STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF THE DIRECTOR

In the matter of administrative proceedings against **TUSCOLA ENERGY, INC.**, a corporation organized under the laws of the State of Michigan and doing business at 7998 M-25, City of Akron, County of Tuscola, State of Michigan	)	AQD No. 37-2015 OOGM No. 2997 SRNs: N0962, N1586, N2259, N3228, N7954, N7955, N8274, N8275, N8276, N8277, P0142, P0169, P0199, P0200, P0202, P0242, P0286, P0388 and P0493

STIPULATION FOR ENTRY OF FINAL ORDER
BY CONSENT

This proceeding resulted from allegations by the Michigan Department of Environmental Quality (MDEQ), Air Quality Division (AQD) and the Michigan Department of Environmental Quality, Office of Oil, Gas and Minerals (OOGM) against Tuscola Energy, Inc., (Company), a Michigan corporation with offices located at 7998 M-25 in the City of Akron, County of Tuscola, State of Michigan, and cited facilities located in the County of Tuscola, State of Michigan, with State Registration Numbers (SRNs) N0962, N1586, N2259, N3228, N7954, N7955, N8274, N8275, N8276, N8277, P0142, P0169, P0199, P0202, P0388 and P0200. The MDEQ alleges that the Company is in violation of Parts 55 and 615 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, MCL 324.5501 *et seq.* and MCL 324.61501 *et seq.*, and the following administrative rules: Mich Admin Code (MAC), R 336.1201 (Rule 201); MAC, R 336.1403 (Rule 403); MAC, R 336.1910 (Rule 910); MAC, R 324.209 (Rule 209); MAC, R 324.903 (Rule 903); MAC, R 324.1002 (Rule 1002); MAC, R 324.1006 (Rule 1006); MAC, R 324.1007 (Rule 1007); MAC, R 324.1008 (Rule 1008); MAC, R 324.1009 (Rule 1009); MAC, R 324.1010 (Rule 1010); MAC, R 324.1012 (Rule 1012); MAC, R 324.1105 (Rule 1105); MAC, R 324.1109 (Rule 1109); MAC, R 324.1118 (Rule 1118); MAC, R 324.1119 (Rule 1119); MAC, R 324.1120 (Rule 1120); MAC, R 324.1122 (Rule 1122); MAC, R 324.1123 (Rule 1123); MAC, R 324.1126 (Rule 1126); and MAC, R 324.1129 (Rule 1129). The MDEQ also alleges that the Company is in violation of the following air use permits to install: Permit to Install Nos. 18-85, 338-87, 18-85, 1070-91, 97-09, 97-09A, 14-09, 14-09D, 118-10, 205-10, 161-10, 6-11, 9-11, 65-11, 68-11, 144-11, 171-11, 171-11A, 20-12, 20-12A, 116-12 and 1-14. In addition, the MDEQ alleges that the Company installed and operated several regulated sources without an air use permit to install, in violation of Rule 201. The alleged violations for each facility are as follows:

The Company operated the Walat Farms Crude Oil Production Facility (SRN N0962) without an operator present to monitor the flares, while the flare was out, while the flare ignitor was not functional, with insufficient flare height, and without use of a vapor return while loading out oil, in violation of Permit to Install No. 18-85, AQD Rules 403 and 910, and OOGM Rules 1010 and 1123. These alleged violations are set forth in Violation Notices dated November 26, 2008, December 23, 2008, and March 16, 2009.

The Company operated the Nixon-Farms Crude Oil Production Facility without an operator present to monitor the flare, operated wells in excess of the quantity of wells permitted, pumped excess sour gas wells simultaneously, operated the flare more than four hours per day, operated outside the restricted operating times, loaded out oil without a vapor return and operated the flare without an automatic shutdown system present, did not have records were available, did not have signage readily visible or legible, did not have ID and hydrogen sulfide (H2S) warning signs, failed to submit spill report(s), operated with flow line markers missing and with valves oily and in need of painting, operated with oil residues on vegetation and equipment, and failed to implement appropriate oil spill cleanup, in violation of Permit to Install Nos. 338-87 and 20-12A, AQD Rule 201, and OOGM Rules 1006, 1008, 1012, 1109, 1119, 1120, and 1123. These alleged violations are set forth in Violation Notices dated July 31, 2008, September 8, 2008, July 2, 2013, July 19, 2013 and October 30, 2014. Permit to Install No. 20-12A for the Nixon-Farms Crude Oil Production Facility is attached as Exhibit A.

The Company operated the Boyce B1 and B2 Crude Oil Production Facility (SRN N3228) without an automatic ignitor system to the flare, operated while experiencing improper flare operating conditions without venting tank vapors to the flare, operated the facility without a load out vapor return system, did not record recent H2S concentration, operated with unsafe gas shutoff to the flare without stopping fluid flow into the facility, operated while experiencing tank seepage, operated excess numbers of wells simultaneously, and operated equipment more than four hours per day, in violation of Permit to Install Nos. 1070-91 and 116-12, AQD Rule 910, and OOGM Rules 1006, 1010, 1123, and 1126. These alleged violations are set forth in Violation Notices dated July 31, 2008, September 3, 2008, July 3, 2013 and October 30, 2014. Permit to Install No. 116-12 for the Boyce B1 and B2 Crude Oil Production Facility is attached as Exhibit B.

The Company operated the McPherson Crude Oil Production Facility (SRN N7954) without functioning automatic shutdown systems, operated with no separate continuously burning flare pilot, operated with an improperly maintained flare, operated without installing or operating a vapor return system for load out, loaded out using an unregistered vacuum truck without an operable vapor return system, failed to submit required records and calculations and did not have recent recorded H2S concentration, did not have an ID sign readily visible, operated with a H2S mass flow rate to the flare in excess of the permit limit, and operated with the flare height lower than the permit requirement of Permit to Install No. 14-09 and No. 14-09D, and in violation of AQD Rules 201, 403, and 910 and OOGM Rules 1010, 1012, 1123 and 1126. These alleged violations are set forth in Violation Notices dated July 31, 2008, September 4, 2008, March 21, 2009, June 22, 2009, November 16, 2009, December 10, 2009, January 10, 2013, July 2, 2013, October 20, 2014, and October 30, 2014. Permit to Install No. 14-09D for the McPherson Crude Oil Production Facility is attached as Exhibit C.

The Company operated the Nixon-Garner Road Crude Oil Production Facility (SRN N7955) without an air use permit to install, operated without a properly engineered flare and automatic flare ignition system, operated without a daily gas flow meter and without a vapor return, operated the Nixon 11 and 12 wells with a new engine installed but shutdown system wiring removed, and operated the Nixon 8 well with the existing engine but shutdown system wiring removed, operated with Murphy switches inoperable and switches not connected to engines, failed to record recent H2S concentration, operated with an unsafe gas shutoff to the flare without stopping fluid flow into the facility, operated with no gate at the catwalk stairs and no Self-Contained Breathing Apparatus (SCBA) warning sign posted, operated with a very low dike and with a site ID sign not visible or properly installed, failed to have H2S and danger signage clearly visible, and operated with shut off and other valves in need of painting, in violation of Permit to Install No. 97-09 and 97-09A, AQD Rules 201 and 403, and OOGM Rules 1002, 1009, 1012, 1109, 1119, 1122 and 1123. These alleged violations are set forth in Violation Notices dated July 31, 2008, September 8, 2008, September 15, 2009, November 16, 2009, December 10, 2009, January 10, 2013, August 28, 2014, September 18, 2014, and October 30, 2014. Permit to Install No. 97-09A for the Nixon-Garner Road Crude Oil Production Facility is attached as Exhibit D.

The Company operated the M & D Downing 2-29 Crude Oil Production Facility (SRN N8275) without an air use permit, operated without a continuously burning pilot flame or automatic ignition

system, operated without venting tanks to the flare, failed to supply requested H2S concentration and gas volume information, operated with no Murphy switch, operated with an unsafe gas shutoff to the flare without stopping fluid flow into the facility, failed to have the required records available, operated with signage illegible and with visible mist or vapors coming from the brine tank hatch, failed to burn all produced gas, and operated with no vapor return system present for use during load out, in violation Permit to Install 106-13 and AQD Rules 201 and 403, and OOGM Rules 1010, 1105, 1109, 1123 and 1126. These alleged violations are set forth in Violation Notices dated July 14, 2009, June 22, 2009 and November 6, 2014. Permit to Install No. 106-13 for the M & D Downing 2-29 Crude Oil Production Facility is attached as Exhibit E.

The Company operated the Mowrey & Bernia Crude Oil Production Facility (SRN N8276) without an air use permit to install, operated while the flare was out, vented unburned gas from a storage tank vent, failed to supply requested H2S concentration and gas volume information, and operated with a new engine installed but shutdown system wiring removed in violation of Permit to Install No. 188-10, and in violation of AQD Rules 201, 403 and 910, and OOGM Rules 1010, 1105, 1122, 1123 and 1129. These alleged violations are set forth in Violation Notices dated June 22, 2009, July 14, 2009, September 15, 2009, November 4, 2009, January 10, 2013, August 28, 2014 and September 18, 2014. Permit to Install No. 188-10 for the Mowrey & Bernia Crude Oil Production Facility is attached as Exhibit F.

The Company operated the Rumble 1-19 and E Sharp *et al.,* A-1 Crude Oil Production Facilities (SRN N8277, now P0242) without an air use permit to install, operated without a continuously burning pilot flame and mechanism to shut off the flow of gas upon pilot flame failure, failed to document the concentration and gas volume of H2S, and operated with no Murphy switch present, in violation of Permit to Install No. 65-11 and AQD Rule 403 and OOGM Rules 1105 and 1123. These alleged violations are set forth in Violation Notices dated June 22, 2009, July 14, 2009 and January 10, 2013. Permit to Install No. 65-11 for the Rumble 1-19 and E Sharp *et al.* A-1 Crude Oil Production Facility is attached as Exhibit G.

The Company operated the Walat Farms A-6-27 & A-11-22 Crude Oil Production Facility (SRN P0202) without installing a properly engineered flare, operated without a vapor return system for load out, operated without a daily gas flow meter (and therefore was unable to perform records and calculations), failed to have an automatic shut in device, operated with an unsafe gas shutoff to the flare

without stopping fluid flow into the facility, failed to have fuel in the propane tank for the flare pilot, failed to have recent H2S concentration records, operated with signage illegible, operated with flammable debris and oily soil at the well head, and operated with valves in need of painting, in violation of Permit to Install No. 9-11 and OOGM Rules 209, 903, 1002, 1006, 1109, 1119 and 1123. These alleged violations are set forth in Violation Notices dated August 19, 2011, January 10, 2013 and November 6, 2014. Permit to Install No. 9-11 for the Walat Farms A-6-27 & A-11-22 Crude Oil Production Facility is attached as Exhibit H.

The Company operated the Sylvester 2-36 Crude Oil Production Facility (SRN P0199) with faulty wiring (2 of 3 wires connected) at the Murphy switch, operated with unsafe gas shutoff to the flare without stopping fluid flow into the facility, failed to have recent H2S concentration records, failed to have a vapor return system for use during loadout, operated with signage illegible and no gate at the catwalk stairs, failed to have SCBA warning signage, and operated with dikes nearly full of water, in violation of Permit to Install No. 6-11 and OOGM Rules 1002, 1109, 1122, 1123 and 1126. These alleged violations are set forth in Violation Notices dated January 10, 2013 and November 6, 2014. Permit to Install No. 6-11 for the Sylvester 2-36 Crude Oil Production Facility is attached as Exhibit I.

The Company operated Leon & Aerial Cosens 4-26 Crude Oil Production Facility (SRN P0142) with a new engine installed but shutdown system wiring removed, operated with questionable wiring at the flare, failed to have records available, did not have a Murphy switch connected to an engine, operated with illegible and missing safety and ID signage and with H2S signs down, and operated with valves in need of painting, in violation of Permit to Install No. 161-10 and OOGM Rules 1012, 1109, 1119, and 1123. These alleged violations are set forth in Violation Notices dated August 28, 2014, September 18, 2014 and November 6, 2014. Permit to Install No. 161-10 for the Leon & Aerial Cosens 4-26 Crude Oil Production Facility is attached as Exhibit J.

The Company operated the Walat A-2-26, Leon & Aerial Cosens 2-26 and Leon & Aerial Cosens 3-26 Crude Oil Production Facility (SRN N2259) with no vapor return line present, operated with new engines installed but shutdown system wiring removed, failed to have the flare control operating properly resulting in spillage and fire near flare, operated with an unsafe gas shutoff to the flare without stopping fluid flow into the facility, operated with burnt wiring by the flare, failed to report a serious accident or fire within OOGM required timelines, failed to implement spill cleanup, operated with stained soil by the

flare and Walat A-2 wellhead, failed to record H2S concentration, operated with an inoperable Murphy switch and with the switch not connected to the engine, failed to have a gate at the catwalk stairs, operated with no SCBA warning sign posted and with signage not maintained nor visible, operated with pump jack valve in need of painting, and operated with visible vapors from the Leon & Aerial Cosens 2 tank hatch, in violation of Permit to Install No. 68-11, AQD Rule 910, and OOGM Rules 1006, 1007, 1008, 1010, 1012, 1109, 1119, 1122, 1123, 1126 and 1129. These alleged violations are set forth in Violation Notices dated January 10, 2013, August 28, 2014, September 18, 2014, and November 14, 2014. Permit to Install No. 68-11 for the Walat A-2-26, Leon & Aerial Cosens 2-26 and Leon & Aerial Cosens 3-26 Crude Oil Production Facility is attached as Exhibit K.

The Company operated the Rachael T. Beatty 1-30 Crude Oil Production Facility (SRN P0169) with the shut off valves in need of painting, without a Murphy switch, with an unsafe gas shutoff to the flare without stopping fluid flow into the facility, without recording recent H2S concentration, without warning signs, with an improper gate, and operated with no SCBA warning sign posted, in violation of Permit to Install No. 205-10 and OOGM Rules 1119, 1122 and 1123. These alleged violations are set forth in Violation Notices dated January 10, 2013 and November 14, 2014. Permit to Install No. 205-10 for the Rachel T. Beatty 1-30 Crude Oil Production Facility is attached as Exhibit L.

The Company operated the Walat Farms A-4-26 and A-5-26 Crude Oil Production Facility (SRN P0388) with no Murphy switches in place and without identification signage at A-5-26, without recording recent H2S concentration, without legible warning signs and any identification sign, and with valves in need of painting, in violation of Permit to Install Nos. 171-11 and 171-11A and OOGM Rules 1012, 1109, 1119 and 1123. These alleged violations are set forth in Violation Notices dated January 10, 2013 and November 14, 2014. Permit to Install No. 171-11A for the Walat Farms A-4-26 and A-5-26 Crude Oil Production Facility is attached as Exhibit M.

The Company operated the G&R Cosens 1-36 Crude Oil Production Facility (SRN P0200) in violation of the Temporary Abandonment expiration date of June 16, 2012, with the well not plugged, and without warning signage at the wellhead, in violation of OOGM Rules 903 and 1119. These alleged violations are set forth in a Violation Notice dated January 10, 2013. Permit to Install No. 7-11 for the G&R Cosens 1-36 Crude Oil Production Facility is attached as Exhibit N.

The Company operated the Sylvester 1-25 Crude Oil Production Facility (SRN P0286) without performing testing and recording the gas to oil ratio, without maintaining records available on site, and without warning signs, in violation of Permit to Install No. 144-11 and OOGM Rule 1119. These alleged violations are set forth in a Violation Notice dated November 14, 2014. Permit to Install No. 144-11 for the Sylvester 1-25 Crude Oil Production Facility is attached as Exhibit O.

The Company operated the Lavern Cosens Crude Oil Production Facility (SRN P0493) without performing testing and recording the gas to oil ratio, without maintaining records available on site, without maintained warning signs, without a gate or SCBA warning sign posted, and with a dike full of water, in violation of Permit to Install No. 1-14 and OOGM Rules 1002, 1109, 1119, 1122 and 1129. These violations are set forth in a Violation Notice dated November 14, 2014. Permit to Install No. 1-14 for the Lavern Cosens Crude Oil Production Facility is attached as Exhibit P.

The Company failed to plug the Sharp A-1-30 Crude Oil well in violation of the Temporary Abandonment expiration date of May 16, 2012, and OOGM Rules 209 and 903 (SRN P0242, Exhibit G).

The Company failed to plug the George Wark 1-19 Crude Oil well, failed to remove the facility, and failed to restore the site, in violation of the Temporary Abandonment expiration date of September 8, 2012, and OOGM Rules 209 and 903.

The Company failed to plug the Dewald and Wisenbaugh 1-36 Crude Oil well, failed to remove the facility, and failed to restore the site, in violation of the Temporary Abandonment expiration date of November 10, 2012, and OOGM Rules 209 and 903.

The violations by the Company are cited in the Violation Notices referenced above and in Enforcement Notices dated January 5, 2010 and September 26, 2013. The Company and MDEQ stipulate to the termination of this proceeding by entry of a Stipulation for Entry of a Final Order by Consent (Consent Order).

The Company and MDEQ stipulate as follows:

1. The Natural Resources and Environmental Protection Act, 1994 PA 451 (Act 451), MCL 324.101 *et seq.* is an act that controls pollution to protect the environment and natural resources in this State.

2. Article II, Pollution Control, Part 55 of Act 451 (Part 55), MCL 324.5501 *et seq.* provides for air pollution control regulations in this State.

3. Article III, Natural Resources Management, Part 615 of Act 451 (Part 615), MCL 324.61501 *et seq.*, was enacted to effect enforcement, conservation and the prevention of waste and exploitation of oil and gas resources in this State.

4. The MDEQ was created as a principal department within the Executive Branch of the State of Michigan pursuant to Executive Order 2011-1 and has all statutory authority, powers, duties, functions and responsibilities to administer and enforce all provisions of Part 55 and Part 615.

5. The Director has delegated authority to the Chief of the AQD (AQD Chief) and the Chief of the OOGM (OOGM Chief) to enter into this Consent Order.

6. The termination of this matter by a Consent Order pursuant to Section 5528 of Part 55 is proper and acceptable.

7. Pursuant to Part 615, the Company is the permittee of record and is responsible for the wells and the facilities identified above.

8. The wells and facilities are regulated under Part 615 and the rules promulgated thereunder. For purposes of the Consent Order, the Company will not raise a jurisdictional defense in any state enforcement of this Agreement.

9. By entering into this Consent Order, the Company waives its right to a formal administrative hearing or other administrative relief to which the Company may otherwise be entitled under Part 615. The appropriate forum for any civil court proceedings is the Circuit Court of the County of Ingham, State of Michigan.

10. As long as the Company has obligations under this Consent Order, the Company shall provide a copy of this Consent Order to any prospective successor in interest prior to transfer of ownership of any property or interest owned by the Company in the wells and facilities.

11. The MDEQ and the Company agree that this Consent Order sets forth requirements under Part 615 which are necessary to prevent waste to alleviate pollution, impairment, and destruction of the State of Michigan's natural resources. Failure of the Company to comply with any of the agreed upon provisions and procedures shall:

a. Be a violation of Part 615 and may subject the Company to civil and/or criminal enforcement actions.

b. Provide sufficient reason to withhold the issuance of transfer of any drilling permits that the Company may have outstanding with OOGM.

c. Provide further cause for the Supervisor of Wells to issue an Order requiring suspension of operations of certain wells, and order the wells plugged, if required.

d. Authorize the State of Michigan to take any action it deems necessary in accordance with the law to prevent waste and protect the public's health, safety and welfare, and the environment.

12. The Company and the MDEQ agree that the signing of this Consent Order is for settlement purposes only and does not constitute an admission by the Company that the law has been violated.

13. This Consent Order becomes effective on the date of execution (effective date of this Consent Order) by the AQD Chief and the OOGM Chief.

14. The Company shall achieve compliance with the aforementioned regulations in accordance with the requirements contained in this Consent Order.

COMPLIANCE PROGRAM AND IMPLEMENTATION SCHEDULE

15. A. Facility Improvement Plan and Compliance Schedule

The Company shall complete the facility improvements that are specified in the Compliance Schedule that follows. Additionally, in the event the Company wishes to modify the sequence of the facilities specified in the Facility Improvement Plan and Compliance Schedule, but not the due dates, the Company may do so with prior written notification to, and approval from, the Department.

1. On and after the effective date of this Consent Order, the Company shall have installed and shall operate a properly engineered flare with a continuously burning pilot flame, in accordance with Permit to Install No. 97-09A, or any revision thereto, at the Nixon-Garner Road Crude Oil Production Facility. The Company shall further have installed a mechanism that will automatically shut off fluid flow to the facilities if the pilot flame is extinguished. Additionally, the Company shall have installed a device that will shut down the Nixon 7, 8, 9, 11 and 12 wells before the pressure reaches a Company-determined safety point. The Company shall also have updated the tank battery, updated the lines to the tanks, and identified and cleaned up any contaminated soil at the facility. Completion of the activities required by this paragraph is necessary to comply with the Conditions of the Permit to Install,

AQD Rule 403(2) and OOGM Rule 1006 and Rules 1120-1126, and compliance with these conditions and rules is required immediately upon the completion of these activities.

2. On and after the effective date of this Consent Order, the Company shall have installed and shall operate a properly engineered flare with a continuously burning pilot flame, in accordance with Permit to Install No. 116-12, or any revision thereto, at the Boyce B1 and B2 Crude Oil Production Facility. The Company shall further have installed a mechanism that will automatically shut off fluid flow to the facility if the pilot flame is extinguished. The Company shall also have updated the tank battery, updated the lines to the tanks and have identified and cleaned up any contaminated soil at the facility. Completion of the activities required by this paragraph is necessary to comply with the Conditions of the Permit to Install, AQD Rule 403(2) and OOGM Rule 1006 and Rules 1120-1126, and compliance with these conditions and rules is required immediately upon the completion of these activities.

3. On and after the effective date of this Consent Order, the Company shall have installed and shall operate a properly engineered flare with a continuously burning pilot flame, in accordance with Permit to Install No. 9-11, or any revision thereto, at the Walat Farms A-6-27 & A-11-22 Crude Oil Production Facility. The Company shall further have installed a mechanism that will automatically shut off fluid flow to the oil production facility if the pilot flame is extinguished. Additionally, the Company shall have installed a device that will shut down the Walat A-6-27 and A-11-22 wells before the pressure reaches a Company-determined safety point. The Company shall also have updated the tank battery, updated the lines to the tanks and identified and cleaned up any contaminated soil at the facility. Completion of the activities required by this subparagraph is necessary to comply with the Conditions of the Permit to Install and OOGM Rule 1006 and Rules 1120-1126, and compliance with these conditions and rules is required immediately upon the completion of these activities.

4. By November 20, 2015, the Company shall install a properly engineered flare with a continuously burning pilot flame, in accordance with Permit to Install No. 171-11A, or any revision thereto, at the Walat Farms A-4-26 and A-5-26 Crude Oil Production Facility. The Company shall further install a mechanism that will automatically shut down the Walat A-4-26 and A-5-26 wells pump jacks by cutting off their electrical power supply if the pilot flame is extinguished. The Company will also update the tank battery, update the lines to the tanks and identify and clean up any contaminated soil at the facility. Completion of the activities required by this subparagraph will be necessary to comply

with the Conditions of the Permit to Install, AQD Rule 403(2) and OOGM Rule 1006 and Rules 1120-1126, and compliance with these conditions and rules is required immediately upon the completion of these activities.

5. By April 20, 2016, the Company shall install a properly engineered flare with a continuously burning pilot flame, in accordance with the Permit to Install No. 68-11, or any revision thereto, at the Walat A-2-26, Leon & Aerial Cosens 2-26 and Leon & Aerial Cosens 3-26 Crude Oil Production Facility. Alternatively, upon prior written approval from the AQD and OOGM district supervisors, and in conjunction with obtaining any necessary MDEQ permits, the Company shall install an equivalent control device for hydrogen sulfide with emissions equal to or less than what would be estimated from a properly engineered flare by April 20, 2016. The Company shall further install a mechanism that will automatically shut off fluid flow to the facility if the pilot flame is extinguished. Additionally, the Company shall install a device that will shut down the Walat A-2-26, Leon & Aerial Cosens 2-26 and Leon & Aerial Cosens 3-26 wells before the pressure reaches a Company-determined safety point. The Company shall also update the tank battery, update the lines to the tanks and identify and clean up any contaminated soil at the facility. Completion of the activities required by this subparagraph will be necessary to comply with the Conditions of the Permit to Install and OOGM Rule 1006 and Rules 1120-1126, and compliance with these conditions and rules is required immediately upon the completion of these activities.

6. By May 20, 2016, the Company shall install a properly engineered flare with a continuously burning pilot flame at the Boyce 1-24 Crude Oil Production Facility. Alternatively, upon prior written approval from the AQD and OOGM district supervisors, and in conjunction with obtaining any necessary MDEQ permits, the Company shall install an equivalent control device for hydrogen sulfide with emissions equal to or less than what would be estimated from a properly engineered flare by May 20, 2016. The Company shall also update the tank battery, update the lines to the tanks and identify and clean up any contaminated soil at the facility. Completion of the activities required by this subparagraph will be necessary to comply with AQD Rule 403 and OOGM Rule 1006 and Rules 1120-1126, and compliance with these conditions and rules is required immediately upon the completion of these activities.

7. By June 20, 2016, the Company shall install a properly engineered flare with a continuously burning pilot flame, in accordance with Permit to Install No. 205-10, or any revision thereto,

at the Rachel T. Beatty 1-30 Crude Oil Production Facility. The Company shall further install a mechanism that will automatically shut off fluid flow to the oil production facility if the pilot flame is extinguished. Alternatively, upon prior written approval from the AQD and OOGM district supervisors, and in conjunction with obtaining any necessary MDEQ permits, the Company shall install an equivalent control device for hydrogen sulfide with emissions equal to or less than what would be estimated from a properly engineered flare by June 20, 2016. Additionally, the Company shall install a device that will shut down the Rachel T. Beatty 1-30 well before the pressure reaches a Company-determined safety point. The Company shall also update the tank battery, update the lines to the tanks and identify and clean up any contaminated soil at the facility. Completion of the activities required by this subparagraph will be necessary to comply with the Conditions of the Permit to Install, AQD Rule 403(2) and OOGM Rule 1006 and Rules 1120-1126, and compliance with these conditions and rules is required immediately upon the completion of these activities.

8. By July 20, 2016, the Company shall install a properly engineered flare with a continuously burning pilot flame, in accordance with Permit to Install No. 6-11, or any revision thereto, at the Sylvester 2-36 Crude Oil Production Facility. Alternatively, upon prior written approval from the AQD and OOGM district supervisors, and in conjunction with obtaining any necessary MDEQ permits, the Company shall install an equivalent control device for hydrogen sulfide with emissions equal to or less than what would be estimated from a properly engineered flare by July 20, 2016. The Company shall further install a mechanism that will automatically shut off fluid flow to the oil production facility if the pilot flame is extinguished. Additionally, the Company shall install a device that will shut down the Sylvester 2-36 well before the pressure reaches a Company-determined safety point. The Company shall also update the tank battery, update the lines to the tanks and identify and clean up any contaminated soil at the facility. Completion of the activities required by this subparagraph will be necessary to comply with the Conditions of the Permit to Install and OOGM Rule 1006 and Rules 1120-1126, and compliance with these conditions and rules is required immediately upon the completion of these activities.

9. By August 20, 2016, the Company shall install a properly engineered flare with a continuously burning pilot flame, in accordance with Permit to Install No. 161-10, or any revision thereto, at the Leon & Aerial Cosens 4-26 Crude Oil Production Facility. The Company shall further install a mechanism that will automatically shut off fluid flow to the oil production facility if the pilot flame is extinguished. Alternatively, upon prior written approval from the AQD and OOGM district

supervisors, and in conjunction with obtaining any necessary MDEQ permits, the Company shall install an equivalent control device for hydrogen sulfide with emissions equal to or less than what would be estimated from a properly engineered flare by August 20, 2016. Additionally, the Company shall install a device that will shut down the Leon & Aerial Cosens 4-26 well before the pressure reaches a Company-determined safety point. The Company shall also update the tank battery, update the lines to the tanks and identify and clean up any contaminated soil at the facility. Completion of the activities required by this subparagraph will be necessary to comply with the Conditions of the Permit to Install, AQD Rule 403(2) and OOGM Rule 1006 and Rules 1120-1126, and compliance with these conditions and rules is required immediately upon the completion of these activities.

10. By September 20, 2016, the Company shall install a properly engineered flare with a continuously burning pilot flame, in accordance with Permit to Install No. 188-10, or any revision thereto, at the Mowery & Bernia Crude Oil Production Facility. The Company shall further install a mechanism that will automatically shut off fluid flow to the oil production facility if the pilot flame is extinguished. Alternatively, upon prior written approval from the AQD and OOGM district supervisors, and in conjunction with obtaining any necessary MDEQ permits, the Company shall install an equivalent control device for hydrogen sulfide with emissions equal to or less than what would be estimated from a properly engineered flare by September 20, 2016. Additionally, the Company shall install a device that will shut down the Mowery & Bernia well before the pressure reaches a Company-determined safety point. The Company shall also update the tank battery, update the lines to the tanks and identify and clean up any contaminated soil at the facility. Completion of the activities required by this subparagraph will be necessary to comply with the Conditions of the Permit to Install, AQD Rule 403(2) and OOGM Rule 1006 and Rules 1120-1126, and compliance with these conditions and rules is required immediately upon the completion of these activities.

11. By October 20, 2016, the Company shall install a properly engineered flare with a continuously burning pilot flame, in accordance with Permit to Install No. 1-14, or any revision thereto, at the Lavern Cosens Crude Oil Production Facility. Alternatively, upon prior written approval from the AQD and OOGM district supervisors, and in conjunction with obtaining any necessary MDEQ permits, the Company shall install an equivalent control device for hydrogen sulfide with emissions equal to or less than what would be estimated from a properly engineered flare by October 20, 2016. The Company shall also update the tank battery, update the lines to the tanks and identify and clean up any

contaminated soil at the facility. Completion of the activities required by this subparagraph will be necessary to comply with the Conditions of the Permit to Install and OOGM Rule 1006 and Rules 1120-1126, and compliance with these conditions and rules is required immediately upon the completion of these activities.

12. By November 20, 2016, the Company shall install a properly engineered flare with a continuously burning pilot flame, in accordance with Permit to Install No. 65-11, or any revision thereto, at the Rumble 1-19 & E Sharp *et al* A-1 Crude Oil Production Facilities. The Company shall further install a mechanism that will automatically shut off fluid flow to the oil production facilities if the pilot flame is extinguished. Alternatively, upon prior written approval from the AQD and OOGM district supervisors, and in conjunction with obtaining any necessary MDEQ permits, the Company shall install an equivalent control device for hydrogen sulfide with emissions equal to or less than what would be estimated from a properly engineered flare by November 20, 2016. Additionally, the Company shall install a device that will shut down the Rumble 1-19 & E Sharp *et al* A-1 wells before the pressure reaches a Company-determined safety point. The Company shall also update the tank battery, update the lines to the tanks and identify and clean up any contaminated soil at the facilities. Completion of the activities required by this subparagraph will be necessary to comply with the Conditions of the Permit to Install, AQD Rule 403(2) and OOGM Rule 1006 and Rules 1120-1126, and compliance with these conditions and rules is required immediately upon the completion of these activities.

13. By December 20, 2016, the Company shall install a properly engineered flare with a continuously burning pilot flame, in accordance with Permit to Install No. 20-12A, or any revision thereto, at the Nixon Farms Crude Oil Production Facility. The Company shall further install a mechanism that will automatically stop the circulation of oil and a mechanism that will automatically shut down the pump jacks by cutting off their electrical power supply if the pilot flame is extinguished. The Company shall also update the tank battery, update the lines to the tanks, and identify and clean up any contaminated soil at the facility. Completion of the activities required by this paragraph is necessary to comply with the Conditions of the Permit to Install, AQD Rule 403(2) and OOGM Rule 1006 and Rules 1120-1126, and compliance with these conditions and rules is required immediately upon the completion of these activities.

15. B. Permits to Install

On and after the effective date of this Consent Order, and as described in the specific provisions identified in paragraph 15.A., the Company shall maintain the required air pollution control equipment and safety equipment and shall assure compliance with the requirements under Part 55 and Part 615, and in the applicable Permits to Install for the facilities identified in Table 1. The facilities identified in Table 1 shall comply with the air use Permits to Install, and any revisions thereto, throughout the effective term of this Consent Order. The air use Permits to Install shall be attached hereto as Exhibits of this Consent Order, incorporated by reference, and made enforceable parts of this Consent Order.

Table 1
Permits to Install

Permit Number	Facility Name	SRN	Exhibit
20-12A	Nixon Farms Crude Oil Production Facility	N1586	A
116-12	Boyce B1 and B2 Crude Oil Production Facility	N3228	B
14-09D	McPherson Crude Oil Production Facility	N7954	C
97-09A	Nixon-Garner Road Crude Oil Production Facility	N7955	D
106-13	M&D Downing 2-29 Crude Oil Production Facility	N8275	E
188-10	Mowrey & Bernia Crude Oil Production Facility	N8276	F
65-11	Rumble 1-19 & E Sharp *et al* A-1 Crude Oil Production Facilities	P0242	G
9-11	Walat Farms A-6-27 and A-11-22 Crude Oil Production Facility	P0202	H
6-11	Sylvester 2-36 Crude Oil Production Facility	P0199	I
161-10	Leon &Aerial Cosens 4-26 Crude Oil Production Facility	P0142	J
68-11	Walat A-2-26, Leon & Aerial Cosens 2-26 and Leon & Aerial Cosens 3-26 Crude Oil Production Facility	N2259	K
205-10	Rachael T. Beatty 1-30 Crude Oil Production Facility	P0169	L
171-11A	Walat Farms A-4-26 and A-5-26 Crude Oil Production Facility	P0388	M
7-11	G&R Cosens 1-36 Crude Oil Production Facility	P0200	N
144-11	Sylvester 1-25 Crude Oil Production Facility	P0286	O
1-14	Lavern Cosens Crude Oil Production Facility	P0493	P

15. C. Schedule for Well Plugging Completion or Return to Production

The requirements in this subparagraph apply to wells and the facilities that are identified in Table 2.

Table 2
Schedule for Well Plugging or Return to Production

Well and Facility Name	Permit Number	SRN	Exhibit	Date of Plugging Completion or Return to Production
Nixon 7-24 at the Nixon-Garner Road Crude Oil Production Facility	97-09A	N7955	D	Effective date of this Consent Order
Nixon 11-24 at the Nixon-Garner Road Crude Oil Production Facility	97-09A	N7955	D	Effective date of this Consent Order
Lavern Cosens 2-36 at the Lavern Cosens Crude Oil Production Facility	1-14	P0493	P	Effective date of this Consent Order
Norman Cosens 1-36				Effective date of this Consent Order
George Wark 1-19 Crude Oil well	Not Applicable			May 27, 2016
Sharp A-1-30 Crude Oil well	65-11			August 26, 2016
Dewald & Wisenbaugh 1-36 Crude Oil well	Not Applicable			September 30, 2016
George & Robert Cosens 1-36	7-11	P0200		September 30, 2017
Morgan 1-23 at the Nixon Farms Crude Oil Production Facility	20-12A	N1586	A	September 30, 2018

The Company shall achieve compliance at each well identified in Table 2 by permanently plugging the well or by returning the well to production in accordance with the schedule in Table 2 and by complying with the applicable requirements specified below. Additionally, in the event

the Company wishes to modify the sequence of the well plugging completion, but not the due dates, the Company may do so with prior written notification to, and approval from, the MDEQ.

1. For wells identified in Table 2 that will be plugged:

a. Not less than thirty (30) days prior to plugging a well identified in Table 2, the Company shall submit notification of intent to abandon and plug the well in accordance with OOGM Rule 901 by completing EQP 7200-6 and submitting it to the OOGM and AQD Saginaw Bay District Supervisors. The Company shall include in this notification a date-certain timeline for plugging the well and for implementing site restoration thereafter within six (6) months, in accordance with OOGM Rule 1003. The Company shall not commence the plugging operation until the OOGM has issued well plugging instructions.

b. Within sixty (60) days following completing plugging each well, the Company shall submit plugging records to the OOGM and AQD Saginaw Bay District Supervisors in accordance with OOGM Rule 902(10).

c. Within thirty (30) days after completing site restoration activities pursuant to OOGM Rule 1003, for each well identified in Table 2, the Company shall submit notification to the OOGM and AQD Saginaw Bay District Supervisors that site restoration has been completed.

2. For wells identified in Table 2 that the Company intends to return to production, the Company must comply with paragraphs 15.C.2.a through c before the applicable date in Table 2, unless a different due date is allowed by paragraph 15.C.2.c. below:

a. Bring the well into production and test the produced gas for H2S concentration as well as produced rate of gas flow, observed by OOGM staff, and submit the test results to the OOGM and AQD.

b. Maintain regular consistent production from the well, as verified through proof of sales. The Company shall maintain and submit production records required by paragraph 17.

c. Obtain an AQD Permit to Install, if necessary, before returning the well to production or comply with AQD Part 55 Rules including AQD Rule 403. If the Company must obtain an AQD Permit to Install before returning the well to production, the Company shall submit an administratively complete application for an air use Permit to Install to the AQD before the applicable Date of Plugging Completion or Return to Service in Table 2. The application for a Permit to Install shall include acceptable plans and specifications describing the air pollution control device(s) and/or other equipment to be used to control the H2S emissions from the Crude Oil Production Facility to obtain compliance with Part 55 and the administrative rules promulgated thereunder.

1. The Company shall work diligently in good faith with the AQD Permit Section staff to obtain mutually acceptable terms and conditions. If the Company cannot obtain acceptable terms and conditions, or fails to accept the final draft conditions presented by the AQD, then operation of the well will be discontinued within thirty (30) days of issuance of the final draft conditions and the well will be plugged in accordance with the schedule in Table 2 or within sixty (60) days of issuance of the final draft permit conditions, whichever comes first.

2. All equipment required by the Permit to Install shall be operational and the respective well shall be returned to production and the Company shall comply with paragraph 15.C.2.a. and 15.C.2.b. within 45 days after the Permit to Install is issued.

3. Each Permit to Install issued for a facility identified in Table 2 shall be attached hereto as an Exhibit of this Consent Order, incorporated by reference, and made an enforceable part of this Consent Order. Subsequent revisions of an air use permit to install for the facility during the effective term of this Consent Order shall be incorporated by reference as revised Exhibit(s) of this Consent Order and made an enforceable part of this Consent Order.

15. D. Final Limitations

On and after the effective date of this Consent Order, the H2S feed rate from each Crude Oil Production facility to the respective flare shall not exceed the limitations specified in the air use Permits to Install, as specified in the Exhibits of this Consent Order.

15. E. Operating Conditions

1. On and after the effective date of this Consent Order, and except as specified in paragraph 15 above, the Company shall comply with the Permits to Install that are attached to this Consent Order as Exhibits and identified in paragraph 15.B. Table 1, and Rule 403.

2. On and after the effective date of this Consent Order, the Company shall maintain the minimum flare heights as required by the conditions in the Exhibits of this Consent Order, or otherwise as required by OOGM Rule 1101(f).

3. On and after the effective date of this Consent Order, the Company shall not operate without a daily gas flow meter maintained and operating, or an alternate approved method such as gas to oil ratio (GOR), as required in the Exhibits of this Consent Order.

4. On and after the effective date of this Consent Order, the Company shall provide all storage tanks with maintained and operating vents to the required flare, as required by Rule 403 and/or in accordance with the conditions in the Exhibits of this Consent Order.

5. On and after the effective date of this Consent Order, the Company shall provide all storage tanks with maintained and operating vapor return systems for use during load out, in accordance with the conditions in the Exhibits of this Consent Order.

6. On and after the effective date of this Consent Order, the Company shall not operate multiple wells nor hours of operation in excess of the maximum allowed in the Exhibits of this Consent Order.

7. On and after the effective date of this Consent Order, and except as specified in paragraph 15.C., Table 2 of this Consent Order, all wells shut in for twelve (12) months or more shall be plugged unless a Change of Well Status/Temporary Abandonment request has been approved in accordance with OOGM Rule 903.

8. On and after the effective date of this Consent Order, the Company shall promptly report using MDEQ Form EQP 7233 and promptly clean up any oil and/or brine losses in accordance with OOGM Rules 1006 and 1008.

9. On and after the effective date of this Consent Order, the Company shall maintain identification signs, as well as H2S warning signs, flow line markers, and painting valves in accordance with OOGM Rules 1012, 1119, 1120 and 1122.

10. On and after the effective date of this Consent Order, the Company shall maintain thief hatch latches, seals, and springs, tank vent lines and flame arrestors to prevent odors from facilities, in accordance with OOGM Rule 1122.

RECORDKEEPING AND REPORTING

16. On and after the effective date of this Consent Order, the Company shall keep separate records of the H2S concentration and gas volume from each required wellhead and crude oil production facility as required by an AQD air use Permit to Install and OOGM Rules 1105 and 1118, for each facility and in accordance with the Exhibits of this Consent Order. This information shall be kept on file at the main offices at 7998 M-25, Akron, Michigan, for a period of at least five (5) years, and shall be made available to MDEQ upon written or verbal request.

17. On and after the effective date of this Consent Order, the Company shall determine and submit separate records of oil production and sales on a production reporting unit (PRU) basis in accordance with methods and procedures approved by the OOGM. This information shall be submitted to the OOGM Petroleum, Mining Geology Unit, in Lansing, in an approved format, within 45 days following the end of the calendar month in which the data was collected.

GENERAL PROVISIONS

18. On and after the effective date of this Consent Order, except as otherwise provided by the administrative rules of Part 55, the Company shall not install, construct, reconstruct, relocate, alter, or modify any process or process equipment including control equipment pertaining thereto, which may emit an air contaminant, unless a permit to install which authorizes such action is issued by the MDEQ pursuant to Rule 201, the Company is issued a waiver pursuant to Rule 202, or the change is exempt from the requirements of Rule 201.

19. This Consent Order in no way affects the Company's responsibility to comply with any other applicable state and federal, or local laws or regulations, including without limitation, any amendments to the federal Clean Air Act, 42 USC 7401 *et seq.*, Act 451, Part 55 or their rules and regulations, or to the State Implementation Plan.

20. This Consent Order constitutes a civil settlement and satisfaction as to the resolution of the violations specifically addressed herein; however, it does not resolve any criminal action that may result from these same violations.

21. A. Settlement Payment Terms to AQD

The Company shall pay to the General Fund of the State of Michigan, in the form of checks made payable to the "State of Michigan" and mailed to the Michigan Department of Environmental Quality, Accounting Services Division, Cashier's Office, P.O. Box 30657, Lansing, Michigan 48909-8157, a settlement amount of $49,415.00 which includes AQD costs for investigation and enforcement. The Company shall make a first payment of $6,715.00 within thirty (30) days after the effective date of this Consent Order. Thereafter, the Company shall make seven additional equal quarterly payments, in the amount of $6,100.00, by March 15, 2016; June 15, 2016; September 15, 2016; by December 15, 2016; by March 15, 2017; by June 15, 2017 and by September 15, 2017. To ensure proper credit, all payments made pursuant to this Consent Order shall include the Payment Identification No. MUL3017 on the front of the checks and in a cover letter with the payment. This settlement amount is in addition to any fees, taxes, or other fines that may be imposed on the Company by law.

21. B. Settlement Payment Terms to OOGM

The Company shall pay to the General Fund of the State of Michigan, in the form of checks made payable to the "State of Michigan" and delivered to the Michigan Department of Environmental Quality, Financial and Business Services Division, Revenue Control, P.O. Box 30657, Lansing, Michigan 48909-8157, a settlement amount of $14,000.00, which includes OOGM costs for investigation and enforcement. The Company shall make a first payment of $1,750.00 within thirty (30) days after the effective date of this Consent Order. Thereafter, the Company shall make seven additional equal quarterly payments, in the amount of $1,750.00, by March 15, 2016; June 15, 2016; September 15, 2016; by December 15, 2016; by March 15, 2017; by June 15, 2017 and by September 15, 2017. To ensure proper credit, all payments made pursuant to this Consent Order shall include the Agreement Identification No. MUL3017 on the face of the check and in a cover letter with the payment. This settlement amount is in addition to any fees, taxes, or other fines that may be imposed on the Company by law.

22. On and after the effective date of this Consent Order, if the Company fails to comply with paragraph 18 of this Consent Order, the Company is subject to a stipulated fine of up to $10,000.00 per violation. On and after the effective date of this Consent Order, if the Company fails to comply with the following requirements of the Statute, Part of NREPA, Rules or permits issued by the MDEQ, the Company shall be subject to following stipulated fines:

a. For failure to comply with air use permit requirements of operating conditions, AQD Rule 403 requirements, or OOGM Rule 1123 requirements, the Company shall be subject to stipulated fines of up to $1,500.00 per violation per day;

b. For failure to promptly report losses, spills, and releases per OOGM Rule 1008, or failure to immediately initiate cleanup, the Company shall be subject to stipulated fines of up to $1,500.00 per violation per day;

c. For exceeding any emission, H2S feed rate limit, or production limit, the Company shall be subject to stipulated fines of up to $750.00 per violation per day;

d. For failure to record, maintain, or provide records as required, the Company shall be subject to stipulated fines of up to $750.00 per violation per day;

e. For failure to maintain security of the facility or site, including maintain fences, gates and signage, the Company shall be subject to stipulated fines of up to $500.00 per violation per day;

f. For failure to maintain or paint valves and well heads, the Company shall be subject to stipulated fines of up to $500.00 per violation per day;

g. For failure to plug wells in accordance with the schedule within this consent order, the Company shall be subject to stipulated fines of $2,500.00 for the missed plug completion due date and up to $500.00 per day thereafter;

h. On and after the effective date of this Consent Order, if the Company fails to comply with any other provision of any Exhibit or the terms of this Consent Order, the Company is subject to stipulated fines of up to $500.00 per violation;

i. The amount of the stipulated fines imposed pursuant to this paragraph shall be within the discretion of the MDEQ. Stipulated fines submitted under this Consent Order shall be by check, payable to the State of Michigan within thirty (30) days of written demand and shall be delivered to the Michigan Department of Environmental Quality, Financial and Business Services Division, Revenue Control, P.O. Box 30657, Lansing, Michigan 48909-8157. To ensure proper credit, all payments shall

include the Agreement Identification No. (Number)-S on the face of the check. Payment of stipulated fines shall not alter or modify in any way the Company's obligation to comply with the terms and conditions of this Consent Order.

23. The AQD, at its discretion, may seek stipulated fines or statutory fines for any violation of this Consent Order which is also a violation of any provision of applicable federal and state law, rule, regulation, permit, or MDEQ administrative order. However, the AQD is precluded from seeking both a stipulated fine under this Consent Order and a statutory fine for the same violation.

24. To ensure timely payment of the settlement amounts assessed in paragraphs 21.A. and 21.B. and any stipulated fines assessed pursuant to paragraph 22 of this Consent Order, the Company shall pay an interest penalty to the State of Michigan each time it fails to make a complete or timely payment under this Consent Order. The interest payment shall be determined at a rate of interest that is equal to one percent (1%) plus the average interest rate paid at auctions of 5-year United States treasury notes during the six months immediately preceding July 1 and January 1, as certified by the state treasurer, compounded annually, and using the full increment of amount due as principal, calculated from the due date specified in this Consent Order until the date that delinquent payment is finally paid in full. Payment of an interest penalty by the Company shall be made to the State of Michigan in accordance with paragraphs 21.A. and 21.B. of this Consent Order. Interest payments shall be applied first towards the most overdue amount or outstanding interest penalty owed by the Company before any remaining balance is applied to subsequent payment amount or interest penalty.

25. The Company agrees not to contest the legal basis for the settlement amounts assessed pursuant to paragraph 21.A. and 21.B. The Company also agrees not to contest the legal basis for any stipulated fines assessed pursuant to paragraph 22 of this Consent Order, but reserves the right to dispute in a court of competent jurisdiction the factual basis upon which a demand by MDEQ of stipulated fines is made. In addition, the Company agrees that said fines have not been assessed by the MDEQ pursuant to Section 5529 of Part 55 and therefore are not reviewable under Section 5529 of Part 55.

26. This compliance program is not a variance subject to the 12 month limitation specified in Section 5538 of Part 55.

27. This Consent Order shall remain in full force and effect for a period of at least five (5) years. Thereafter, the Consent Order shall terminate only upon written notice of termination issued by the AQD Chief. Prior to issuance of a written notice of termination, the Company shall submit a request, to

the AQD Chief at the Michigan Department of Environmental Quality, Air Quality Division, P.O. Box 30260, Lansing, Michigan 48909-7760, consisting of a written certification that the Company has fully complied with all the requirements of this Consent Order and has made all payments including all stipulated fines required by this Consent Order. Specifically, this certification shall include: (i) the date of compliance with each provision of the compliance program and the date any payments or stipulated fines were paid; (ii) a statement that all required information has been reported to the Saginaw Bay District Supervisors; (iii) confirmation that all records required to be maintained pursuant to this Consent Order are being maintained at the facility; and, (iv) such information as may be requested by the AQD Chief or the OOGM Chief.

28. In the event that Tuscola Energy, Inc. intends to complete a sale or transfer of any facility, well, crude oil production facility or central processing facility which is part of this settlement, Tuscola Energy, Inc. shall first comply with the requirements of OOGM Rules 324.206(6), 324.206(7) and 324.206(8). All required documentation shall be submitted to the Permits and Bonding Unit, Office of Oil Gas and Minerals, 525 West Allegan Street, P.O. Box 30256, Lansing, Michigan 48909 for review and approval before such proposed sale or transfer may occur.

29. In the event that Tuscola Energy, Inc. proposes the sale or transfer of any well or crude oil production facility which is part of this Consent Order, it shall advise any purchaser or transferee of the existence of this Consent Order in connection with such sale or transfer. Not less than thirty (30) calendar days prior to the sale or transfer, the Company shall notify the AQD and OOGM Saginaw Bay District Supervisors, and the OOGM Permits and Bonding Unit (see address in paragraph 28), in writing, of such sale or transfer, the identity and address of any purchaser or transferee, and confirm the fact that notice of this Consent Order has been given to the purchaser and/or transferee. As a condition of the sale, Tuscola Energy, Inc. must obtain the consent of the purchaser and/or transferee, in writing, to assume all of the obligations of this Consent Order. A copy of that agreement shall be forwarded to the AQD and OOGM Saginaw Bay District Supervisors within thirty (30) days of assuming the obligations of this Consent Order.

30. Prior to the effective date of this Consent Order and pursuant to the requirements of Sections 5511 and 5528(3) of Part 55, the public was notified of a 30-day public comment period and was provided the opportunity for a public hearing.

31. Section 5530 of Part 55 may serve as a source of authority but not a limitation under which the Consent Order may be enforced. Further, Part 17 of Act 451 and all other applicable laws and any other legal basis or applicable statute may be used to enforce this Consent Order.

32. The Company hereby stipulates that entry of this Consent Order is a result of an action by MDEQ to resolve alleged violations of its wells and crude oil production facilities identified in the first paragraph of this Consent Order and located in Tuscola County, Michigan. The Company further stipulates that it will take all lawful actions necessary to fully comply with this Consent Order, even if the Company files for bankruptcy in the future. The Company will not seek discharge of the settlement amount and any stipulated fines imposed hereunder in any future bankruptcy proceedings, and the Company will take necessary steps to ensure that the settlement amount and any future stipulated fines are not discharged. The Company, during and after any future bankruptcy proceedings, will ensure that the settlement amount and any future stipulated fines remain an obligation to be paid in full by the Company to the extent allowed by applicable bankruptcy law.

The undersigned certifies that he/she is fully authorized by the Company to enter into this Consent Order and to execute and legally bind the Company to it.

TUSCOLA ENERGY, INC.

David P. Sutherland
Chairman

Dated: 12/14/15

Jeffrey M. Adler
President

Dated: 12-14-15

The above signatory subscribed and sworn to before me this 14th day of December, 2015

TRACEY L NICHOLS
Notary Public - Michigan
Macomb County
My Commission Expires Apr 6, 2020
Acting in the County of Macomb

Notary Public

Approved as to Content:

Lynn Fiedler, Chief
AIR QUALITY DIVISION
DEPARTMENT OF
ENVIRONMENTAL QUALITY

Dated: 12/17/15

Approved as to Content:

Hal Fitch, Chief
OFFICE OF OIL, GAS AND MINERALS
DEPARTMENT OF
ENVIRONMENTAL QUALITY

Dated: 12/17/15

Approved as to Form:

Neil Gordon, Section Head
ENVIRONMENTAL REGULATION SECTION
ENVIRONMENT, NATURAL RESOURCES,
AND AGRICULTURE DIVISION
DEPARTMENT OF ATTORNEY GENERAL

Dated: December 15, 2015

FINAL ORDER

The Chief of the Air Quality Division having had opportunity to review the Consent Order and having been delegated authority to enter into Consent Orders by the Director of the Michigan Department of Environmental Quality pursuant to the provisions of Part 55 of Act 451 and otherwise being fully advised on the premises,

HAS HEREBY ORDERED that the Consent Order is approved and shall be entered in the record of the MDEQ as a Final Order.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

Lynn Fiedler, Chief
Air Quality Division

Effective Date: 12/17/15

Exhibit A

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

March 20, 2014

PERMIT TO INSTALL
20-12A

ISSUED TO
Tuscola Energy Inc.

LOCATED AT
Wisner Township
Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
N1586

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 10, 2014**	
DATE PERMIT TO INSTALL APPROVED: **March 20, 2014**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

Table of Contents

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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_2S	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 48909-7760, 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
EUNIXON3TANK	Storage tank for oil from the Nixon 3-23 sour well.	FGOILPRODUCTION
EUNIXON3SEP	Separator for the Nixon 3-23 sour well.	FGOILPRODUCTION
EUNIXON4TANK	Storage tank for oil from the Nixon 4-23 sour well.	FGOILPRODUCTION
EUNIXON4SEP	Separator for the Nixon 4-23 sour well.	FGOILPRODUCTION
EUNIXON5TANK	Storage tank for oil from the Nixon 5-23 sour well.	FGOILPRODUCTION
EUNIXON5SEP	Separator for the Nixon 5-23 sour well.	FGOILPRODUCTION
EUNIXON6TANK	Storage tank for oil from the Nixon 6-23 sour well.	FGOILPRODUCTION
EUNIXON6SEP	Separator for the Nixon 6-23 sour well.	FGOILPRODUCTION
EUMORGAN1TANK	Storage tank for oil from the Morgan 1-23 sour well.	FGOILPRODUCTION
EUMORGAN1SEP	Separator for the Morgan 1-23 sour well.	FGOILPRODUCTION
EUWASTEWATERTK1	Storage tank for water separated from the oil.	FGOILPRODUCTION
EUNIXON1TANK	Storage tank for oil from the Nixon 1-23 sweet well.	FGOILPRODUCTION
EUNIXON2TANK	Storage tank for oil from the Nixon 2-23 sweet well.	FGOILPRODUCTION
EUNIXON14TANK	Storage tank for oil from the Nixon 14-23 sweet well.	FGOILPRODUCTION
EUWASTEWATERTK2	Storage tank for water separated from the oil in the oil treatment system.	FGOILTREATSYS
EUOILTREATSYSTK1	Oil storage tank for the oil treatment system.	FGOILTREATSYS
EUOILTREATSYSTK2	Oil storage tank for the oil treatment system.	FGOILTREATSYS
EUOILTREATSYSTK3	Oil storage tank for the oil treatment system.	FGOILTREATSYS
EUOILTREATSYSTK4	Oil storage tank for the oil treatment system.	FGOILTREATSYS
EUHEATERTREATER	Heater treater for the oil treatment system.	FGOILTREATSYS

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGOILTREATSYS	Process equipment for heat treatment of oil from offsite wells.	EUOILTREATSYSTK1 EUOILTREATSYSTK2 EUOILTREATSYSTK3 EUOILTREATSYSTK4 EUWASTEWATERTK2 EUHEATERTREATER
FGOILPRODUCTION	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment, exempt equipment and control equipment.	EUNIXON3TANK EUNIXON3SEP EUNIXON4TANK EUNIXON4SEP EUNIXON5TANK EUNIXON5SEP EUNIXON6TANK EUNIXON6SEP EUMORGAN1TANK EU MORGAN1SEP EUWASTEWATERTK1 EUNIXON1TANK EUNIXON2TANK EUNIXON14TANK

The following conditions apply to: FGOILTREATSYS

DESCRIPTION: Heat treatment of oil

Emission Units: EUOILTREATSYSTK1, EUOILTREATSYSTK2, EUOILTREATSYSTK3, EUOILTREATSYSTK4, EUWASTEWATERTK2, EUHEATERTREATER

POLLUTION CONTROL EQUIPMENT: flare

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not burn any sour natural gas in FGOILTREATSYS. Sour gas is defined as any gas containing more than 1 grain of hydrogen sulfide or more than 10 grains of total sulfur per 100 standard cubic feet. **(R 336.1225, R 336.1901)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate FGOILTREATSYS unless all emergency relief valves, all storage tanks, 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 336.1901, R 336.1910)**

2. The permittee shall not load out the following tanks unless a vapor return system is installed, maintained and operated in a satisfactory manner:
   (a) EUOILTREATSYSTK1
   (b) EUOILTREATSYSTK2
   (c) EUOILTREATSYSTK3
   (d) EUOILTREATSYSTK4
   (e) EUWASTEWATERTK2
   (R 336.1224, R 336.1225, R 336.1702(a), R 336.1901)

3. 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 stop the circulation of oil in the event that the flare pilot flame is extinguished. The permittee shall not resume oil circulation unless the flare pilot flame is re-ignited and maintained.
   (R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

NA

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

The following conditions apply to: FGOILPRODUCTION

DESCRIPTION: Oil production facility

Emission Units: EUNIXON3TANK, EUNIXON3SEP, EUNIXON4TANK, EUNIXON4SEP, EUNIXON5TANK, EUNIXON5SEP, EUNIXON6TANK, EUNIXON6SEP, EUMORGAN1TANK, EUMORGAN1SEP, EUWASTEWATERTK1, EUNIXON1TANK, EUNIXON2TANK, EUNIXON14TANK

POLLUTION CONTROL EQUIPMENT: flare

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. hydrogen sulfide (CAS No. 7783-06-4)	96.2 lb	5:00am to 12:00pm	FGOILPRODUCTION	VI.1. VI.2.	40CFR 52.21(c) and (d) R 336.1803 R 336.1804 R 336.1225 R 336.1901
2. hydrogen sulfide	84.5 lb	12:00pm to 7:00pm	FGOILPRODUCTION	VI.1. VI.2.	40CFR 52.21(c) and (d) R 336.1803 R 336.1804 R 336.1225 R 336.1901
3. hydrogen sulfide	29 lb	7:00pm to 12:00am	FGOILPRODUCTION	VI.1. VI.2.	40CFR 52.21(c) and (d) R 336.1803 R 336.1804 R 336.1225 R 336.1901

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGOILPRODUCTION to process any wells other than the following without prior notification to and approval by the AQD. Furthermore, the wells shall not be operated at any times other than that specified in this table: **(40CFR 52.21(c) and d), R 3236.1803, R 336.1804, R 336.1225, R 336.1901)**

Well	Operating Time Frames
Nixon 1	NA
Nixon 2	NA
Nixon 5	5:00am to 12:00pm
Morgan 1-23	5:00am to 12:00pm
Nixon 3	12:00pm to 7:00pm
Nixon 4	12:00pm to 7:00pm
Nixon 6	7:00pm to 12:00am
Nixon 14	NA

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 well pump jacks by cutting off the electrical power supply 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.

   (R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)

2. The flare shall be properly engineered. **(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall not operate FGOILPRODUCTION unless all emergency relief valves, all storage tanks, 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 336.1901, R 336.1910)**

4. The permittee shall not load out any tanks unless a vapor return system is installed, maintained and operated in a satisfactory manner.

   (R 336.1224, R 336.1225, R 336.1702(a), R 336.1901)

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 during each of the following time frames:
      I. 5:00am to 12:00pm
      II. 12:00pm to 7:00pm
      III. 7:00pm to 12:00am
   b) concentration of hydrogen sulfide in the sour gas going to the flare. This measurement must be made at least once per quarter and when all of the wells are pumping during the time frame specified in this table:

Well	Operating Time Frames
Nixon 5	5:00am to 12:00pm
Morgan 1-23	5:00am to 12:00pm
Nixon 3	12:00pm to 7:00pm
Nixon 4	12:00pm to 7:00pm
Nixon 6	7:00pm to 12:00am

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 for each of the three time frames. 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. **(40CFR 52.21(c) and d), R 3236.1803, R 336.1804, R 336.1225, R 336.1901)**

2. Each calendar month, the permittee shall calculate, for the previous calendar month, the daily mass flow rate of H2S that went to the flare during each of the three time frames specified in VI.1.(b).
   All of the following shall be used for the above calculations:
   I. the most recent concentration of hydrogen sulfide in the sour gas determined with all of the wells pumping during the specified time frames
   II. the individual daily volume of sour gas that went to the flare during each of the three time frames
   III. the following equation:

   (ft3 sour gas/time frame)(ft3 H2S/100ft3 sour gas)(#mol H2S/385ft3 H2S)(34# H2S/#mol H2S)= # H2S/time frame

   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. **(40CFR 52.21(c) and d), R 3236.1803, R 336.1804, R 336.1225, R 336.1901)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stack 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	4	50	**40CFR 52.21(c) and (d)** **R 336.1803** **R 336.1804** **R 336.1225** **R 336.1901**

IX. OTHER REQUIREMENTS

NA

Exhibit B

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

December 6, 2012

PERMIT TO INSTALL
116-12

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
Boyce Farms B1 & B2-23
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: **August 23, 2012**	
DATE PERMIT TO INSTALL APPROVED: **December 6, 2012**	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	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H_2S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
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
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO_2	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* 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 48909-7760, 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
EUBOYCETANK	Storage tank for oil from the Boyce B1-23 and Boyce B2-23 oil wells. Flare control.	FGFACILITY
EUSEPARATOR1	Separator for the Boyce B1-23 and Boyce B2-23 oil wells. Flare control.	FGFACILITY
EUSEPARATOR2	Separator for the Boyce B1-23 and Boyce B2-23 oil wells. Flare control.	FGFACILITY

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment, exempt equipment and control equipment.	EUBOYCETANK EUSEPARATOR1 EUSEPARATOR2

The following conditions apply to: FGFACILITY

DESCRIPTION: Oil production facility

Emission Units: EUBOYCETANK, EUSEPARATOR1. EUSEPARATOR2

POLLUTION CONTROL EQUIPMENT: Flare

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Hydrogen sulfide[1] (CAS No. 7783-06-4)	363 lb	Calendar day	FGFACILITY	VI.1. VI.2.	**R 336.1225 R 336.1901 R 336.2803 R 336.2804 40 CFR 52.21(c) and (d)**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGFACILITY to process any wells other than the Boyce B1-23 and Boyce B2-23 without prior notification to and approval by the AQD.[1] **(R 336.1225, R 336.1901)**

2. The permittee shall not operate FGFACILITY for more than 8 hours per day. **(R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

3. The permittee shall not operate FGFACILITY 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), R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. On and after December 31, 2012**,** 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 off fluid flow into FGFACILITY in the event that the flare pilot flame is extinguished. The permittee shall not resume fluid flow into FGFACILITY unless the flare pilot flame is re-ignited and maintained.

   (R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)

2. The flare shall be properly engineered. **(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall not operate FGFACILITY 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 336.1901, 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), R 336.1901)**

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) Each and every time of day that each well begins pumping
   b) Each and every time of day that each well stops pumping
   c) The calendar days each calendar month in which at least one of the wells is operated
   d) The total calendar days in which at least one well was operated, per 12-month rolling time period, as determined at the end of each calendar month
   e) volumetric flow rate of sour gas going to the flare-daily
   f) concentration of hydrogen sulfide in the sour gas going to the flare. This measurement must be made at least once per quarter and when both of the wells are pumping

   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 District Supervisor for approval. The requested monitoring frequency shall be no less than annual. **(40CFR 52.21(c) and d), R 3236.1803, R 336.1804, R 336.1225, R 336.1901)**

2. Each calendar month, the permittee shall calculate, for the previous calendar month, the daily mass flow rate of hydrogen sulfide that went to the flare.

   All of the following shall be used for the above calculations:

   I. the most recent concentration of hydrogen sulfide in the sour gas determined with both of the wells pumping
   II. the individual daily volume of sour gas that went to the flare each day
   III. the following equation:

   (ft3 sour gas/time frame)(ft3 H2S/100ft3 sour gas)(#mol H2S/385ft3 H2S)(34# H2S/#mol H2S)= # H2S/time frame

   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. **(40CFR 52.21(c) and d), R 3236.2803, R 336.2804, R 336.1225, R 336.1901)**

3. Each calendar month, the permittee shall calculate all of the following:

   a. The number of hours that FGFACILITY operated each calendar day

   b. the total number of calendar days in which at least one well was operated

   c. for the previous 12-month rolling time period, the total number of calendar days in which at least one well was operated

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. **(40CFR 52.21(c) and d), R 3236.2803, R 336.2804, R 336.1225, R 336.1901)**

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:

Stack & Vent ID	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVFLARE	40	**R 336.1225** **R 336.1901** **R 336.2803** **R 336.2804** **40 CFR 52.21(c) and (d)**

IX. OTHER REQUIREMENTS

NA

Footnotes:
[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

Exhibit C

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

March 20, 2014

PERMIT TO INSTALL
14-09D

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
6082 Cass City Road
Wisner Township, Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
N7954

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 13, 2014**	
DATE PERMIT TO INSTALL APPROVED: **March 20, 2014**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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Section **Page**

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_2S	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 48909-7760, 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
EUTANK1	Oil storage tank, flare control	FGOILPRODUCTION
EUTANK2	Oil storage tank, flare control	FGOILPRODUCTION
EUSEPARATOR	oil/gas separator	FGOILPRODUCTION

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGOILPRODUCTION	All permitted oil production equipment at the facility. Equipment processes sour crude oil from the McPherson A-1-24 well, and is controlled by a flare.	EUTANK1 EUTANK2 EUSEPARATOR

The following conditions apply to: FGOILPRODUCTION

DESCRIPTION: All permitted oil production equipment at the facility. Equipment processes sour crude oil from the McPherson A-1-24 well, and is controlled by a flare.

Flexible Group ID: FGOILPRODUCTION

POLLUTION CONTROL EQUIPMENT: flare

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Hydrogen sulfide (H2S)	310 lb	Calendar day	FGOILPRODUCTION	VI.1. VI.2.	R336.1225 40 CFR 52.21(c) & (d)

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGOILPRODUCTION to process any wells other than the McPherson A-1-24 without prior notification to and approval by the AQD. [1] **(R 336.1225)**

2. The permittee shall not operate FGOILPRODUCTION for more than 305 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 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 McPherson A-1-24 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 into FGOILPRODUCTION unless the flare pilot flame is re-ignited and maintained.

   (R 336.1224, R 336.1225, R 336.1403, R 336.1910)

2. 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)**

3. 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) the total number of days that the well was operated each calendar month - monthly
   c) the total number of days that the well was operated in the previous 12-month rolling time period - monthly
   d) four consecutive quarterly readings of the concentration of hydrogen sulfide in the sour gas - quarterly. 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. Both of the following are acceptable means of determining the concentration of hydrogen sulfide in the sour gas: [1]
      I. Colorimetric detector tube
      II. laboratory gas analysis

   (40 CFR 52.21(c) and d), R336.1205(1)(a)(ii), R 336.1225)

2. Each calendar month the permittee shall calculate the mass flow rate of H2S that went to the flare each day using all of the following:
      I. the most recently determined concentration of hydrogen sulfide in the sour gas
      II. the individual daily volume of sour gas that went to the flare
      III. the following equation:

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

   (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.
   (40 CFR 52.21(c) and d), R336.1205(1)(a)(ii), R 336.1225)

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:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVFLARE	NA	38[1]	R 336.1225

IX. OTHER REQUIREMENTS

NA

Footnotes:

[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

Exhibit D

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

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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_2S	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 Qualityal 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)**

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
EUTANKNIXON07	Sour oil storage tank. Flare control.	FGOILPRODUCTION
EUTANKNIXON08	Sour oil storage tank. Flare control.	FGOILPRODUCTION
EUTANKNIXON09	Sour oil storage tank. Flare control.	FGOILPRODUCTION
EUTANKNIXON10	Sweet oil storage tank. Sweet gas is used for pilot in flare.	FGOILPRODUCTION
EUTANKNIXON11	Sour oil storage tank. Flare control.	FGOILPRODUCTION
EUTANKNIXON12	Sour oil storage tank. Flare control.	FGOILPRODUCTION
EUSEPNIXON07	Sour oil/gas separator. Flare control.	FGOILPRODUCTION
EUSEPNIXON08	Sour oil/gas separator. Flare control.	FGOILPRODUCTION
EUSEPNIXON09	Sour oil/gas separator. Flare control.	FGOILPRODUCTION
EUSEPNIXON11	Sour oil/gas separator. Flare control.	FGOILPRODUCTION
EUSEPNIXON12	Sour oil/gas separator. Flare control.	FGOILPRODUCTION

FLEXIBLE GROUP SUMMARY TABLE

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGOILPRODUCTION	All permitted oil production equipment at the facility. 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.	EUTANKNIXON07 EUTANKNIXON08 EUTANKNIXON09 EUTANKNIXON10 EUTANKNIXON11 EUTANKNIXON12 EUSEPNIXON07 EUSEPNIXON08 EUSEPNIXON09 EUSEPNIXON11 EUSEPNIXON12

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

   (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

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

Exhibit E

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

October 30, 2013

PERMIT TO INSTALL
106-13

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: **July 26, 2013**	
DATE PERMIT TO INSTALL APPROVED: **October 30, 2013**	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	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_2S	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 Qualityal 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)**

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. On and after December 1, 2013, the permittee shall properly operate a mechanism that will automatically shut off fluid flow to FGDOWNING2 in the event that the flare pilot flame is extinguished. Furthermore, the well feeding FGDOWNING2 shall shut down when the pressure reaches a company-determined safety set-point. 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:

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

   (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

Exhibit F

MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
AIR QUALITY DIVISION

December 6, 2010

PERMIT TO INSTALL
188-10

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
Mowery & Bernia et al 1-32
Akron Township, Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
N8276

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Natural Resources and Environment. 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 14, 2010**	
DATE PERMIT TO INSTALL APPROVED: **December 6, 2010**	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	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H_2S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
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
MDNRE	Michigan Department of Natural Resources and Environment (Department)	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO_2	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* 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 Natural Resources and Environment, 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 Natural Resources and Environment. **(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
EUTANK	Oil storage tank	FGFACILITY
EUSEPARATOR	Oil/gas separator	FGFACILITY

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment, exempt equipment and control equipment.	EUTANK EUSEPARATOR

The following conditions apply to: FGFACILITY

DESCRIPTION: Oil production facility

Emission Units: EUTANK, EUSEPARATOR

POLLUTION CONTROL EQUIPMENT: Flare

I. EMISSION LIMITS

1. NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. hydrogen sulfide (CAS No. 7783-06-4)	68.6 lb	calendar day	FGFACILITY	VI.1.	**R 336.1225 R 336.1901**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGFACILITY to process any well other than the Mowery & Bernia et al 1-32 well without prior notification to and approval by the AQD:
(R 336.1225, R 336.1901)

2. The permittee shall not pump the Mowery & Bernia et al 1-32 well for more than 8 hours per calendar day.
(R 336.1225, R 336.1901, 40 CFR 52.21(c) and (d))

IV. DESIGN/EQUIPMENT PARAMETERS

1. On and after January 30, 2011, 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 336.1901, R 336.1910)**

2. On and after January 30, 2011, the permittee shall properly operate a mechanism that will automatically shut off fluid flow into FGFACILITY in the event that the pilot flame is extinguished. Furthermore, the Mowery & Bernia et al 1-32 well shall shut down before the pressure reaches a company-determined safety set-point. The permittee shall not resume fluid flow into FGFACILITY unless the flare pilot flame is re-ignited and maintained.
(R 336.1224, R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)

3. The flare shall be properly engineered. **(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)**

4. The permittee shall not operate FGFACILITY unless all emergency relief valves, all storage tanks, 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 336.1901, R 336.1910)**

5. The permittee shall not load out EUTANK unless a vapor return system is installed, maintained and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1702(a), R 336.1901)**

V. TESTING/SAMPLING

1. 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) Gauge the oil collected in EUTANK – at the end of each calendar day after the Mowery & Bernia et al 1-32 well has stopped pumping
   b) Gas to oil ratio (GOR) - quarterly
   c) concentration of hydrogen sulfide in the sour gas going to the flare with the well pumping – quarterly
   d) each and every time of day that the Mowery & Bernia et al 1-32 well begins pumping
   e) each and every time of day that the Mowery & Bernia et al 1-32 well stops pumping

   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 District Supervisor for approval. The requested monitoring frequency shall be no less than annual. **(R 336.1225, R 336.1901)**

2. 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, R 336.1901)**

3. The permittee shall perform the following calculations at the frequency indicated:
   a) GOR - quarterly
   b) calculate the mass flow rate of H2S going to the flare for 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 - monthly
      II. the individual daily volume of sour gas going to the flare calculated from the following:
         i. most recent GOR
         ii. daily recorded volume of collected oil in EUTANK
         iii. the following equation:
         (ft3 sour gas/day)(ft3 H2S/100ft3 sour gas)(#mol H2S/385ft3 H2S)(34# H2S/#mol H2S)= #/day H2S

   (R 336.1225, R 336.1901)

VII. REPORTING

1. 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:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVFLARE	2 3/8	34	**R 336.1225, R 336.1901**

IX. OTHER REQUIREMENTS

1. NA

Exhibit G

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

May 19, 2011

PERMIT TO INSTALL
65-11

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
Rumble 1-19 & Sharp, et al A-1-30
Akron Township, Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
P0242

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:	
DATE PERMIT TO INSTALL APPROVED:	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	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H_2S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
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
MDNRE	Michigan Department of Natural Resources and Environment (Department)	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO_2	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* 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.

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
EUOILTANK1	Oil storage tank	FGFACILITY
EUOILTANK2	Oil storage tank	FGFACILITY
EUSEPARATOR1	Separator for the Rumble 1-19 well.	FGFACILITY
EUSEPARATOR2	Separator for the Sharp, Elmer et al A-1-30 well.	FGFACILITY

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment, exempt equipment and control equipment.	EUOILTANK1 EUOILTANK2 EUSEPARATOR1 EUSEPARATOR2

The following conditions apply to: FGFACILITY

DESCRIPTION: Oil production facility

Emission Units: EUOILTANK1, EUOILTANK2, EUSEPARATOR1, EUSEPARATOR2

POLLUTION CONTROL EQUIPMENT: flare

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. hydrogen sulfide (CAS No. 7783-06-4)	60 lb	calendar day	FGFACILITY	VI.1. VI.2.	**R 336.1225** **R 336.1901**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGFACILITY to process any wells other than the following without prior notification to and approval by the AQD:
   a) Rumble 1-19
   b) Sharp, Elmer et al A-1-30
   (R 336.1225, R 336.1901)

2. The permittee shall not pump either of these two wells for more than 8 hours per calendar day. **(R 336.1225, R 336.1901)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. On and after July 30, 2011**,** the permittee shall properly operate both 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 off fluid flow into FGFACILITY in the event that the flare pilot flame is extinguished. Furthermore, the Rumble 1-19 and Sharp, Elmer et al A-1-30 wells shall shut down before the pressure reaches a company-determined safety set-point. The permittee shall not resume fluid flow into FGFACILITY unless the flare pilot flame is re-ignited and maintained.
   (R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)

2. The flare shall be properly engineered. **(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall not operate FGFACILITY unless all emergency relief valves, all storage tanks, 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 336.1901, R 336.1910)**

5. The permittee shall not load out the following oil tanks unless a vapor return system is installed, maintained and operated in a satisfactory manner:
   a) EUOILTANK1

b) EUOILTANK2

(R 336.1224, R 336.1225, R 336.1702(a), R 336.1901)

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) Gauge the oil collected in EUTANK1 – at the end of each calendar day after the Rumble 1-19 well has stopped pumping
   b) Gauge the oil collected in EUTANK2 – at the end of each calendar day after the Sharp, Elmer et al A-1-30 well has stopped pumping
   c) Gas to oil ratio (GOR) for each well - quarterly
   d) concentration of hydrogen sulfide in the sour gas going to the flare with the wells pumping – quarterly
   e) each and every time of day that the Rumble 1-19 well begins pumping
   f) each and every time of day that the Rumble 1-19 well stops pumping
   g) each and every time of day that the Sharp, Elmer et al A-1-30 well begins pumping
   h) each and every time of day that the Sharp, Elmer et al A-1-30 well stops pumping

   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 District Supervisor for approval. The requested monitoring frequency shall be no less than annual. **(R 336.1225, R 336.1901)**

2. The permittee shall perform the following calculations at the frequency indicated:
   a) Gas to oil ratio (GOR) for each well - quarterly
   b) calculate the mass flow rate of H2S going to the flare from each well for each calendar day using all of the following:
      I. the most recent concentration of hydrogen sulfide in the sour gas determined with the wells pumping - monthly
      II. the individual daily volume of sour gas going to the flare from each well calculated from the following:
         i. most recent GOR
         ii. daily recorded volume of collected oil in EUTANK1 and EUTANK2
         iii. the following equation:
         (ft3 sour gas/day)(ft3 H2S/100ft3 sour gas)(#mol H2S/385ft3 H2S)(34# H2S/#mol H2S)= #/day H2S

   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, R 336.1901)**

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:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVFLARE		40	**R 336.1225, R 336.1901**

IX. OTHER REQUIREMENTS

NA

Exhibit H

MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
AIR QUALITY DIVISION

February 18, 2011

PERMIT TO INSTALL
9-11

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
Walat Farms et al A-6-27 and A-11-22 (off Cass Road)
Wisner Township, Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
P0202

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Natural Resources and Environment. 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: **January 11, 2011**	
DATE PERMIT TO INSTALL APPROVED: **February 18, 2011**	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	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H_2S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
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
MDNRE	Michigan Department of Natural Resources and Environment (Department)	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO_2	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* 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 Natural Resources and Environment, 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 Natural Resources and Environment. **(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
EUTANK1	Oil storage tank	FGFACILITY
EUTANK2	Oil storage tank	FGFACILITY
EUSEPARATOR1	Oil/gas separator	FGFACILITY
EUSEPARATOR2	Oil/gas separator	FGFACILITY

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGFACILITY	Oil production facility referred to as the Walat A-6-27 and A-11-22 Tank Battery and Flare. All process equipment source-wide including equipment covered by other permits, grand-fathered equipment, exempt equipment and control equipment.	EUTANK1 EUTANK2 EUSEPARATOR1 EUSEPARATOR2

The following conditions apply to: FGFACILITY

DESCRIPTION: Oil production facility

Emission Units: EUTANK1, EUTANK2, EUSEPARATOR1, EUSEPARATOR2

POLLUTION CONTROL EQUIPMENT: Flare

I. EMISSION LIMITS

1. NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. hydrogen sulfide (CAS No. 7783-06-4)	288 lb	calendar day	FGFACILITY	VI.1. VI.2.	**R 336.1225** **R 336.1901**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGFACILITY to process any wells other than the following without prior notification to and approval by the AQD:
   a) Walat Farms et al 6-27
   b) Walat Farms et al 11-22

   Hereinafter referred to as "the Walat 6 & 11 wells"
   (R 336.1225, R 336.1901)

IV. DESIGN/EQUIPMENT PARAMETERS

1. On and after April 30, 2011**,** 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 off fluid flow into FGFACILITY in the event that the pilot flame is extinguished,. Furthermore, the Walat 6 & 11 wells shall shut down before the pressure reaches a company-determined safety set-point. The permittee shall not resume fluid flow into FGFACILITY unless the flare pilot flame is re-ignited and maintained.

(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)

2. The flare shall be properly engineered. **(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall not operate FGFACILITY unless all emergency relief valves, all storage tanks, 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 336.1901, R 336.1910)**

4. The permittee shall not load out EUTANK1 and/or EUTANK2 unless a vapor return system is installed, maintained and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1702(a), R 336.1901)**

V. TESTING/SAMPLING

1. 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) concentration of hydrogen sulfide in the sour gas going to the flare with the wells pumping – quarterly

   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 District Supervisor for approval. The requested monitoring frequency shall be no less than annual. **(R 336.1225, R 336.1901)**

2. The permittee shall perform the following calculation each calendar month:

   - calculate the mass flow rate of H2S going to the flare each day using all of the following:
     I. the most recent concentration of hydrogen sulfide in the sour gas determined with the wells pumping
     II. the individual daily volume of sour gas going to the flare
     III. the following equation:

   (ft3 sour gas/day)(ft3 H2S/100ft3 sour gas)(#mol H2S/385ft3 H2S)(34# H2S/#mol H2S)= #/day H2S

   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, R 336.1901)**

VII. REPORTING

1. 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:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVFLARE		40	**R 336.1225, R 336.1901**

IX. OTHER REQUIREMENTS

1. NA

Exhibit I

MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
AIR QUALITY DIVISION

March 1, 2011

PERMIT TO INSTALL
6-11

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
Sylvester, Lyle, Doris, Richard L., and Nancy B. 2-36 oil well (Sylvester 2-36)
Off Elmwood Road, Section 36, Township 14N, Range 7E
Wisner Township, Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
P0199

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Natural Resources and Environment. 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: **January 7, 2011**	
DATE PERMIT TO INSTALL APPROVED: **March 1, 2011**	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	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H_2S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
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
MDNRE	Michigan Department of Natural Resources and Environment (Department)	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO_2	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* 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 Natural Resources and Environment, 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 Natural Resources and Environment. **(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
EUTANK	Oil storage tank	FGFACILITY
EUSEPARATOR	Oil/gas separator	FGFACILITY

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGFACILITY	Oil production facility referred to as the Sylvester 2-36 well. All process equipment source-wide including equipment covered by other permits, grand-fathered equipment, exempt equipment and control equipment.	EUTANK EUSEPARATOR

The following conditions apply to: FGFACILITY

DESCRIPTION: Oil production facility

Emission Units: EUTANK, EUSEPARATOR

POLLUTION CONTROL EQUIPMENT: Flare

I. EMISSION LIMITS

1. NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. hydrogen sulfide (CAS No. 7783-06-4)	104 lb	calendar day	FGFACILITY	VI.1. VI.2.	**R 336.1225** **R 336.1901**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGFACILITY to process any wells other than the Sylvester 2-36 well without prior notification to and approval by the AQD.
(R 336.1225, R 336.1901)

IV. DESIGN/EQUIPMENT PARAMETERS

1. On and after April 30, 2011**,** 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 off fluid flow into FGFACILITY in the event that the pilot flame is extinguished,. Furthermore, the Sylvester 2-36 well shall shut down before the pressure reaches a company-determined safety set-point. The permittee shall not resume fluid flow into FGFACILITY unless the flare pilot flame is re-ignited and maintained.

(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)

2. The flare shall be properly engineered. **(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall not operate FGFACILITY unless all emergency relief valves, all storage tanks, 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 336.1901, R 336.1910)**

4. The permittee shall not load out EUTANK unless a vapor return system is installed, maintained and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1702(a), R 336.1901)**

V. TESTING/SAMPLING

1. 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) concentration of hydrogen sulfide in the sour gas going to the flare with the well pumping – quarterly

   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 District Supervisor for approval. The requested monitoring frequency shall be no less than annual. **(R 336.1225, R 336.1901)**

2. The permittee shall perform the following calculation each calendar month:

   - calculate the mass flow rate of H2S going to the flare each 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 individual daily volume of sour gas going to the flare
     III. the following equation:

   (ft3 sour gas/day)(ft3 H2S/100ft3 sour gas)(#mol H2S/385ft3 H2S)(34# H2S/#mol H2S)= #/day H2S

   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, R 336.1901)**

VII. REPORTING

1. 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:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVFLARE		40	**R 336.1225, R 336.1901**

IX. OTHER REQUIREMENTS

1. NA

Exhibit J

MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
AIR QUALITY DIVISION

October 15, 2010

PERMIT TO INSTALL
No. 161-10

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
Leon & Aerial Cosens 4-26
Wisner Township, Michigan 48701

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
P0142

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Natural Resources and Environment. 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: **August 8, 2010**	
DATE PERMIT TO INSTALL APPROVED: **October 15, 2010**	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	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H_2S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
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
MDNRE	Michigan Department of Natural Resources and Environment (Department)	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO_2	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* 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 Natural Resources and Environment, 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 Natural Resources and Environment. **(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
EULEONTANK	Oil storage tank	FGFACILITY
EUCHARLESTANK	Oil storage tank	FGFACILITY
EUSEPARATOR	Oil/gas separator	FGFACILITY

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment, exempt equipment and control equipment.	EULEONTANK, EUCHARLESTANK, EUSEPARATOR

The following conditions apply to: FGFACILITY

DESCRIPTION: Oil production facility

Emission Units: EULEONTANK, EUCHARLESTANK, EUSEPARATOR

POLLUTION CONTROL EQUIPMENT: Flare

I. EMISSION LIMITS

1. NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. hydrogen sulfide (CAS No. 7783-06-4)	70 lb	calendar day	FGFACILITY	VI.1.	**R 336.1225 R 336.1901**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGFACILITY to process wells other than the following without prior notification to and approval by the AQD:
   a) Leon and Aerial Cosens 4-26 well
   b) Charles Cosens 1-26 well
   (R 336.1225, R 336.1901)

2. The permittee shall not pump the Leon and Aerial Cosens 4-26 well for more than 8 hours per calendar day. **(R 336.1225, R 336.1901)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. On and after November 1, 2010 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) In the event that the pilot flame is extinguished, a mechanism shall automatically shut off fluid flow into EUSEPARATOR. Furthermore, the Leon and Aerial Cosens 4-26 well shall shut down before the pressure reaches a company-determined safety set-point. The permittee shall not resume fluid flow into EUSEPARATOR unless the flare pilot flame is re-ignited and maintained.
   (R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)

2. The flare shall be properly engineered. **(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)**

3. On and after November 1, 2010 the permittee shall not operate FGFACILITY unless all emergency relief valves, all storage tanks, 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 336.1901, R 336.1910)**

4. The permittee shall not load out the 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, R 336.1702(a), R 336.1901)**

V. TESTING/SAMPLING

1. 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) Gauge the oil collected in EULEONTANK – at the end of each calendar day after the Leon and Aerial Cosens 4-26 well has stopped pumping
   b) Gas to oil ratio (GOR) - quarterly
   c) concentration of hydrogen sulfide in the sour gas going to the flare with the well pumping – quarterly
   d) each and every time of day that the Leon and Aerial Cosens 4-26 well begins pumping
   e) each and every time of day that the Leon and Aerial Cosens 4-26 well stops pumping

   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 District Supervisor for approval. The requested monitoring frequency shall be no less than annual. **(R 336.1225, R 336.1901)**

2. The permittee shall perform the following calculations at the frequency indicated:

   a) GOR - quarterly
   b) calculate the mass flow rate of H2S going to the flare for 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 - monthly
      II. the individual daily volume of sour gas going to the flare calculated from the following:
         i. most recent GOR
         ii. daily recorded volume of collected oil in EULEONTANK
         iii. the following equation:
         (ft3 sour gas/day)(ft3 H2S/100ft3 sour gas)(#mol H2S/385ft3 H2S)(34# H2S/#mol H2S)= #/day H2S

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, R 336.1901)**

VII. REPORTING

1. 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:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVFLARE	3	40	**R 336.1225, R 336.1901**

IX. OTHER REQUIREMENTS

1. NA

Exhibit K

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

REVISED November 28, 2011
September 6, 2011

PERMIT TO INSTALL
68-11

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
Walat Farms et al A-2-26
Wisner Township, Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
N2259

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: **August 10, 2011**	
DATE PERMIT TO INSTALL APPROVED: **September 6, 2011**	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	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H_2S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
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
MDNRE	Michigan Department of Natural Resources and Environment (Department)	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO_2	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* 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 Natural Resources and Environment, 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 Natural Resources and Environment. **(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
EUCOSENS2-26TANK	Storage tank for oil from the Leon & Aerial Cosens 2-26 oil well	FGFACILITY
EUCOSENS3-26TANK	Storage tank for oil from the Leon & Aerial Cosens 3-26 oil well	FGFACILITY
EUWALAT2-26TANK	Storage tank for oil from the Walat A-2-26 well	FGFACILITY
EUCOSENS2-26SEP	Separator for the Leon & Aerial Cosens 2-26 well.	FGFACILITY
EUCOSENS3-26SEP	Separator for the Leon & Aerial Cosens 3-26 well	FGFACILITY
EUWALAT2-26SEP	Separator for the Walat A-2-26 well.	FGFACILITY

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment, exempt equipment and control equipment.	EUCOSENS2-26TANK EUCOSENS3-26TANK EUWALAT2-26TANK EUCOSENS2-26SEP EUCOSENS2-26SEP EUWALAT2-26SEP

The following conditions apply to: FGFACILITY

DESCRIPTION: Oil production facility

Emission Units: EUCOSENS2-26TANK, EUCOSENS3-26TANK, EUWALAT2-26TANK, EUCOSENS2-26SEP, EUCOSENS3-26SEP, EUWALAT2-26SEP

POLLUTION CONTROL EQUIPMENT: flare

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. hydrogen sulfide (CAS No. 7783-06-4)	216 lb	calendar day	FGFACILITY	VI.1. VI.2.	**R 336.1225** **R 336.1901**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGFACILITY to process any wells other than the following without prior notification to and approval by the AQD:
   a. Walat A-2-26 oil well
   b. Leon & Aerial Cosens 2-26 oil well
   c. Leon & Aerial Cosens 3-26 oil well

   (R 336.1225, R 336.1901)

IV. DESIGN/EQUIPMENT PARAMETERS

1. On and after November 30, 2011, the permittee shall properly operate both 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 off fluid flow into FGFACILITY in the event that the flare pilot flame is extinguished. Furthermore, the three wells authorized in this permit shall shut down before the pressure reaches a company-determined safety set-point. The permittee shall not resume fluid flow into FGFACILITY unless the flare pilot flame is re-ignited and maintained.

   (R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)

2. The flare shall be properly engineered. **(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall not operate FGFACILITY unless all emergency relief valves, all storage tanks, 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 336.1901, R 336.1910)**

4. The permittee shall not load out any of the following tanks unless a vapor return system is installed, maintained and operated in a satisfactory manner:
   (a) EUCOSENS2-26TANK
   (b) EUCOSENS3-26TANK
   (c) EUWALAT2-26TANK

   (R 336.1224, R 336.1225, R 336.1702(a), R 336.1901)

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 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 three wells pumping - quarterly

   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 District Supervisor for approval. The requested monitoring frequency shall be no less than annual. **(R 336.1225, R 336.1901)**

2. The permittee shall calculate the mass flow rate of hydrogen sulfide going to the flare each day using all of the following:

   I. the most recent concentration of hydrogen sulfide in the sour gas determined with the wells pumping
   II. the daily volume of sour gas going to the flare
   III. the following equation:

   (ft3 sour gas/day)(ft3 H2S/100ft3 sour gas)(#mol H2S/385ft3 H2S)(34# H2S/#mol H2S)= #/day H2S

   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, R 336.1901)**

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:

Stack & Vent ID	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVFLARE	40	**R 336.1225, R 336.1901**

IX. OTHER REQUIREMENTS

NA

Exhibit L

MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
AIR QUALITY DIVISION

December 6, 2010

PERMIT TO INSTALL
205-10

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
Rachel T. Beaty 1-30 Oil Well
Akron Township, Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
P0169

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Natural Resources and Environment. 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: **October 15, 2010**	
DATE PERMIT TO INSTALL APPROVED: **December 6, 2010**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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Section **Page**

Common Abbreviations / Acronyms

Common Acronyms		Pollutant/Measurement Abbreviations	
AQD	Air Quality Division	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H_2S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
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
MDNRE	Michigan Department of Natural Resources and Environment (Department)	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO_2	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* 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 Natural Resources and Environment, 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 Natural Resources and Environment. **(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
EUTANK	Oil storage tank	FGFACILITY
EUSEPARATOR	Oil/gas separator	FGFACILITY

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment, exempt equipment and control equipment.	EUTANK EUSEPARATOR

The following conditions apply to: FGFACILITY

DESCRIPTION: Oil production facility

Emission Units: EUTANK, EUSEPARATOR

POLLUTION CONTROL EQUIPMENT: Flare

I. EMISSION LIMITS

1. NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. hydrogen sulfide (CAS No. 7783-06-4)	189 lb	calendar day	FGFACILITY	VI.1.	**R 336.1225 R 336.1901**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGFACILITY to process any well other than the Rachel T. Beaty 1-30 well without prior notification to and approval by the AQD. **(R 336.1225, R 336.1901)**

2. The permittee shall not pump the Rachel T. Beaty 1-30 well for more than 8 hours per calendar day. **(R 336.1225, R 336.1901, 40 CFR 52.21(c) and (d))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. On and after January 15, 2011**,** 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 off fluid flow into FGFACILITY in the event that the pilot flame is extinguished,. Furthermore, the Rachel T. Beaty 1-30 well shall shut down before the pressure reaches a company-determined safety set-point. The permittee shall not resume fluid flow into FGFACILITY unless the flare pilot flame is re-ignited and maintained.
   (R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)

2. The flare shall be properly engineered. **(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall not operate FGFACILITY unless all emergency relief valves, all storage tanks, 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 336.1901, R 336.1910)**

4. The permittee shall not load out EUTANK unless a vapor return system is installed, maintained and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1702(a), R 336.1901)**

V. TESTING/SAMPLING

1. 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) concentration of hydrogen sulfide in the sour gas going to the flare with the well pumping – quarterly
   c) each and every time of day that the Rachel T. Beaty 1-30 well begins pumping
   d) each and every time of day that the Rachel T. Beaty 1-30 well stops pumping

   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 District Supervisor for approval. The requested monitoring frequency shall be no less than annual. **(R 336.1225, R 336.1901)**

2. The permittee shall perform the following calculation each calendar month:

   - calculate the mass flow rate of H2S going to the flare each 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 individual daily volume of sour gas going to the flare
     III. the following equation:

   (ft3 sour gas/day)(ft3 H2S/100ft3 sour gas)(#mol H2S/385ft3 H2S)(34# H2S/#mol H2S)= #/day H2S

   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, R 336.1901)**

VII. REPORTING

1. 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:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVFLARE		40	**R 336.1225, R 336.1901**

IX. OTHER REQUIREMENTS

1. NA

Exhibit M

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

July 12, 2013

PERMIT TO INSTALL
171-11A

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
7829 Cass City Road
Akron, Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
P0388

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: **June 13, 2013**	
DATE PERMIT TO INSTALL APPROVED: **July 12, 2013**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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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_2S	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 48909-7760, 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
EUWALAT4TANK	Storage tank for oil from the Walat A-4-26 well.	FGFACILITY
EUWALAT5TANK	Storage tank for oil from the Walat A-5-26 well.	FGFACILITY
EUWALAT4SEPARATOR	Separator for the Walat A-4-26 well.	FGFACILITY
EUWALAT5SEPARATOR	Separator for the Walat A-5-26 well.	FGFACILITY
EUWASTEWATERTANK	Storage tank for water separated from the oil.	FGFACILITY
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.		

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment, exempt equipment and control equipment.	EUWALAT4TANK EUWALAT5TANK EUWALAT4SEPARATOR EUWALAT5SEPARATOR EUWASTEWATERTANK

The following conditions apply to: FGFACILITY

DESCRIPTION: Oil production facility

Emission Units: EUWALAT4TANK, EUWALAT5TANK, EUWALAT4SEPARATOR, EUWALAT5SEPARATOR, EUWASTEWATERTANK

POLLUTION CONTROL EQUIPMENT: flare

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. hydrogen sulfide (CAS No. 7783-06-4)	100 lb	calendar day	FGFACILITY	SC VI.1 SC VI.2	**R 336.1225** **R 336.1901**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGFACILITY to process any wells other than the following without prior notification to and approval by the AQD:
   a) Walat Farms et al A-4-26
   b) Walat Farms et al A-5-26
   (R 336.1225)

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall properly operate 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 Walat A-4-26 & A-5-26 wells pump jacks by cutting off their electrical power supply in the event that the flare pilot flame is extinguished. The permittee shall not resume fluid flow into FGFACILITY unless the flare pilot flame is re-ignited and maintained.
   (R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, 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 FGFACILITY unless all emergency relief valves, all storage tanks, 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 336.1901, R 336.1910)**

4. The permittee shall not load out the following oil tanks unless a vapor return system is installed, maintained and operated in a satisfactory manner:
   a) EUWALAT4TANK
   b) EUWALAT5TANK
   (R 336.1224, R 336.1225, R 336.1702(a), R 336.1901)

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) concentration of hydrogen sulfide in the sour gas going to the flare with both wells pumping – quarterly

   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 District Supervisor for approval. The requested monitoring frequency shall be no less than annual. **(R 336.1225, R 336.1901)**

2. Each calendar month, the permittee shall calculate the mass flow rate of H2S that went to the flare each day in the previous calendar month.

   All of the following shall be used for the above calculations:

   I. the most recent concentration of hydrogen sulfide in the sour gas determined with the wells pumping
   II. the individual daily volume of sour gas that went to the flare each day
   III. the following equation:

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

   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, R 336.1901)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stack 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		40	**R 336.1225, R 336.1901**

IX. OTHER REQUIREMENTS

NA

Exhibit N

MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
AIR QUALITY DIVISION

March 1, 2011

PERMIT TO INSTALL
7-11

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
George H. & Robert J. Cosens 1-36 oil well
Off Elmwood Road, Section 36, Township 14N, Range 7E
Wisner Township, Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
P0200

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Natural Resources and Environment. 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: **January 7, 2011**	
DATE PERMIT TO INSTALL APPROVED: **March 1, 2011**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

Table of Contents

Section **Page**

Common Abbreviations / Acronyms

Common Acronyms		Pollutant/Measurement Abbreviations	
AQD	Air Quality Division	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H_2S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
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
MDNRE	Michigan Department of Natural Resources and Environment (Department)	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO_2	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* 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 Natural Resources and Environment, 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 Natural Resources and Environment. **(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
EUTANK	Oil storage tank	FGFACILITY
EUSEPARATOR	Oil/gas separator	FGFACILITY

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	**Flexible Group Description**	**Associated Emission Unit IDs**
FGFACILITY	Oil production facility referred to as the George H. & Robert J. Cosens 1-36 well. All process equipment source-wide including equipment covered by other permits, grand-fathered equipment, exempt equipment and control equipment.	EUTANK EUSEPARATOR

The following conditions apply to: FGFACILITY

DESCRIPTION: Oil production facility

Emission Units: EUTANK, EUSEPARATOR

POLLUTION CONTROL EQUIPMENT: Flare

I. EMISSION LIMITS

1. NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. hydrogen sulfide (CAS No. 7783-06-4)	24 lb	calendar day	FGFACILITY	VI.1. VI.2.	**R 336.1225** **R 336.1901**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGFACILITY to process any wells other than the George H. & Robert J. Cosens 1-36 well without prior notification to and approval by the AQD. **(R 336.1225, R 336.1901)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. On and after April 30, 2011**,** the permittee shall properly operate an automatic ignition system at the flare. **(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)**

2. The flare shall be properly engineered. **(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)**

3. The permittee shall not operate FGFACILITY unless all emergency relief valves, all storage tanks, 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 336.1901, R 336.1910)**

4. The permittee shall not load out EUTANK unless a vapor return system is installed, maintained and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1702(a), R 336.1901)**

V. TESTING/SAMPLING

1. 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) Gauge the oil collected in EUTANK – at the end of each calendar day after the George H. & Robert J. Cosens 1-36 well has stopped pumping
   b) Gas to oil ratio (GOR) – quarterly
   c) concentration of hydrogen sulfide in the sour gas going to the flare with the well pumping – quarterly

   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 District Supervisor for approval. The requested monitoring frequency shall be no less than annual. **(R 336.1225, R 336.1901)**

2. The permittee shall perform the following calculations at the frequency indicated:

   a) GOR - quarterly
   b) calculate the mass flow rate of H2S going to the flare for 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 - monthly
      II. the individual daily volume of sour gas going to the flare calculated from the following:
         i. most recent GOR
         ii. daily recorded volume of collected oil in EUTANK
         iii. the following equation:
         (ft3 sour gas/day)(ft3 H2S/100ft3 sour gas)(#mol H2S/385ft3 H2S)(34# H2S/#mol H2S)= #/day H2S

VII. REPORTING

1. 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:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVFLARE		40	**R 336.1225, R 336.1901**

IX. OTHER REQUIREMENTS

1. NA

Exhibit O

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

November 8, 2011

PERMIT TO INSTALL
144-11

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
Sylvester, Lyle, Doris, Richard L., Nancy B 1-25
Wisner Township, Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
P0286

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 19, 2011**	
DATE PERMIT TO INSTALL APPROVED: **November 8, 2011**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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Section **Page**

Common Abbreviations / Acronyms

Common Acronyms		Pollutant/Measurement Abbreviations	
AQD	Air Quality Division	BTU	British Thermal Unit
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H_2S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
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
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than or equal to 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than or equal 2.5 microns diameter
NESHAP	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO_2	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
VE	Visible Emissions		

* 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 48909-7760, 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
EUSYLVESTERTANK	Storage tank for oil from the Sylvester 1-25 oil well	FGFACILITY
EUSEPARATOR	Separator for the Sylvester 1-25 oil well.	FGFACILITY

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment, exempt equipment and control equipment.	EUSYLVESTERTANK EUSEPARATOR

The following conditions apply to: FGFACILITY

DESCRIPTION: Oil production facility

Emission Units: EUSYLVESTERTANK, EUSEPARATOR

POLLUTION CONTROL EQUIPMENT: Flare

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Hydrogen sulfide (CAS No. 7783-06-4)	10 lb	Calendar day	FGFACILITY	VI.1. VI.2.	**R 336.1225** **R 336.1901**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGFACILITY to process any wells other than the Sylvester, Lyle, Doris, Richard L., Nancy B., 1-25 (commonly referred to as the Sylvester 1-25 well) without prior notification to and approval by the AQD. **(R 336.1225, R 336.1901)**

2. The permittee shall not operate FGFACILITY for more than 7 hours per calendar day, nor 2 calendar days per month. **(R 336.1225, R 336.1901, 40 CFR 52.21(c) and (d))**

3. The permittee shall not operate FGFACILITY unless an operator is present and monitoring the flare. A flame must be present on the flare at all times when FGFACILITY is operated and for a minimum of 15 minutes following shut-in of the Sylvester 1-25 well. If the flare flame extinguishes, the operator shall re-ignite the flare as quickly as possible.
(R 336.1225, R 336.1403, R 336.1901)

IV. DESIGN/EQUIPMENT PARAMETERS

1. The flare shall be properly engineered. **(R 336.1224, R 336.1225, R 336.1403, R 336.1702(a), R 336.1901, R 336.1910)**

2. The permittee shall not operate FGFACILITY 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 336.1901, R 336.1910)**

3. On and after November 30, 2011, 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), R 336.1901)

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) Gauge the oil collected in EUSYLVESTERTANK – at the end of each calendar day, after the well has stopped flowing
   b) Gas to oil ratio (GOR) for the well – quarterly
   c) The calendar days each month that the well is operated
   d) Concentration of hydrogen sulfide in the sour gas going to the flare when the well is flowing – quarterly
   e) Each and every time of day that the well begins flowing
   f) Each and every time of day that the well stops flowing

   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 District Supervisor for approval. The requested monitoring frequency shall be no less than annual. **(R 336.1225, R 336.1901)**

2. The permittee shall perform the following calculations at the frequency indicated:
   a) Gas to oil ratio (GOR) for the well- quarterly
   b) calculate 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 flowing
      II. the daily volume of sour gas going to the flare from the well calculated from the following:
         i. The most recent GOR
         ii. The daily recorded volume of collected oil in EUSYLVESTERTANK
         iii. The following equation:
         (ft3 sour gas/day)(ft3 H2S/100ft3 sour gas)(#mol H2S/385ft3 H2S)(34# H2S/#mol H2S)= #/day H2S

   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, R 336.1901)**

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:

Stack & Vent ID	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVFLARE	40	**R 336.1225** **R 336.1901** **R 336.2803** **R 336.2804** **40 CFR 52.21(c) and (d)**

IX. OTHER REQUIREMENTS

NA

Exhibit P

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

February 12, 2014

PERMIT TO INSTALL
1-14

ISSUED TO
Tuscola Energy, Inc.

LOCATED AT
Lavern Cosens 1&2-36
Akron Township, Michigan

IN THE COUNTY OF
Tuscola

STATE REGISTRATION NUMBER
P0493

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: **February 4, 2014**	
DATE PERMIT TO INSTALL APPROVED: **February 12, 2014**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

Table of Contents

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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_2S	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 48909-7760, 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
EUTANK1	Oil storage tank, flare control	FGOILPRODUCTION
EUTANK2	Oil storage tank, flare control	FGOILPRODUCTION
EUSEPARATOR1	oil/gas separator	FGOILPRODUCTION
EUSEPARATOR2	oil/gas separator	FGOILPRODUCTION

FLEXIBLE GROUP SUMMARY TABLE

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

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGOILPRODUCTION	All permitted oil production equipment at the facility. Equipment processes sour crude oil from the Lavern Cosens 1-36 and 2-36 wells, and is controlled by a flare.	EUTANK1 EUTANK2 EUSEPARATOR1 EUSEPARATOR2

The following conditions apply to: FGOILPRODUCTION

DESCRIPTION: All permitted oil production equipment at the facility. Equipment processes sour crude oil from the Lavern Cosens 1-36 and 2-36 wells, and is controlled by a flare.

Flexible Group ID: FGOILPRODUCTION

POLLUTION CONTROL EQUIPMENT: flare

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Hydrogen sulfide (H2S)	27 lb	Calendar day	FGOILPRODUCTION	VI.1. VI.2.	R 336.1225 40 CFR 52.21(c) & (d)

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not use FGOILPRODUCTION to process any wells other than the Lavern Cosens 1-36 and 2-36 without prior notification to and approval by the AQD. [1] **(R 336.1225)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall operate a continuously burning pilot flame at the flare. Pilot fuel shall be only sweet gas. Sweet gas is defined as any gas containing no more than 1 grain of hydrogen sulfide or more than 10 grains of total sulfur per 100 standard cubic feet. **(R 336.1224, R 336.1225, R 336.1403, R 336.1910)**

2. 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)**

3. 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) Gauge the oil collected in EUTANK1 – at the end of each calendar day after the Lavern Cosens 1-36 well has stopped pumping
   b) Gauge the oil collected in EUTANK2 – at the end of each calendar day after the Lavern Cosens 2-36 well has stopped pumping
   c) Gas to oil ratio (GOR) – quarterly
   d) concentration of hydrogen sulfide in the sour gas going to the flare with both wells pumping – quarterly

   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 District Supervisor for approval. The requested monitoring frequency shall be no less than annual. **(R 336.1225, 40 CFR 52.21(c) and (d))**

2. The permittee shall perform the following calculations at the frequency indicated:

   a) GOR - quarterly
   b) calculate the mass flow rate of H2S going to the flare for each calendar day using all of the following:
      I. the most recent concentration of hydrogen sulfide in the sour gas determined with both wells pumping - monthly
      II. the individual daily volume of sour gas going to the flare calculated from the following:
         i. most recent GOR
         ii. summation of the daily recorded volume of oil collected in EUTANK1 and EUTANK2
         iii. the following equation:

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

   (R 336.1225, 40 CFR 52.21(c) and (d))

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 those records on file at a location approved by the District Supervisor and make them available to the department upon request. **(R 336.1225, 40 CFR 52.21(c) and (d))**

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:

Stack & Vent ID	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVFLARE	NA	40[1]	R 336.1225

IX. OTHER REQUIREMENTS

NA

Footnotes:

[1]This condition is state only enforceable and was established pursuant to Rule 201(1)(b).