     | 2,000 Lb                     |                                                       |               |                     |                  |
| N <sub>2</sub> O                             | 0.001 M Ton                           | 0.001190 MMBtu              | 38,814.2 Scf (Ind.)                   | 0.0001 kg                   | 8,760 Hr                     | 1.1023 Tons                                           |               | 0.0446 Tons Year    |                  |
|                                              | kg                                    | Scf (Ind.)                  | Hr                                    | MMBtu                       | Year                         | 1 Metric Ton                                          |               |                     |                  |
| CH <sub>4</sub> Uncombusted                  | 3.40E+08 Scf (Ind.)                   | 2.00% Inv. DRE              | 68.02% mol% CH <sub>4</sub>           | 1 lb-mol                    | 16.043 Lb CH <sub>4</sub>    | 1 Ton                                                 |               | 99.96 Tons Year     | 4,998.16 TPY     |
|                                              | Yr                                    |                             |                                       | 371.174 scf (Ind.)          | Lb-mole                      | 2,000 Lb                                              |               |                     |                  |
| Mass Sum                                     | 25,436.77 Tons                        |                             | +                                     | 0.0446 Tons                 |                              | 99.96 Tons                                            |               | 25,536.78 Tons Year | 30,949.702 TPY   |
|                                              | Year                                  | CO <sub>2</sub>             |                                       | Year                        |                              | Year                                                  |               |                     |                  |
| CO <sub>2</sub> e                            | 25,436.77 TPY                         | X 1                         |                                       | 0.0446 TPY                  | X 298                        | 99.96 TPY                                             | X 25          | 27,949.14 Tons Year | 150,918.84 TPY   |
|                                              |                                       | 25,436.77 CO <sub>2</sub>   | +                                     | 13.29 N <sub>2</sub> O      | +                            | 2,499.08 CH <sub>4</sub>                              |               |                     |                  |

<sup>1</sup> Rated Heat Capacity (MMBtu/Hr) = Flowrate (Scf/Hr) \* Heat Content (Btu/Scf) \* (MMBtu/10<sup>6</sup> Btu)

<sup>2</sup> VOC (Lb/Lb-mole) = Σ (Mole% of Each Compound) \* (1%/100) \* MW of Each Compound - See Flare GHG Spread Sheet for gas analysis

<sup>3</sup> Has to be maintained <500 lb/hr or 20 ppbv offsite concentration could potentially be exceeded  
H<sub>2</sub>S (Lb/hr) = Volume (Scf/hr) \* (1 lb-mol/380.67) \* (H<sub>2</sub>S mol%) \* (34.08 Lb H<sub>2</sub>S/Lb-mol)

<sup>4</sup> SO<sub>2</sub> Conversion Factor 168.3 Lb SO<sub>2</sub>/MScf of Gas  
= (1,000 Scf/MScf) \* (1Lb-Mole/380.67 Scf) \* (64.066 Lb SO<sub>2</sub>/Lb-Mole)

<sup>5</sup> Assuming the flare is 98% efficient

<sup>6</sup> Calculated using the gas analysis:

Σ Y<sub>j</sub> \* R<sub>j</sub> where, Y<sub>j</sub> = mole fraction of gas hydrocarbon constituents' j (such as methane, ethane, propane, carbon dioxide, etc.) and R<sub>j</sub> = number of carbon atoms in gas hydrocarbon constituent j: 1 for methane and carbon dioxide, 2 for ethane, 3 for propane, etc.

<sup>7</sup> Flare assumed to be "lightly smoking" in AP-42 table 13.5-1

<sup>8</sup> n-Hexane, Benzene, Toluene, etc are HAPs, but i-Hexanes, n-Heptane, n-Octane, etc are not. Assume by mass 50% Hexanes and 10% Heptanes+ are HAPS

**VENTEX OPERATING CORPORATION-ATIC 34-12 No. 1 OIL AND GAS PRODUCTION AND PROCESSING FACILITY**

FACILITY NO.: 103-0046

PERMIT NO.: X001

ENGINEERING ANALYSIS

## SEPARATOR CALCULATIONS

| Data                                         |            | Total                           |          | Separator Gas          |           | Tank Gas                         |            | Pilot Gas              |                         | GWP (11/29/2013)      |              |                | 40 CFR Part 98 Sub C GHG Emission Factors (Table C-1) |        |          |  |  |
|----------------------------------------------|------------|---------------------------------|----------|------------------------|-----------|----------------------------------|------------|------------------------|-------------------------|-----------------------|--------------|----------------|-------------------------------------------------------|--------|----------|--|--|
| Volume                                       | 35,500.000 | scf/hr (Ind.)                   | 852.0    | Mscf/day               |           | Mscf/day                         |            | Mscf/day               |                         | N <sub>2</sub> O=     | 298          |                | N <sub>2</sub> O=                                     | 0.0001 | kg/MMBtu |  |  |
| H <sub>2</sub> S mol%                        | 0.0012%    | mol%                            | 0.0012%  | mol%                   |           | mol%                             |            | mol%                   |                         | CO <sub>2</sub> =     | 1            |                |                                                       |        |          |  |  |
| Heat Content                                 | 1107.00    | Btu/scf (Ind.)                  | 1107.00  | Btu/scf (Ind.)         |           | Btu/scf (Ind.)                   |            | Btu/scf (Ind.)         |                         | CH <sub>4</sub> =     | 25           |                | AP 42 Emissions Factors <sup>7</sup>                  |        |          |  |  |
| VOC MW                                       | 4.47       | lb/lb-mol <sup>2</sup>          | 4.47     | lb/lb-mol <sup>2</sup> |           | lb/lb-mol <sup>2</sup>           |            | lb/lb-mol <sup>2</sup> |                         |                       |              |                | NO <sub>x</sub> =                                     | 0.068  | lb/MMBtu |  |  |
| CO <sub>2</sub>                              | 1.14%      | mol%                            | 1.14%    | mol%                   |           | mol%                             |            | mol%                   |                         |                       |              |                | CO=                                                   | 0.37   | lb/MMBtu |  |  |
| CH <sub>4</sub>                              | 71.19%     | mol%                            | 71.19%   | mol%                   |           | mol%                             |            | mol%                   |                         |                       |              |                | PM <sub>10</sub> =                                    | 40     | µg/L     |  |  |
| C <sub>6</sub>                               | 0.19       | lb/lb-mol <sup>2</sup>          | 0.19     | lb/lb-mol <sup>2</sup> |           | lb/lb-mol <sup>2</sup>           |            | lb/lb-mol <sup>2</sup> |                         |                       |              |                |                                                       |        |          |  |  |
| OP Hours                                     | 8760       | Hrs                             |          |                        |           |                                  |            |                        |                         | (Ind. STP) scf/lbmol= | 380.67       | 60 °F          | 14.65                                                 | psia   |          |  |  |
| Destruction Eff                              | 98.00%     | DRE                             |          | Heat Input             | 39.30     | MMBtu/hr <sup>1</sup>            |            |                        |                         | (EPA STP) scf/lbmol=  | 385.5        | 68 °F          | 14.696                                                | psia   |          |  |  |
| Potential Separator Emission Calculations    |            |                                 |          |                        |           |                                  |            |                        |                         |                       |              |                |                                                       |        |          |  |  |
| Pollutants                                   | 40         | µg                              | 35500.0  | scf (Ind.)             | 2.2E-9 lb | 8,760 Hr                         | 1 Ton      | 28.31685 L             | 1.01                    | scf(EPA)              | =            | Controlled     | Uncontrolled                                          |        |          |  |  |
| PM <sub>1</sub>                              | L          |                                 | Hr       |                        | µg        | Year                             | 2,000 Lb   | scf (EPA)              | 1                       | scf(Ind.)             | =            | 0.393 Tons     | 0.393 Tons                                            |        |          |  |  |
| SO <sub>2</sub>                              | 168.3      | Lb SO <sub>2</sub> <sup>4</sup> | 35.500   | MScf (Ind.)            | 0.001%    | H <sub>2</sub> S Mol%            | 8,760 Hr   | 1 Ton                  |                         |                       | =            | 0.314 Tons     | 0.314 Tons                                            |        |          |  |  |
|                                              |            | MScf (Ind.)                     |          | Hr                     |           |                                  | Year       | 2,000 Lb               |                         |                       |              | Year           | Year                                                  |        |          |  |  |
| NO <sub>x</sub>                              | 0.068      | lb                              | 39.299   | MMBtu                  | 8,760 Hr  | 1 Ton                            | 2,000 Lb   |                        |                         |                       | =            | 11.705 Tons    | 11.705 Tons                                           |        |          |  |  |
|                                              |            | MMBtu                           |          | Hr                     | Year      |                                  |            |                        |                         |                       |              | Year           | Year                                                  |        |          |  |  |
| CO                                           | 0.37       | lb                              | 39.299   | MMBtu                  | 8,760 Hr  | 1 Ton                            | 2,000 Lb   |                        |                         |                       | =            | 63.687 Tons    | 63.687 Tons                                           |        |          |  |  |
|                                              |            | MMBtu                           |          | Hr                     | Year      |                                  |            |                        |                         |                       |              | Year           | Year                                                  |        |          |  |  |
| VOC <sup>5</sup>                             | 35,500.0   | Scf (Ind.)                      | 1        | lb-mol                 | 4.47      | Lb VOC                           | 8,760 Hr   | 1 Ton                  | 2.00%                   | Inv. DRE              | =            | 79.254 Tons    | 3962.721 Tons                                         |        |          |  |  |
|                                              |            | Hr                              | 380.67   | scf (Ind.)             | Lb-Mole   |                                  | Year       | 2,000 Lb               |                         |                       |              | Year           | Year                                                  |        |          |  |  |
| HAPs <sup>6</sup>                            | 35,500.0   | Scf (Ind.)                      | 1        | lb-mol                 | 0.19      | Lb C <sub>6</sub>                | 8,760 Hr   | 1 Ton                  | 2.00%                   | Inv. DRE              | =            | 1.577 Tons     | 78.850 Tons                                           |        |          |  |  |
|                                              |            | Hr                              | 380.67   | scf (Ind.)             | Lb-Mole   |                                  | Year       | 2,000 Lb               |                         |                       |              | Year           | Year                                                  |        |          |  |  |
| CO <sub>2</sub> <sup>5,6</sup> of Combustion | 98.00%     | DRE                             | 3.11E+08 | Scf (Ind.)             | 1.17      | lb-mol CO <sub>2</sub> (stoich.) | 1          | lb-mol gas             | 44.01                   | lb CO <sub>2</sub>    | 1 Ton        | 20,681.71 Tons | 21,103.79 Tons                                        |        |          |  |  |
|                                              |            |                                 | Yr       |                        | 1         | lb-mol gas (stoich.)             | 380.67     | scf (Ind.)             | lb-mole CO <sub>2</sub> | 2,000 Lb              | =            | Year           | Year                                                  |        |          |  |  |
| CO <sub>2</sub> of Fuel                      | 3.11E+08   | Scf (Ind.)                      | 1.14%    | mol% CO <sub>2</sub>   | 1         | lb-mol                           | 44.01      | Lb CO <sub>2</sub>     | 1 Ton                   |                       | =            | 205.29 Tons    | 205.29 Tons                                           |        |          |  |  |
|                                              |            | Yr                              |          |                        |           | 380.67                           | scf (Ind.) | Lb-mole                | 2,000 Lb                |                       |              | Year           | Year                                                  |        |          |  |  |
| N <sub>2</sub> O                             | 0.001      | M Ton                           | 0.001107 | MMBtu                  | 35,500.0  | Scf (Ind.)                       | 0.0001     | kg                     | 8,760 Hr                | 1.1023                | Tons         | 0.0379 Tons    | 0.0379 Tons                                           |        |          |  |  |
|                                              |            | kg                              |          | Scf (Ind.)             | Hr        |                                  | MMBtu      |                        | Year                    |                       | 1 Metric Ton | Year           | Year                                                  |        |          |  |  |
| CH <sub>4</sub> Uncombusted                  | 3.11E+08   | Scf (Ind.)                      | 2.00%    | Inv. DRE               | 71.19%    | mol% CH <sub>4</sub>             | 1          | lb-mol                 | 16.043                  | Lb CH <sub>4</sub>    | 1 Ton        | 93.30 Tons     | 4,664.82 Tons                                         |        |          |  |  |
|                                              |            | Yr                              |          |                        |           |                                  | 380.675    | scf (Ind.)             | Lb-mole                 | 2,000 Lb              | =            | Year           | Year                                                  |        |          |  |  |
| Mass Sum                                     | 20,887.00  | Tons                            |          | +                      | 0.0379    | Tons                             |            | +                      | 93.30                   | Tons                  | =            | 20,980.33 Tons | 25,973.93 Tons                                        |        |          |  |  |
|                                              |            | Year                            |          |                        |           | Year                             |            |                        |                         | Year                  |              | Year           | Year                                                  |        |          |  |  |
| CO <sub>2</sub> e                            | 20,887.00  | TPY                             | X 1      |                        | 0.0379    | TPY                              | X 298      |                        | 93.30                   | TP                    | X 25         | 23,230.71 Tons | 137,940.79 Tons                                       |        |          |  |  |
|                                              | 20,887.00  | CO <sub>2</sub>                 |          | +                      |           | 11.31                            |            | +                      |                         | 2,332.41              |              | Year           | Year                                                  |        |          |  |  |
|                                              |            | CO <sub>2</sub>                 |          |                        |           | N <sub>2</sub> O                 |            |                        |                         | CH <sub>4</sub>       |              |                |                                                       |        |          |  |  |

<sup>1</sup> Rated Heat Capacity (MMBtu/Hr) = Flowrate (Scf/Hr) \* Heat Content (Btu/Scf) \* (MMBtu/10<sup>6</sup> Btu)

<sup>2</sup> VOC (Lb/Lb-mole) = Σ (Mole% of Each Compound) \* (1%/100) \* MW of Each Compound) -See Flare GHG Spread Sheet for gas analysis

<sup>3</sup> Has to be maintained <500 lb/hr or 20 ppbv offsite concentration could potentially be exceeded

H<sub>2</sub>S (Lb/hr) = Volume (Scf/hr) \* (1 lb-mol/380.67) \* (H<sub>2</sub>S mol%) \* (34.08 Lb H<sub>2</sub>S/Lb-mol)

<sup>4</sup> SO<sub>2</sub> Conversion Factor 168.3 Lb SO<sub>2</sub>/MScf of Gas  
= (1,000 Scf/MScf) \* (1Lb-Mole/380.67 Scf) \* (64.066 Lb SO<sub>2</sub>/Lb-Mole)

<sup>5</sup> Assuming the flare is 98% efficient

<sup>6</sup> Calculated using the gas analysis:

Σ Y<sub>j</sub> \* R<sub>j</sub> where, Y<sub>j</sub>= mole fraction of gas hydrocarbon constituents' j (such as methane, ethane, propane, carbon dioxide, etc.) and R<sub>j</sub>= number of carbon atoms in gas hydrocarbon constituent j: 1 for methane and carbon dioxide, 2 for ethane, 3 for propane, etc.

<sup>7</sup> Flare assumed to be "lightly smoking" in AP-42 table 13.5-1

<sup>8</sup> n-Hexane, Benzene, Toluene, etc are HAPs, but i-Hexanes, n-Heptane, n-Octane, etc are not. Assume by mass 50% Hexanes and 10% Heptanes+ are HAPs

<sup>1</sup> AP-42 emission factors taken from Chapter 1.4. Based on natural gas with 1020 btu/scf, and corrected in calculations. From Chapter 1.5, propane emission factors are equivalent on a heat basis to methane factors, except the NO<sub>x</sub> factor is 1.5x higher.

## **ATTACHMENT B: DRAFT PROVISOS**