MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY AIR QUALITY DIVISION

June 23, 2021

PERMIT TO INSTALL 116-20

ISSUED TO
Ottawa County Farms Landfill

LOCATED AT 15550 68th Avenue Coopersville, Michigan 49404

> IN THE COUNTY OF Ottawa

STATE REGISTRATION NUMBER N3294

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environment, Great Lakes, and Energy. 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:			
April 12, 2021			
DATE PERMIT TO INSTALL APPROVED:	SIGNATURE:		
June 23, 2021			
,			
DATE PERMIT VOIDED:	SIGNATURE:		
DATE PERMIT REVOKED:	SIGNATURE:		

PERMIT TO INSTALL

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COMMON ACRONYMS

AQD Air Quality Division

BACT Best Available Control Technology

CAA Clean Air Act

CAM Compliance Assurance Monitoring
CEMS Continuous Emission Monitoring System

CFR Code of Federal Regulations

COMS Continuous Opacity Monitoring System

Department/department/EGLE Michigan Department of Environment, Great Lakes, and Energy

EU Emission Unit FG Flexible Group

GACS Gallons of Applied Coating Solids

GC General Condition
GHGs Greenhouse Gases

HVLP High Volume Low Pressure*

ID Identification

IRSLInitial Risk Screening LevelITSLInitial Threshold Screening LevelLAERLowest Achievable Emission RateMACTMaximum Achievable Control TechnologyMAERSMichigan Air Emissions Reporting System

MAP Malfunction Abatement Plan MSDS Material Safety Data Sheet

NA Not Applicable

NAAQS National Ambient Air Quality Standards

NESHAP National Emission Standard for Hazardous Air Pollutants

NSPS New Source Performance Standards

NSR New Source Review
PS Performance Specification

PSD Prevention of Significant Deterioration

PTE Permanent Total Enclosure

PTI Permit to Install

RACT Reasonable Available Control Technology

ROP Renewable Operating Permit

SC Special Condition

SCR Selective Catalytic Reduction
SNCR Selective Non-Catalytic Reduction

SRN State Registration Number

TBD To Be Determined

TEQ Toxicity Equivalence Quotient

USEPA/EPA United States Environmental Protection Agency

VE Visible Emissions

^{*}For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm Actual cubic feet per minute

BTU British Thermal Unit °C Degrees Celsius CO Carbon Monoxide

CO2e Carbon Dioxide Equivalent dscf Dry standard cubic foot dscm Dry standard cubic meter Pegrees Fahrenheit

gr Grains

HAP Hazardous Air Pollutant

Hg Mercury hr Hour

HP Horsepower Hydrogen Sulfide

kW Kilowatt

lb Pound

m Meter

mg Milligram

mm Millimeter

MM Million

MW Megawatts

NMOC Non-Methane Organic Compounds

NO_x Oxides of Nitrogen

ng Nanogram

PM Particulate Matter

PM10 Particulate Matter equal to or less than 10 microns in diameter PM2.5 Particulate Matter equal to or less than 2.5 microns in diameter

pph Pounds per hour ppm Parts per million

ppmv Parts per million by volume
ppmw Parts per million by weight
psia Pounds per square inch absolute
psig Pounds per square inch gauge

scf Standard cubic feet

sec Seconds SO₂ Sulfur Dioxide

TAC Toxic Air Contaminant

Temp Temperature

THC Total Hydrocarbons tpy Tons per year Microgram

μm Micrometer or Micron

VOC Volatile Organic Compounds

yr Year

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 Environment, Great Lakes, and Energy, 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 Rule 210 (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 Rule 219 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 Rule 219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy. (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 condition 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 Rule 301, 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 Rule 303 (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 Rule 370(2). (R 336.1370)
- 13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. (R 336.2001)

EMISSION UNIT 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 (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EUENCLOSEDFLARE	An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. The enclosed flare is the control device for the landfill gas collection system.	07-28-2009	FGENCLOSEDFLARE- XXX FGENCLOSEDFLARE- WWW FGLANDFILL-XXX FGLANDFILL-WWW

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 336.1291.

EUENCLOSEDFLARE EMISSION UNIT CONDITIONS

DESCRIPTION

An enclosed flare is an enclosed combustor or firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. The enclosed flare is the control device for the landfill gas collection system.

POLLUTION CONTROL EQUIPMENT

NA

I. <u>EMISSION LIMIT(S)</u>

		Time Period / Operating		Monitoring / Testing	Underlying Applicable
Pollutant	Limit	Scenario	Equipment	Method	Requirements
1. CO	0.20 lbs/MMBTU	Hourly	EUENCLOSEDFLARE		R 336.1205, R 336.2804, 40 CFR 52.21(d)
2. CO	65.7 tpy*	12-month rolling time period as determined at the end of each calendar month	EUENCLOSEDFLARE	SC VI.1	R 336.1205(1)(a) & (3)
3. NMOC	NMOC by 98 weight-percent or reduce the outlet NMOC concentration to less than 20 ppmv, dry basis as hexane at 3% oxygen	Daily	EUENCLOSEDFLARE	SC V.2	40 CFR 60.762(b)(2)(iii)(B)
4. SO ₂	12.1 pph**	Hourly	EUENCLOSEDFLARE	SC V.3	R 336.2803, R 336.2804
5. SO ₂	35.9 tpy	12-month rolling time period as determined at the end of each calendar month	EUENCLOSEDFLARE	SC V.3, SC VI.6	R 336.1205(1)(a) & (3)

^{*} CO Emission rate based upon the enclosed flare's landfill gas consumption rate of 3700 scfm and an average BTU content of 500 BTU/cubic foot of landfill gas.

^{**} SO₂ Emission rate based upon the enclosed flare's landfill gas consumption rate of 3700 scfm, an average BTU content of 500 BTU/cubic foot of landfill gas, and a 305 ppm sulfur concentration in the landfill gas.

II. MATERIAL LIMIT(S)

		Time Period / Operating		Monitoring / Testing	Applicable
Material	Limit	Scenario	Equipment	Method	Requirements
1. Landfill Gas	1,419	12-month rolling	EUENCLOSEDFLARE	SC VI.4,	R 336.1205(1)(a) & (3)
	MMcf/yr	time period as		SC VI.5	
		determined at the			
		end of each			
		calendar month			

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall only burn landfill gas in EUENCLOSEDFLARE. (R 336.1205, R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))
- 2. The permittee shall operate the enclosed flare at all times when the collected gas is routed to it. (40 CFR 60.763(f))
- 3. The permittee shall operate control system such that all collected gases are vented to a control system designed and operated in accordance 40 CFR 60.762(b)(2)(iii). (40 CFR 60.762(b)(2)(iii)(B))
- 4. The enclosed flare shall be operated within the parameter ranges established during the most recent performance test in compliance with 40 CFR 60.764(d). (40 CFR 60.762(b)(2)(iii)(B)(2))
- 5. In the event the collection or control system is not operating, the gas mover system must be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere must be closed within 1 hour of the collection or control system not operating. (R 336.1911, 40 CFR 60.763(e))

IV. DESIGN/EQUIPMENT PARAMETER(S)

- 1. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment:
 - a. A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of $\pm 1\%$ of the temperature being measured expressed in degrees Celsius or ± 0.5 °C, whichever is greater. (40 CFR 60.766(b)(1))
 - b. A device that records flow to the control device and bypass of the control device (if applicable). (40 CFR 60.766(b)(2))

V. TESTING/SAMPLING

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

1. Within 180 days of permit issuance and once every 5 years thereafter, the permittee shall verify CO emission rates from EUENCLOSEDFLARE, by testing at owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in the table below:

Pollutant	Test Method Reference		
CO	40 CFR Part 60, Appendix A		

An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. (R 336.1205, R 336.2001, R 336.2001, R 336.2004, R 336.2803, R 336.2804)

- 2. The permittee shall verify the reduction efficiency for NMOC or the NMOC parts per million outlet concentration from EUENCLOSEDFLARE, as required by 40 CFR 60.752(b)(2)(iii)(B) using test methods as specified in 40 CFR 60.754(d)) by testing at owner's expense, in accordance with Department requirements. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. (R 336.2001, R 336.2003, R 336.2004, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 60.754(d))
- 3. The permittee shall verify the hydrogen sulfide (H₂S) or total reduced sulfur (TRS) content of the landfill gas burned in EUENCLOSEDFLARE monthly by gas sampling (e.g. Draeger Tubes, Tedlar Sampling Bags, etc.) and semi-annually by gas sampling using an EPA approved method and laboratory analysis, at the owner's expense, in accordance with Department requirements. If at any time, the H₂S (TRS equivalent) concentration of the landfill gas sample exceeds 305 ppmv, the permittee shall sample and record the H₂S (TRS equivalent) concentration of the landfill gas weekly and shall review all operating and maintenance activities for the landfill gas collection and treatment system along with keeping records of corrective actions taken. Once the H₂S (TRS equivalent) concentration of the landfill gas (determined from 4 weekly) is maintained below 305 ppmv for one month after an exceedance, the permittee may resume monthly monitoring and recordkeeping. No less than 30 days prior to the initial test for each type of gas sampling, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to the first test for each type of gas sampling. Thereafter, the permittee shall submit a test plan upon the request of the AQD District Supervisor or if any changes are made to the approved testing protocol. The permittee shall keep all records on file at the facility and make them available to the Department upon request. R 336.1205(3), R 336.1225, R 336.2001, R 336.2003, R 336.2004)

VI. MONITORING/RECORDKEEPING

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

- 1. The permittee shall keep monthly records of the operating parameters specified to be monitored in 40 CFR 60.766(b). The records shall include:
 - a. Continuous records of the indication of flow and gas flow rate to the control device. (40 CFR 60.768(b)(4))
 - b. The indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines. (40 CFR 60.766(b)(2)(ii))
- 2. The permittee shall keep monthly, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.
 - a. The average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test. (40 CFR 60.766(b)(2)(i))
 - b. All 3-hour periods of operation during which the average combustion temperature was more than 28°C (82°F) below the average combustion temperature during the most recent performance test at which compliance with 40 CFR 60.762(b)(2)(iii) was determined. (40 CFR 60.768(c)(1)(i))
- 3. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period CO emission calculation records for EUENCLOSEDFLARE, as required by SC I.2. (R 336.1205, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))
- The permittee shall install, calibrate, and maintain a gas flow measuring device that shall continuously record the total actual flow of landfill gas to EUENCLOSEDFLARE. (R 336.1205, 40 CFR 60.756(b), 40 CFR 63.1955(a))
- 5. The permittee shall monitor and record on a monthly and 12-month rolling basis the landfill gas usage rate and the average Btu content of the landfill gas burned in EUENCLOSEDFLARE. (R 336.1205, 40 CFR 52.21(d))

- 6. The permittee shall calculate and record the SO₂ emission rates from EUENCLOSEDFLARE using the equation in APPENDIX 1, on a monthly and 12-month rolling time period. The calculations shall utilize, at a minimum, weekly gas sampling data collected in SC V.3, the monthly gas usage, monthly hours of operation, and the ratio of total sulfur to sulfur as H₂S from the most recent laboratory test. All records shall be kept on file at the facility and make them available to the Department upon request. (R 336.1205(3)), R 336.2803, R 336.2804)
- 7. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame. (R 336.1910)

VII. REPORTING

- 1. The permittee shall submit to the appropriate AQD District Office semiannual reports for the control system. Reports shall be received by appropriate AQD District Office by March 15 for reporting period January 1 to December 31. For enclosed combustion devices, reportable exceedances are defined under 40 CFR 60.768(c). The report shall include the following:
 - a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.766(b). (40 CFR 60.767(g)(1))
 - b. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow. (40 CFR 60.767(g)(2))
 - c. Description and duration of all periods when the control device was not operating and length of time the control device was not operating. (40 CFR 60.767(g)(3))
- 2. The permittee shall submit an equipment removal report to the AQD 30 days prior to removal or cessation of operation of the open flare. (40 CFR 60.767(f))
 - a. The equipment removal report shall contain all of the following items:
 - i. A copy of the closure report submitted in accordance with 40 CFR 60.767; (40 CFR 60.767(f)(1)(i))
 - ii. A copy of the initial performance test report demonstrating that the 15-year minimum control period has expired; (40 CFR 60.767(f)(1)(ii))
 - iii. Dated copies of 3 successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year; (40 CFR 60.767(f)(1)(iii))
 - iv. Additional information may be requested as may be necessary to verify that all of the conditions for removal in 40 CFR 60.762(b)(2)(v) have been met. (40 CFR 60.767(f)(2))
- 3. The permittee shall submit any performance test reports to the AQD Technical Programs Unit and District Office, in a format approved by the AQD. (R 336.2001(5))
- 4. Within 60 days after the date of completing each performance test (as defined in 40 CFR 60.8), the owner or operator must submit the results of each performance test for data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (https://www3.epa.gov/ttn/chief/ert/ert_info.html) at the time of the test. The permittee shall submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI can be accessed through the EPA's Central Data Exchange (CDX) (https://cdx.epa.gov/). (40 CFR 60.767(i))

VIII. STACK/VENT RESTRICTION(S)

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 Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVENCLOSEDFLARE	132	52	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

- 1. The permittee shall comply with all applicable provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subparts A and XXX. (40 CFR 60, Subparts A and XXX)
- 2. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 63 Subparts A and AAAA. (40 CFR 63, Subparts A and AAAA)

Footnotes:

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

APPENDIX 1 Procedures for Calculating SO₂ Emissions

Calculation for Monthly SO₂ Emissions using gas sampling:

The following calculation for SO_2 emissions shall utilize the monthly average of the weekly (or daily, if required) H_2S concentration measurements from gas sample data collected, the monthly gas usage, monthly hours of operation, and the ratio of total sulfur to sulfur as H_2S from the most recent laboratory test. **Note**: The TRS to H_2S ratio must be used in the calculation when a Draeger Tube or other sampling method does not measure the total sulfur in the gas.

SO2 Emissions (tons per month)

$$=\frac{(\textit{X}\;scf\;\;H_2S)}{\textit{MMcf}\;\textit{LFG}}\times\frac{1.1733\;mols\;S}{1\;ft^3\;H_2S}\times\frac{34.08\;grams\;H_2S}{1\;mol\;S}\times\frac{1\;lb}{453.59\;grams}\times\frac{1\;ton}{2,000\;lbs}\times\frac{1.88\;SO_2}{H_2S}MW\times\textit{LFG}\;\;\times\textit{Ratio}\frac{TRS}{H_2S}$$

Where

 $\mathbf{X} = ppm$ sulfur content, as H_2S

S = Sulfur

MW = Molecular Weight of SO₂ to H₂S

LFG = Actual Landfill Gas Usage per month (ft³/month)

Ratio TRS to H_2S = Determined from most recent laboratory test