

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

April 15, 2022

**PERMIT TO INSTALL**  
46-22

**ISSUED TO**  
Canton Renewables, LLC

**LOCATED AT**  
4345 South Lilley Road  
Canton Township, Michigan 48188

**IN THE COUNTY OF**  
Wayne

**STATE REGISTRATION NUMBER**  
P0270

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: <b>March 30, 2022</b>	
DATE PERMIT TO INSTALL APPROVED: <b>April 15, 2022</b>	SIGNATURE:
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
IRSL	Initial Risk Screening Level
ITSL	Initial Threshold Screening Level
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MAERS	Michigan 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
CO <sub>2</sub> e	Carbon Dioxide Equivalent
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
°F	Degrees Fahrenheit
gr	Grains
HAP	Hazardous Air Pollutant
Hg	Mercury
hr	Hour
HP	Horsepower
H <sub>2</sub> S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO <sub>x</sub>	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
SO <sub>2</sub>	Sulfur Dioxide
TAC	Toxic Air Contaminant
Temp	Temperature
THC	Total Hydrocarbons
tpy	Tons per year
µg	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.

<b>Emission Unit ID</b>	<b>Emission Unit Description (Including Process Equipment &amp; Control Device(s))</b>	<b>Installation Date / Modification Date</b>	<b>Flexible Group ID</b>
EUOPENFLARE	A 4,200 standard cubic feet per minute (scfm) open flare used to control emissions from High BTU landfill gas compression and treatment plant.	8/31/2011 12/2020	FGLFGPLANT
EURTO	A 4,200 scfm regenerative thermal oxidizer (RTO) used to control emissions from High BTU landfill gas compression and treatment plant.	8/31/2011 12/2020	FGLFGPLANT
EUTRO	A 3,200 scfm thermal recuperative oxidizer (TRO) used to control emissions from High BTU landfill gas compression and treatment plant.	TBD	FGLFGPLANT

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.

## **EUOPENFLARE EMISSION UNIT CONDITIONS**

### **DESCRIPTION**

An open flare with a design capacity of 4,200 standard cubic feet per minute (scfm) used to control emissions from the High BTU landfill gas compression and treatment plant (FGLFGPLANT).

**Flexible Group ID:** FGLFGPLANT

### **POLLUTION CONTROL EQUIPMENT**

NA

#### **I. EMISSION LIMIT(S)**

1. The permittee shall operate EUOPENFLARE with no visible emissions, as determined by the methods specified in 40 CFR 60.18(f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. **(R 336.1301, 40 CFR 60.18(c)(1))**

#### **II. MATERIAL LIMIT(S)**

1. The permittee shall only burn desulfurized, treated landfill gas or off-spec product gases from FGLFGPLANT in EUOPENFLARE. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702, 40 CFR 52.21(c) & (d))**

#### **III. PROCESS/OPERATIONAL RESTRICTION(S)**

1. The permittee shall not burn more than 115,647.6 MMBTU/year of desulfurized treated landfill gas and/or off-spec product gases from FGLFGPLANT in EUOPENFLARE based on a 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702, 40 CFR 52.21(c) & (d))**
2. The permittee shall operate EUOPENFLARE at all times when the product gases are vented to EUOPENFLARE. **(40 CFR 60.18(e))**
3. At all times, the permittee must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. **(40 CFR 63.1955(c))**

#### **IV. DESIGN/EQUIPMENT PARAMETER(S)**

1. 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 for EUOPENFLARE. **(40 CFR 60.18(f)(2), 40 CFR 63.11(b)(5), 40 CFR 63.1961(c)(1))**
2. The permittee must install, calibrate, maintain, and operate according to the manufacturer's specifications, a device that records flow to or bypass of the flare (if applicable) at least every 15 minutes. **(40 CFR 63.1961(c)(2))**
3. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame. **(40 CFR 60.18(f)(2))**
4. The nameplate capacity of EUOPENFLARE shall not exceed 4,200 scfm, as certified by the equipment manufacturer. **(R 336.1225, R 336.1702(a))**

**V. TESTING/SAMPLING**

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

1. The permittee must verify visible emissions from EUOPENFLARE, by testing at owner's expense, in accordance with Department requirements. Testing must be performed, every five years from the date of the last test, using approved USEPA Method 22 listed in 40 CFR 60, Appendix A. No less than 30 days prior to testing, the permittee must submit a complete test plan to the appropriate AQD District Office. The AQD must approve the final plan prior to testing. The permittee must submit a complete report of the test results to the appropriate AQD District Office within 60 days following the last date of the test. **(R 336.2001, R 336.2003, R 336.2004, 40 CFR 63.11(b)(4))**
2. The permittee must verify, once every five years from the date of the last test, the net heating value of the gas being combusted and the exit velocity from EUOPENFLARE must be calculated and recorded using the equation provided in 40 CFR Part 63 Subpart A. **(40 CFR 63.11(b)(6))**

**VI. MONITORING/RECORDKEEPING**

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

1. The permittee must maintain records regarding the flare type (i.e., steam-assisted, air-assisted, or non-assisted), all visible emission readings, heat content determination made during the performance test, continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame or the flare flame is absent. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, 40 CFR 63.1983(b)(4))**
2. The permittee shall calculate and keep, in a satisfactory manner, a record of the heat input on a monthly and 12-month rolling time period basis as determined at the end of each calendar month for EUOPENFLARE. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702, 40 CFR 52.21(c) & (d))**

**VII. REPORTING**

1. The permittee shall submit any performance test reports and all other reports required by 40 CFR Part 63, Subpart AAAA to the appropriate AQD District Office, in a format approved by the appropriate AQD District Supervisor. **(R 336.2001(5))**

**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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter / Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SVOPENFLARE	16	45	R 336.1225, 40 CFR 52.21(c) & (d)

**IX. OTHER REQUIREMENT(S)**

1. The permittee shall comply with all applicable provisions of 40 CFR Part 62 Subpart A and OOO, "Federal Plan Requirements for Municipal Solid Waste Landfills", as they apply to EUOPENFLARE. **(40 CFR Part 62 Subpart A and OOO)**
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, "National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills", as they apply to EUOPENFLARE. **(40 CFR Part 63 Subpart A and AAAA)**

**EURTO  
 EMISSION UNIT CONDITIONS**

**DESCRIPTION**

A 4,200 scfm regenerative thermal oxidizer (RTO) used to control emissions from High BTU landfill gas compression and treatment plant.

**Flexible Group ID:** FGLFGPLANT

**POLLUTION CONTROL EQUIPMENT**

NA

**I. EMISSION LIMIT(S)**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NMOC	20 ppmv dry as hexane at 3% oxygen  -OR- 98% by weight reduction or more	Hourly	EURTO	SC V.1, SC V.2	40 CFR 63.1959(b)(2)(iii)(B)

**II. MATERIAL LIMIT(S)**

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Primary tail gas combusted	2,102.4 MMscf/year	12-month rolling time period as determined at the end of each calendar month	EURTO	SC VI.3, SC VI.5	R 336.1205(1)(a) & (3), R 336.1225

**III. PROCESS/OPERATIONAL RESTRICTION(S)**

1. The permittee shall not operate FGLFGPLANT unless EURTO is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of EURTO includes maintaining a minimum combustion chamber temperature of 1400 °F and a minimum retention time of 0.5 seconds. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910)**
2. The permittee must operate EURTO at all times when the collected gas is routed to it. **(40 CFR 63.1958(f))**
3. The permittee must operate EURTO within the parameter ranges established during the most recent performance test in compliance with 40 CFR 63.1959(d). **(40 CFR 63.1959(b)(2)(iii)(B)(2))**

4. At all times, the permittee must operate and maintain EURTO, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. **(40 CFR 63.1955(c))**

#### **IV. DESIGN/EQUIPMENT PARAMETER(S)**

1. The permittee must install, calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment for EURTO:
  - a. A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of  $\pm 1$  percent of the temperature being measured expressed in degrees Celsius or  $\pm 0.5$  degrees Celsius, whichever is greater. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910, 40 CFR 63.1961(b)(1))**
  - b. A device that records flow to the control device and bypass of the control device (if applicable) at least every 15 minutes. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910, 40 CFR 63.1961(b)(2))**
2. The nameplate capacity of EURTO shall not exceed 4,200 scfm, as certified by the equipment manufacturer. **(R 336.1225, R 336.1702(a))**

#### **V. TESTING/SAMPLING**

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

1. The permittee must verify the NMOC weight-percent efficiency or ppmv outlet concentration level from EURTO, by testing at owner's expense, in accordance with Department requirements. Testing must be performed using an approved USEPA method listed in 40 CFR 63.1959(d). No less than 30 days prior to testing, the permittee must submit a complete test plan to the AQD Technical Programs Unit and the appropriate District Office. The AQD must approve the final plan prior to testing. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and the appropriate District Office within 60 days following the last date of the test. **(R 336.2001, R 336.2003, R 336.2004, 40 CFR 63.1959(d))**
2. The permittee must verify the NMOC weight-percent efficiency or ppmv outlet concentration level from EURTO at a minimum every five years from the date of the last test. **(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 monitor and record, in a satisfactory manner, the temperature in the combustion chamber of EURTO, on a continuous basis, during operation of FGLFGPLANT. Temperature data recording shall consist of measurements made at equally spaced intervals, not to exceed 15 minutes per interval. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910, 40 CFR 63.1983(b)(2)(i))**
2. If the measured operating temperature of EURTO falls below 1400°F during operation of FGLFGPLANT, the permittee may demonstrate compliance based upon a three-hour average temperature, by calculating the average operating temperature for each three-hour period which includes one or more temperature readings below 1400°F. The permittee shall keep all records and calculations on file and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910, 40 CFR 63.1983(c)(1)(i))**
3. The permittee shall continuously monitor and record, in a satisfactory manner acceptable to the AQD District Supervisor, the hours of operation, volumetric flow rate and the methane content of the gas burned in EURTO. This information shall be used to calculate the annual heat input. 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 336.1224, R 336.1225, R 336.1901, 40 CFR 52.21(c) & (d), 40 CFR 63.1961(b)(2)(i))**
4. The permittee shall maintain a record of gas sampling analysis for EURTO, in a satisfactory manner acceptable to the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205(3), 40 CFR 52.21(c) & (d))**
5. The permittee shall calculate and keep, in a satisfactory manner, a record of the primary tail gas usage, in MMscf, on a monthly and 12-month rolling time period basis as determined at the end of each calendar month

for EURTO. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1702, R 336.2803, R 336.2804)**

**VII. REPORTING**

1. The permittee must submit reportable exceedances for EURTO as defined under 40 CFR 63.1961(b). The reports must include the following:
  - a) 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 63.1981(h)(2))**
  - b) 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 63.1981(h)(3))**
  
2. The permittee must submit reports electronically for EURTO according to the following:
  - a) Within 60 days after the date of completing each performance test required, submit the results of the performance test with data collected using test methods supported by the USEPA's Electronic Reporting Tool (ERT) as listed on the USEPA's ERT website (<https://www.epa.gov/technical-air-pollution-resources>). Submit the results of the performance test to the USEPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through the USEPA's CDX (<https://cdx.epa.gov/>). The data must be submitted in a file format generated through the use of the USEPA's ERT. Alternatively, submit an electronic file consistent with the extensible markup language (XML) schema listed on the USEPA's ERT website. **(40 CFR 63.1981(l)(1)(i))**
  - b) For data collected using test methods that are not supported by the USEPA's ERT as listed on the USEPA's ERT website, the results of the performance test must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the USEPA's ERT website. Submit the ERT generated package or alternative file to the USEPA via CEDRI. **(40 CFR 63.1981(l)(1)(ii))**
  - c) Each permittee must submit reports to the USEPA via CEDRI. CEDRI can be accessed through the USEPA's CDX. The permittee must use the appropriate electronic report in CEDRI for this subpart or an alternate electronic file format consistent with the XML schema listed on the CEDRI website (<https://www.epa.gov/chief>). Once the spreadsheet template upload/forms for the reports have been available in CEDRI for 90 days, the permittee must begin submitting all subsequent reports via CEDRI. The reports must be submitted by the deadlines specified in this subpart, regardless of the method in which the reports are submitted. The semiannual reports should be electronically reported as a spreadsheet template upload/form to CEDRI. If the reporting forms specific to this subpart are not available in CEDRI at the time that the reports are due, the permittee must submit the reports to the USEPA at the appropriate address listed in 40 CFR 63.13. **(40 CFR 63.1981(l)(2))**
  
3. The permittee shall submit any performance test reports and all other reports required by 40 CFR Part 63, Subpart AAAA to the appropriate AQD District Office, in a format approved by the appropriate AQD District Supervisor. **(R 336.2001(5))**

**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 Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVRTO	24	35	R 336.1225, 40 CFR 52.21(c) & (d)

**IX. OTHER REQUIREMENT(S)**

1. The permittee shall comply with all applicable provisions of 40 CFR Part 62 Subpart A and OOO, "Federal Plan Requirements for Municipal Solid Waste Landfills", as they apply to EURTO. **(40 CFR Part 62 Subpart A and OOO)**
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, "National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills", as they apply to EURTO. **(40 CFR Part 63 Subpart A and AAAA)**

**Footnotes:**

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

## EUTRO EMISSION UNIT CONDITIONS

### DESCRIPTION

A 3,200 scfm thermal recuperative oxidizer (TRO) used to control emissions from High BTU landfill gas compression and treatment plant.

**Flexible Group ID:** EUTRO

### POLLUTION CONTROL EQUIPMENT

NA

### I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NMOC	20 ppmv dry as hexane at 3% oxygen  -OR- 98% by weight reduction or more	Hourly	EUTRO	SC V.1, SC V.2	40 CFR 63.1959(b)(2)(iii)(B)

### II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Secondary tail gas combusted	398 MMscf/year	12-month rolling time period as determined at the end of each calendar month	EUTRO	SC VI.3, SC VI.7	R 336.1205(1)(a) & (3), R 336.1225
2. Natural gas combusted	71 MMscf/year	12-month rolling time period as determined at the end of each calendar month	EUTRO	SC VI.3, SC VI.7	R 336.1205(1)(a) & (3), R 336.1225

### III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall not operate FGLFGPLANT unless EUTRO is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of EUTRO includes maintaining a minimum combustion chamber temperature of 1400 °F and a minimum retention time of 0.5 seconds. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910)**
- The permittee must operate EUTRO at all times when the collected gas is routed to it. **(40 CFR 63.1958(f))**
- The permittee must operate EUTRO within the parameter ranges established during the most recent performance test in compliance with 40 CFR 63.1959(d). **(40 CFR 63.1959(b)(2)(iii)(B)(2))**

4. At all times, the permittee must operate and maintain EUTRO, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. **(40 CFR 63.1955(c))**

#### **IV. DESIGN/EQUIPMENT PARAMETER(S)**

1. The permittee must install, calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment for EUTRO:
  - a) A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of  $\pm 1$  percent of the temperature being measured expressed in degrees Celsius or  $\pm 0.5$  degrees Celsius, whichever is greater. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910, 40 CFR 63.1961(b)(1))**
  - b) A device that records flow to the control device and bypass of the control device (if applicable) at least every 15 minutes. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910, 40 CFR 63.1961(b)(2))**
2. The nameplate capacity of EUTRO shall not exceed 3,200 scfm, as certified by the equipment manufacturer. **(R 336.1225, R 336.1702(a))**

#### **V. TESTING/SAMPLING**

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

1. The permittee must verify the NMOC weight-percent efficiency or ppmv outlet concentration level from EUTRO, by testing at owner's expense, in accordance with Department requirements. Testing must be performed using an approved USEPA method listed in 40 CFR 63.1959(d). No less than 30 days prior to testing, the permittee must submit a complete test plan to the AQD Technical Programs Unit and the appropriate District Office. The AQD must approve the final plan prior to testing. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and the appropriate District Office within 60 days following the last date of the test. **(R 336.2001, R 336.2003, R 336.2004, 40 CFR 63.1959(d))**
2. The permittee must verify the NMOC weight-percent efficiency or ppmv outlet concentration level from EUTRO at a minimum every five years from the date of the last test. **(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 monitor and record, in a satisfactory manner, the temperature in the combustion chamber of EUTRO, on a continuous basis, during operation of FGLFGPLANT. Temperature data recording shall consist of measurements made at equally spaced intervals, not to exceed 15 minutes per interval. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910, 40 CFR 63.1983(b)(2)(i))**
2. If the measured operating temperature of EUTRO falls below 1400°F during operation of FGLFGPLANT, the permittee may demonstrate compliance based upon a three-hour average temperature, by calculating the average operating temperature for each three-hour period which includes one or more temperature readings below 1400°F. The permittee shall keep all records and calculations on file and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1702, R 336.1910, 40 CFR 63.1983(c)(1)(i))**
3. The permittee shall continuously monitor and record, in a satisfactory manner acceptable to the AQD District Supervisor, the hours of operation, volumetric flow rate and the methane content of the gas burned in EUTRO. This information shall be used to calculate the annual heat input. 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 336.1224, R 336.1225, R 336.1901, 40 CFR 52.21(c) & (d), 40 CFR 63.1961(b)(2)(i))**
4. The permittee shall calculate and keep, in a satisfactory manner, a record of the secondary tail gas and natural gas usage, in MMscf, on a monthly and 12-month rolling time period basis as determined at the end of each calendar month for EUTRO. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1702, R 336.2803, R 336.2804)**

## **VII. REPORTING**

1. The permittee must submit reportable exceedances for EUTRO as defined under 40 CFR 63.1961(b). The reports must include the following:
  - a) 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 63.1981(h)(2))**
  - b) 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 63.1981(h)(3))**
  
2. The permittee must submit reports electronically for EUTRO according to the following:
  - a) Within 60 days after the date of completing each performance test required, submit the results of the performance test with data collected using test methods supported by the USEPA's Electronic Reporting Tool (ERT) as listed on the USEPA's ERT website (<https://www.epa.gov/technical-air-pollution-resources>). Submit the results of the performance test to the USEPA via the Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed through the USEPA's CDX (<https://cdx.epa.gov/>). The data must be submitted in a file format generated through the use of the USEPA's ERT. Alternatively, submit an electronic file consistent with the extensible markup language (XML) schema listed on the USEPA's ERT website. **(40 CFR 63.1981(l)(1)(i))**
  - b) For data collected using test methods that are not supported by the USEPA's ERT as listed on the USEPA's ERT website, the results of the performance test must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the USEPA's ERT website. Submit the ERT generated package or alternative file to the USEPA via CEDRI. **(40 CFR 63.1981(l)(1)(ii))**
  - c) Each permittee must submit reports to the USEPA via CEDRI. CEDRI can be accessed through the USEPA's CDX. The permittee must use the appropriate electronic report in CEDRI for this subpart or an alternate electronic file format consistent with the XML schema listed on the CEDRI website (<https://www.epa.gov/chief>). Once the spreadsheet template upload/forms for the reports have been available in CEDRI for 90 days, the permittee must begin submitting all subsequent reports via CEDRI. The reports must be submitted by the deadlines specified in this subpart, regardless of the method in which the reports are submitted. The semiannual reports should be electronically reported as a spreadsheet template upload/form to CEDRI. If the reporting forms specific to this subpart are not available in CEDRI at the time that the reports are due, the permittee must submit the reports to the USEPA at the appropriate address listed in 40 CFR 63.13. **(40 CFR 63.1981(l)(2))**
  
3. The permittee shall submit any performance test reports and all other reports required by 40 CFR Part 63, Subpart AAAA to the appropriate AQD District Office, in a format approved by the appropriate AQD District Supervisor. **(R 336.2001(5))**

## **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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter/Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SVTRO	38	60	R 336.1225, 40 CFR 52.21(c) & (d)

**IX. OTHER REQUIREMENT(S)**

1. The permittee shall comply with all applicable provisions of 40 CFR Part 62 Subpart A and OOO, "Federal Plan Requirements for Municipal Solid Waste Landfills", as they apply to EUTRO. **(40 CFR Part 62 Subpart A and OOO)**
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, "National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills", as they apply to EUTRO. **(40 CFR Part 63 Subpart A and AAAA)**

**Footnotes:**

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

## FLEXIBLE GROUP SPECIAL CONDITIONS

### FLEXIBLE GROUP SUMMARY TABLE

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

<b>Flexible Group ID</b>	<b>Flexible Group Description</b>	<b>Associated Emission Unit IDs</b>
FGLFGPLANT	High BTU landfill gas compression and treatment plant, including nitrogen removal unit, with a capacity to accept up to 4,000 standard cubic feet per minute (scfm) of landfill gas. Emissions are controlled by a 4,200 scfm regenerative thermal oxidizer, a 3,200 scfm thermal recuperative oxidizer, and a 4,200 scfm open flare.	EUOPENFLARE, EURTO, EUTRO

**FGLFGPLANT  
 FLEXIBLE GROUP CONDITIONS**

**DESCRIPTION**

High BTU landfill gas compression and treatment plant, including hydrogen sulfide and nitrogen removal systems, with a capacity to process up to 4,000 standard cubic feet per minute (scfm) of landfill gas.

**Emission Unit:** EUOPENFLARE, EURTO, EUTRO

**POLLUTION CONTROL EQUIPMENT**

RTO, TRO, and open flare.

**I. EMISSION LIMIT(S)**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period / Operating Scenario</b>	<b>Equipment</b>	<b>Monitoring / Testing Method</b>	<b>Underlying Applicable Requirements</b>
1. SO <sub>2</sub>	4.1 tpy	12-month rolling time period as determined at the end of each calendar month	FGLFGPLANT	SC V.1, SC VI.1	R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d)

**II. MATERIAL LIMIT(S)**

NA

**III. PROCESS/OPERATIONAL RESTRICTION(S)**

- The permittee shall not operate FGLFGPLANT unless a malfunction abatement plan (MAP) as described in Rule 911(2), is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1911)**

**IV. DESIGN/EQUIPMENT PARAMETER(S)**

NA

**V. TESTING/SAMPLING**

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

- The permittee shall verify the hydrogen sulfide (H<sub>2</sub>S) or total reduced sulfur (TRS) content of the waste gas, off-spec gas, or product gas burned in EUOPENFLARE, EURTO, or EUTRO of FGLFGPLANT monthly by gas sampling (e.g. Draeger Tubes, Tedlar Sampling Bags, etc., or laboratory analysis) 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 H<sub>2</sub>S (TRS equivalent) concentration of the waste gas sample exceeds 20 ppmv, the permittee shall sample and record the H<sub>2</sub>S (TRS equivalent) concentration of the waste gas weekly and shall review all operating and maintenance activities for the landfill gas treatment system along with keeping records of corrective actions taken. Once the H<sub>2</sub>S (TRS equivalent) concentration of the gas (determined from 4 weekly) is maintained below 20 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 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 336.1224, R 336.1225, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21 (c) & (d))**

#### **VI. MONITORING/RECORDKEEPING**

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

1. The permittee shall calculate and record the SO<sub>2</sub> emission rates from FGLFGPLANT using the equation in Appendix A. The calculations shall utilize, at a minimum, monthly gas sampling data collected, the monthly gas usage, monthly hours of operation, and the ratio of total sulfur to sulfur as H<sub>2</sub>S 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), 40 CFR 52.21 (c) & (d))**

#### **VII. REPORTING**

1. The permittee shall notify the AQD district office within 14 days of when the frequency of the gas sampling changes for any reason. **(R 336.1201(3))**

#### **VIII. STACK/VENT RESTRICTION(S)**

1. The permittee shall route all exhaust gases from the treatment plant to either EURTO, EUTRO, or EUOPENFLARE. **(R 336.1225)**

#### **IX. OTHER REQUIREMENT(S)**

1. The permittee shall comply with all applicable provisions of 40 CFR Part 62 Subpart A and OOO, "Federal Plan Requirements for Municipal Solid Waste Landfills", as they apply to EUTRO. **(40 CFR Part 62 Subpart A and OOO)**
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, "National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills", as they apply to FGLFGPLANT. **(40 CFR Part 63 Subpart A and AAAA)**

**APPENDIX A**  
**Procedures for Calculating Emissions**

The permittee shall demonstrate compliance with the emission limits in this permit by vendor data, stack testing, and/or gas testing.

Calculation for Monthly SO<sub>2</sub> Emissions using gas sampling:

The following calculation for SO<sub>2</sub> emissions shall utilize the monthly average of the weekly (or daily, if required) H<sub>2</sub>S concentration measurements from test data collected, the monthly gas usage, monthly hours of operation, and the ratio of total sulfur to sulfur as H<sub>2</sub>S from the most recent laboratory test. **Note:** The ratio must be used in the calculation when a Draeger Tube or other sampling method does not measure the total sulfur in the gas.

$$SO_2 \text{ Emissions (tons per month)} = \frac{(X \text{ scf } H_2S)}{MMcf \text{ LFG}} \times \frac{1 \text{ lb - mol } H_2S}{385 \text{ cf}} \times \text{Ratio} \frac{TRS}{H_2S} \times \frac{1 \text{ lb - mole } SO_2}{1 \text{ lb - mol } TRS} \times \frac{64.07 \text{ lb } SO_2}{1 \text{ lb - mole } SO_2} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}} \times LFG \frac{MMcf}{\text{month}}$$

Where:

X = ppm sulfur content, as H<sub>2</sub>S

S = Sulfur

LFG<sub>monthly</sub> = Actual Landfill Gas Usage per month (million ft<sup>3</sup>/month)

Ratio TRS to H<sub>2</sub>S = Determined from most recent laboratory test

The permittee shall use the following calculations for EUOPENFLARE in conjunction with monitoring, testing or recordkeeping data to determine compliance with the applicable requirements referenced in FGLFGPLANT.

**Net Heating Value of the gas being combusted in the flare:**

The net heating value of the gas being combusted in the flare shall be calculated and recorded using the equation provided in 40 CFR 60.18(f)(3). **(40 CFR 60.18(f)(3))**

$$H_T = K \sum_{i=1}^n C_i H_i$$

**WHERE:**

HT=Net heating value of the sample,

MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25 °C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 °C;

$$K = \text{Constant, } 1.740 \times 10^{-7} \left( \frac{1}{\text{ppm}} \right) \left( \frac{\text{g mole}}{\text{scm}} \right) \left( \frac{\text{MJ}}{\text{kcal}} \right)$$

where the standard temperature for  $\left( \frac{\text{g mole}}{\text{scm}} \right)$  is 20°C;

C<sub>i</sub>=Concentration of sample component i in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946–77 or 90 (Reapproved 1994) (Incorporated by reference as specified in 40 CFR 60.17); and

H<sub>i</sub>=Net heat of combustion of sample component i, kcal/g mole at 25 °C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382–76 or 88 or D4809–95 (incorporated by reference as specified in 40 CFR 60.17) if published values are not available or cannot be calculated.

**Calculation for Vmax steam-assisted and non-assisted flares**

The maximum permitted velocity, Vmax, for flares complying with 40 CFR 60.18(c)(4)(iii) shall be calculated and recorded using the equation provided in 40 CFR 60.18(f)(5). **(40 CFR 60.18(f)(5))**

$$\text{Log}_{10} (V_{\text{max}}) = (\text{HT} + 28.8) / 31.7$$

Vmax=Maximum permitted velocity, M/sec 28.8=Constant 31.7=Constant HT=The net heating value as determined above.

**Calculation for Vmax for air-assisted flares**

The maximum permitted velocity, Vmax, for air-assisted flares shall be calculated and recorded using the equation provided in 40 CFR 60.18(f)(6). **(40 CFR 60.18(f)(6))**

$$V_{\text{max}} = 8.706 + 0.7084 (\text{HT})$$

Vmax=Maximum permitted velocity, m/sec 8.706=Constant 0.7084=Constant HT=The net heating value as determined above.