

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

September 9, 2013

PERMIT TO INSTALL
97-09A

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
Garner Road Facility
Wisner Township, Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
N7955

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203:

September 9, 2013

DATE PERMIT TO INSTALL APPROVED:

October 4, 2013

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

PERMIT TO INSTALL

Table of Contents

| Section | Page |
|---|-------------|
| Alphabetical Listing of Common Abbreviations / Acronyms | 2 |
| General Conditions | 3 |
| Special Conditions | 5 |
| Emission Unit Summary Table..... | 5 |
| Flexible Group Summary Table | 5 |
| Special Conditions for FGOILPRODUCTION..... | 6 |

Common Abbreviations / Acronyms

| Common Acronyms | | Pollutant / Measurement Abbreviations | |
|------------------------|---|--|--|
| AQD | Air Quality Division | BTU | British Thermal Unit |
| BACT | Best Available Control Technology | °C | Degrees Celsius |
| CAA | Clean Air Act | CO | Carbon Monoxide |
| CEM | Continuous Emission Monitoring | dscf | Dry standard cubic foot |
| CFR | Code of Federal Regulations | dscm | Dry standard cubic meter |
| CO _{2e} | Carbon Dioxide Equivalent | °F | Degrees Fahrenheit |
| COM | Continuous Opacity Monitoring | gr | Grains |
| EPA | Environmental Protection Agency | Hg | Mercury |
| EU | Emission Unit | hr | Hour |
| FG | Flexible Group | H ₂ S | Hydrogen Sulfide |
| GACS | Gallon of Applied Coating Solids | hp | Horsepower |
| GC | General Condition | lb | Pound |
| GHGs | Greenhouse Gases | kW | Kilowatt |
| HAP | Hazardous Air Pollutant | m | Meter |
| HVLP | High Volume Low Pressure * | mg | Milligram |
| ID | Identification | mm | Millimeter |
| LAER | Lowest Achievable Emission Rate | MM | Million |
| MACT | Maximum Achievable Control Technology | MW | Megawatts |
| MAERS | Michigan Air Emissions Reporting System | ng | Nanogram |
| MAP | Malfunction Abatement Plan | NO _x | Oxides of Nitrogen |
| MDEQ | Michigan Department of Environmental Quality (Department) | PM | Particulate Matter |
| MSDS | Material Safety Data Sheet | PM10 | PM with aerodynamic diameter ≤10 microns |
| NESHAP | National Emission Standard for Hazardous Air Pollutants | PM2.5 | PM with aerodynamic diameter ≤ 2.5 microns |
| NSPS | New Source Performance Standards | pph | Pounds per hour |
| NSR | New Source Review | ppm | Parts per million |
| PS | Performance Specification | ppmv | Parts per million by volume |
| PSD | Prevention of Significant Deterioration | ppmw | Parts per million by weight |
| PTE | Permanent Total Enclosure | psia | Pounds per square inch absolute |
| PTI | Permit to Install | psig | Pounds per square inch gauge |
| RACT | Reasonably Available Control Technology | scf | Standard cubic feet |
| ROP | Renewable Operating Permit | sec | Seconds |
| SC | Special Condition | SO ₂ | Sulfur Dioxide |
| SCR | Selective Catalytic Reduction | THC | Total Hydrocarbons |
| SRN | State Registration Number | tpy | Tons per year |
| TAC | Toxic Air Contaminant | µg | Microgram |
| TEQ | Toxicity Equivalence Quotient | VOC | Volatile Organic Compound |
| VE | Visible Emissions | yr | Year |

* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law nor does it affect any liability for past violations under the Environmental Quality Protection Act, 1994 PA 451.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this permit to install.
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

The following conditions apply Source-Wide to: FGOILPRODUCTION

DESCRIPTION: All permitted oil production equipment at the facility

Emission Units: EUTANKNIXON07, EUTANKNIXON08, EUTANKNIXON09, EUTANKNIXON10, EUTANKNIXON11, EUTANKNIXON12, EUSEPNIXON07, EUSEPNIXON08, EUSEPNIXON09, EUSEPNIXON11, EUSEPNIXON12

POLLUTION CONTROL EQUIPMENT: Equipment processing sour crude oil, brine, and condensate is controlled by a common flare. Sweet gas from EUTANKNIXON10 supplies the pilot flame for the flare.

I. EMISSION LIMITS

N/A

II. MATERIAL LIMITS

1. The mass flow rate of hydrogen sulfide going to the flare shall not exceed 232 pounds per day. **(R 336.1225)**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGOILPRODUCTION to process wells other than the following wells that were specified in the permit application, without prior notification to and approval by the AQD.
SOUR WELLS: Nixon 7, Nixon 8, Nixon 9, Nixon 11, Nixon 12
SWEET WELL: Nixon 10
(R 336.1225)

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall operate a continuously burning pilot flame at the flare. In the event that the pilot flame is extinguished, a mechanism shall automatically shut off fluid flow from sour wells into the facility. Furthermore, the wells feeding FGOILPRODUCTION (except for the Nixon 10, which is a sweet well) shall shut down when the pressure reaches a company-determined safety set-point. The permittee shall not resume fluid flow from sour wells into FGOILPRODUCTION unless the pilot flame is re-ignited and maintained. Pilot fuel shall be only sweet gas. Sweet gas is defined as any gas containing 1 grain or less of hydrogen sulfide or 10 grains or less of total sulfur per 100 standard cubic feet. **(R 336.1224, R 336.1225, R 336.1403, R 336.1910)**
2. The flare shall be properly engineered. **(R 336.1403(2))**
3. The permittee shall not operate FGOILPRODUCTION unless all emergency relief valves, and all sour crude oil, brine, and condensate storage tanks are vented to a flare, an incinerator or a vapor recovery system. **(R 336.1224, R 336.1225, R 336.1403, R 336.1910)**

4. The permittee shall not load out the sour crude oil, brine and condensate storage tanks unless a vapor return system is installed, maintained and operated in a satisfactory manner. **(R 336.1224, R 336.1225)**

V. TESTING/SAMPLING

N/A

VI. MONITORING/RECORDKEEPING

1. The permittee shall monitor and record both of the following at the frequency indicated:
 - a) volumetric flow rate of sour gas going to the flare – daily
 - b) concentration of hydrogen sulfide in the sour gas going to the flare with all operable sour wells pumping – quarterly (This does not include the Nixon 10, which is a sweet well)

Both of the following are acceptable means of determining the concentration of hydrogen sulfide in the sour gas:

- I. Colorimetric detector tube
- II. laboratory gas analysis

The permittee shall perform 4 consecutive quarterly readings of the concentration of hydrogen sulfide in the sour gas. After successful completion of the 4 consecutive quarterly readings, the permittee may request an alternative monitoring schedule. Any request for an alternative monitoring schedule shall be submitted to the AQD Dist Supervisor for approval. The requested monitoring frequency shall be no less than annual. **(R 336.1225)**

2. The permittee shall perform the following calculations each calendar month:
 - a) calculate the mass flow rate of H₂S going to the flare for each day using the following:
 - I. the most recent concentration of hydrogen sulfide in the sour gas determined with all operable sour wells pumping (This does not include the Nixon 10, which is a sweet well)
 - II. the daily volume of sour gas going to the flare
 - III. the following equation:
$$\frac{\text{lbs } H_2S}{\text{day}} = \frac{\text{ft}^3 \text{ sour gas}}{\text{day}} \times \frac{\text{ft}^3 H_2S}{100 \text{ ft}^3 \text{ sour gas}} \times \frac{\text{lbmol } H_2S}{385 \text{ ft}^3 H_2S} \times \frac{34 \text{ lb } H_2S}{\text{lbmol } H_2S}$$

(R 336.1225)

3. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. The permittee shall keep these records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request. **(R 336.1225)**

VII. REPORTING

N/A

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

| Stack & Vent ID | Maximum Exhaust Diameter/ Dimensions (inches) | Minimum Height Above Ground (feet) | Underlying Applicable Requirements |
|----------------------------|--|---|---|
| SVFLARE | N/A | 38 | R 336.1225, 40 CFR 52.21(c) & (d) |

IX. OTHER REQUIREMENTS

N/A