

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

January 3, 2017

PERMIT TO INSTALL
106-13A

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
5460 Elmwood Road
Akron, Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
N8275

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: December 20, 2016	
DATE PERMIT TO INSTALL APPROVED: January 3, 2017	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant / Measurement Abbreviations	
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 ₂ e	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 ₂ 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	Malfunction Abatement Plan	MW	Megawatts
MDEQ	Michigan Department of Environmental Quality	NMOC	Non-methane Organic Compounds
MSDS	Material Safety Data Sheet	NO _x	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 ₂	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 48909-7760, 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.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Flexible Group ID
EUDOWNING1SEP	Separator processing oil from the M&D Downing 1-29 well. Flare control.	FGOILPRODUCTION
EUDOWNING2SEP	Separator processing oil from the M&D Downing 2-29 well. Flare control	FGDOWNING2 FGOILPRODUCTION
EUDOWNING1TANK	Storage tank for oil from the M&D Downing 1-29 well. Flare control.	FGOILPRODUCTION
EUDOWNING2TANK	Storage tank for oil from the M&D Downing 2-29 well. Flare control.	FGDOWNING2 FGOILPRODUCTION

FLEXIBLE GROUP SUMMARY TABLE

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGDOWNING2	The separator and tank that process oil from the M&D Downing 2-29 well. Flare control.	EUDOWNING2SEP EUDOWNING2TANK
FGOILPRODUCTION	All permitted oil production equipment at the facility. Equipment processes sour crude oil from the M&D Downing 1-29 and 2-29 wells, and is controlled by a common flare.	EUDOWNING1SEP EUDOWNING2SEP EUDOWNING1TANK EUDOWNING2TANK

The following conditions apply to: FGDOWNING2

DESCRIPTION: The separator and tank that process oil from the M&D Downing 2-29 well.

Emission Units: EUDOWNING2SEP, EUDOWNING2TANK

POLLUTION CONTROL EQUIPMENT: flare

I. EMISSION LIMITS

N/A

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. hydrogen sulfide (CAS No. 7783-06-4)	50 lb	calendar day	FGDOWNING2	SC VI.1 SC VI.2	R 336.1225, 40 CFR 52.21(c) and (d)

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate FGDOWNING2 for more than 8 hours per day. **(40 CFR 52.21(c) and (d))**
2. The permittee shall not operate FGDOWNING2 for more than 260 days per year based on a 12-month rolling time period as determined at the end of each calendar month. **(R336.1205(1)(a)(ii), 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall properly operate a mechanism that will automatically shut down the M&D Downing 2-29 well pump jack by cutting off the electrical power supply in the event that the flare pilot flame is extinguished. The permittee shall not resume fluid flow to FGDOWNING2 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)**

V. TESTING/SAMPLING

N/A

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) Gauge the oil collected in EUDOWNING2TANK at the end of each calendar day, after the well has stopped pumping.
 - b) Gas to oil ratio (GOR) for the well – quarterly.
 - c) The calendar days each month that the well is operated.
 - d) Each and every time of day that the well begins pumping.
 - e) Each and every time of day that the well stops pumping.
 - f) The permittee shall perform 4 consecutive quarterly readings of the concentration of hydrogen sulfide in the sour gas going to the flare when the M&D Downing 2-29 well is pumping. 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 District Supervisor for approval. The requested monitoring frequency shall be no less than annual. 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

(R 336.1225)

2. The permittee shall perform the following calculations at the frequency indicated:
 - a) The gas to oil ratio (GOR) for the well – quarterly.
 - b) The mass flow rate of H₂S going to the flare each calendar day using all of the following:
 - I. The most recent concentration of hydrogen sulfide in the sour gas determined with the well pumping
 - II. The daily volume of sour gas going to the flare from the well calculated from the most recent GOR and the daily recorded volume of collected oil in EUDOWNING2TANK
 - III. The following equation:

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

(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

N/A

IX. OTHER REQUIREMENTS

N/A

The following conditions apply Source-Wide to: FGOILPRODUCTION

DESCRIPTION: All permitted oil production equipment at the facility. Equipment processes sour crude oil from the M&D Downing 1-29 and 2-29 wells, and is controlled by a common flare.

Emission Units: EUDOWNING1SEP, EUDOWNING2SEP, EUDOWNING1TANK, EUDOWNING2TANK

POLLUTION CONTROL EQUIPMENT: flare

I. EMISSION LIMITS

N/A

II. MATERIAL LIMITS

N/A

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGOILPRODUCTION to process oil from any wells other than the following without prior notification to and approval by the AQD:
 - a) M&D Downing 1-29
 - b) M&D Downing 2-29**(R 336.1225)**
2. The permittee shall not operate the M&D Downing 1-29 and the M&D Downing 2-29 wells simultaneously.
(R 336.1225, R 336.1403, 40 CFR 52.21(c) & (d))

IV. DESIGN/EQUIPMENT PARAMETERS

1. On and after December 1, 2013, the permittee shall properly operate 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. **(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

N/A

VI. MONITORING/RECORDKEEPING

N/A

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
1. SVFLARE	N/A	40	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENTS

N/A