

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

July 13, 2018

**PERMIT TO INSTALL**  
116-12A

**ISSUED TO**  
Tuscola Energy, Inc.

**LOCATED AT**  
Garner Road, North of Cass City Road  
Wisner Township, Michigan

**IN THE COUNTY OF**  
Tuscola

**STATE REGISTRATION NUMBER**  
N3228

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:

**March 15, 2018**

DATE PERMIT TO INSTALL APPROVED:

**July 13, 2018**

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

**PERMIT TO INSTALL**

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**Common Abbreviations / Acronyms**

<b>Common Acronyms</b>		<b>Pollutant / Measurement Abbreviations</b>	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO <sub>2e</sub>	Carbon Dioxide Equivalent
CFR	Code of Federal Regulations	dscf	Dry standard cubic foot
COM	Continuous Opacity Monitoring	dscm	Dry standard cubic meter
Department/ department	Michigan Department of Environmental Quality	°F	Degrees Fahrenheit
EU	Emission Unit	gr	Grains
FG	Flexible Group	HAP	Hazardous Air Pollutant
GACS	Gallons of Applied Coating Solids	Hg	Mercury
GC	General Condition	hr	Hour
GHGs	Greenhouse Gases	HP	Horsepower
HVLP	High Volume Low Pressure*	H <sub>2</sub> S	Hydrogen Sulfide
ID	Identification	kW	Kilowatt
IRSL	Initial Risk Screening Level	lb	Pound
ITSL	Initial Threshold Screening Level	m	Meter
LAER	Lowest Achievable Emission Rate	mg	Milligram
MACT	Maximum Achievable Control Technology	mm	Millimeter
MAERS	Michigan Air Emissions Reporting System	MM	Million
MAP	Malfuction Abatement Plan	MW	Megawatts
MDEQ	Michigan Department of Environmental Quality	NMOC	Non-methane Organic Compounds
MSDS	Material Safety Data Sheet	NO <sub>x</sub>	Oxides of Nitrogen
NA	Not Applicable	ng	Nanogram
NAAQS	National Ambient Air Quality Standards	PM	Particulate Matter
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM10	Particulate Matter equal to or less than 10 microns in diameter
NSPS	New Source Performance Standards	PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
NSR	New Source Review	pph	Pounds per hour
PS	Performance Specification	ppm	Parts per million
PSD	Prevention of Significant Deterioration	ppmv	Parts per million by volume
PTE	Permanent Total Enclosure	ppmw	Parts per million by weight
PTI	Permit to Install	psia	Pounds per square inch absolute
RACT	Reasonable Available Control Technology	psig	Pounds per square inch gauge
ROP	Renewable Operating Permit	scf	Standard cubic feet
SC	Special Condition	sec	Seconds
SCR	Selective Catalytic Reduction	SO <sub>2</sub>	Sulfur Dioxide
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		µm	Micrometer or Micron
		VOC	Volatile Organic Compounds
		yr	Year

\*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 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.
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)**

**SPECIAL CONDITIONS**

**EMISSION UNIT SUMMARY TABLE**

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

<b>Emission Unit ID</b>	<b>Emission Unit Description (Process Equipment &amp; Control Devices)</b>	<b>Flexible Group ID</b>
EUBOYCETANK	Storage tank for oil from the Boyce B1-23 and Boyce B2-23 oil wells. Flare control.	FGOILPRODUCTION
EUSEPARATOR1	Separator for the Boyce B1-23 and Boyce B2-23 oil wells. Flare control.	FGOILPRODUCTION
EUSEPARATOR2	Separator for the Boyce B1-23 and Boyce B2-23 oil wells. Flare control.	FGOILPRODUCTION

**FLEXIBLE GROUP SUMMARY TABLE**

<b>Flexible Group ID</b>	<b>Flexible Group Description</b>	<b>Associated Emission Unit IDs</b>
FGOILPRODUCTION	All permitted oil production equipment at the facility.	EUBOYCETANK EUSEPARATOR1 EUSEPARATOR2

**The following conditions apply to:  
FGOILPRODUCTION**

**DESCRIPTION:** All permitted oil production equipment at the facility.

**Emission Units:** EUBOYCETANK, EUSEPARATOR1, EUSEPARATOR2

**POLLUTION CONTROL EQUIPMENT:** Flare

**I. EMISSION LIMITS**

NA

**II. MATERIAL LIMITS**

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Hydrogen sulfide (H <sub>2</sub> S) (CAS No. 7783-06-4)	974 lbs per day	Calendar day	FGOILPRODUCTION	SC VI.1 SC VI.2	R 336.1225, 40 CFR 52.21(c) & (d)
2. Hydrogen sulfide (H <sub>2</sub> S) (CAS No. 7783-06-4)	50 tons per year	12-month rolling time period as determined at the end of each calendar month.	FGOILPRODUCTION	SC VI.1 SC VI.2 SC VI.3	R 336.1205(3)

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall not use FGOILPRODUCTION to process any wells other than the Boyce B1-23 and Boyce B2-23 without prior notification to and approval by the AQD. The sour wells may be left open, when not being pumped. **(R 336.1225)**
2. No later than 60 days after issuance of this permit, the permittee shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance / malfunction abatement plan (PM / MAP) for FGOILPRODUCTION. After approval of the PM / MAP by the AQD District Supervisor, the permittee shall not operate FGOILPRODUCTION unless the PM / MAP, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained. The plan shall incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices. At a minimum the plan shall include:
  - a) Identification of the equipment and, if applicable, air-cleaning device and the supervisory personnel responsible for overseeing the inspection, maintenance, and repair.
  - b) Description of the items or conditions to be inspected and frequency of the inspections or repairs.
  - c) Identification of the equipment and, if applicable, air-cleaning device, operating parameters that shall be monitored to detect a malfunction or failure, the normal operating range of these parameters and a description of the method of monitoring or surveillance procedures.
  - d) Identification of the major replacement parts that shall be maintained in inventory for quick replacement.
  - e) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If the plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the owner or operator shall revise the plan within 45 days after such an event occurs and submit the revised plan for approval to the AQD District Supervisor. Should the AQD determine the PM / MAP to be inadequate, the AQD District Supervisor may request modification of the plan to address those inadequacies. **(R 336.1910, R 336.1911, R 336.1912)**

**IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall properly operate all of the following:
  - a) a continuously burning pilot flame at the flare. 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.
  - b) a mechanism that will automatically shut down the Boyce Farms well pump jack to stop fluid flow in the event that the flare pilot flame is extinguished. The permittee shall not resume fluid flow into FGOILPRODUCTION unless the flare pilot flame is re-ignited and maintained.
  - c) A mechanism that will automatically stop flow of gas to the FGOILPRODUCTION in the event that the flare pilot flame is extinguished. The permittee shall not resume gas flow into FGOILPRODUCTION unless the flare pilot flame is re-ignited and maintained.**(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1910)**
2. The flare shall be properly engineered. **(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1910)**
3. The permittee shall not operate FGOILPRODUCTION unless all emergency relief valves, all storage tanks, all oil/gas separators, and all dehydrators are vented to a flare, an incinerator or a vapor recovery system. **(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1910)**
4. The permittee shall not load out any tank unless a vapor return system is installed, maintained and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1702(a))**

**V. TESTING/SAMPLING**

NA

**VI. MONITORING/RECORDKEEPING**

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall monitor and record all of the following at the frequency indicated:
  - a) Volumetric flow rate of sour gas going to the flare – daily
  - b) Annual readings of the concentration of hydrogen sulfide in the sour gas from a composite of both wells while pumping - annually. 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**(40 CFR 52.21(c) & (d), R 336.1205(1)(a)(ii), R 336.1225)**
2. Each calendar month the permittee shall calculate the mass flow rate of H<sub>2</sub>S that went to the flare each day using all of the following: **(R 336.1225, 40 CFR 52.21(c) & (d))**
  - a) The most recently determined concentration of hydrogen sulfide in the sour gas.
  - b) The individual daily volume of sour gas that went to the flare.
  - c) The following equation:

$$\frac{\text{lbs } H_2S}{\text{day}} = \frac{\text{ft}^3 \text{ sour gas}}{\text{day}} \times \frac{\text{ft}^3 H_2S}{100 \text{ ft}^3 \text{ sour gas}} \times \frac{\text{lbmol } H_2S}{385 \text{ ft}^3 H_2S} \times \frac{34 \text{ lb } H_2S}{\text{lbmol } H_2S}$$

3. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period H<sub>2</sub>S emission calculation records for FGOILPRODUCTION, as required by SC II.2. The permittee shall keep all records on file at a location approved by the AQD District Supervisor for a period of at least five years and make them available to the Department upon request. **(R 336.1205(3))**
4. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last 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. **(40 CFR 52.21(c) & (d), R 336.1225)**
5. The permittee shall maintain a log of all maintenance activities conducted according to the PM / MAP (pursuant to SC III.2). The permittee shall keep this log on file at a location approved by the AQD District Supervisor and make it available to the Department upon request. **(R 336.1911, R 336.1912)**

**VII. REPORTING**

NA

**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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/ Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SVFLARE <sup>a</sup>	NA	70	R 336.1225, 40 CFR 52.21 (c) & (d)

<sup>a</sup> SC IX.1 contains the date of compliance for the stack height.

**IX. OTHER REQUIREMENTS**

1. The permittee shall comply with the minimum height above ground for SVFLARE within 60 days of issuance of this permit or other timeframe if requested by the permittee and approved by AQD District supervisor. **(R 336.1225, 40 CFR 52.21(c) & (d))**