

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

April 8, 2022



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>October 7, 2021</b>	
DATE PERMIT TO INSTALL APPROVED: <b>April 8, 2022</b>	SIGNATURE: <i>Mary Ann Dolcharty</i>
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.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EUICEENGINE1-S2	Internal combustion engine (Caterpillar G3520C) for combusting treated landfill gas to produce electricity.	2012/2022	FGICEENGINES-S2, FGLFGFUEL
EUICEENGINE2-S2	Internal combustion engine (Caterpillar G3520C) for combusting treated landfill gas to produce electricity.	2012/2022	FGICEENGINES-S2, FGLFGFUEL
EUICEENGINE3-S2	One (1) 1,148 BHP (350 scfm) internal combustion engine (CAT 3516) manufactured before 2006, for combusting treated landfill gas to produce electricity.	6/1/2019 4/8/2022	FG-RICEMACT, FGLFGFUEL
EUOPENFLARE-GE-S2	Open flare is an open combustor without enclosure or shroud. The design capacity of the flare is 1,350 standard cubic feet per minute (scfm). Landfill gas that is not combusted in FGICEENGINES-S2 is destroyed by this flare.	09-12/ 09-15/ 04-22	FGLFGFUEL

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.

**EUICEENGINE3-S2  
EMISSION UNIT CONDITIONS**

**DESCRIPTION**

One (1) 1,148 BHP (350 scfm) internal combustion engine (CAT 3516) manufactured before 2006, for combusting treated landfill gas to produce electricity.

**Flexible Group ID:** FG-RICEMACT, FGLFGFUEL

**POLLUTION CONTROL EQUIPMENT**

NA

**I. EMISSION LIMIT(S)**

Pollutant	Limit	Time Period/Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Formaldehyde	0.75 pph	Hourly	EUICEENGINE3-S2	SC V.2	R 336.1225(2)
2. SO <sub>2</sub>	8.9 lb/hr	Hourly	EUICEENGINE3-S2	SC V.1	R 336.1205(1)(a)&(3)

**II. MATERIAL LIMIT(S)**

NA

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

1. The permittee shall only burn treated landfill gas in EUICEENGINE3-S2.(R 336.1205(1)(a)&(3), R 336.1225)

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

1. The permittee shall not operate EUICEENGINE3-S2 unless an air-to-fuel ratio controller is installed, maintained and operated in a satisfactory manner. (R 336.1702(a), R 336.1910)
2. The design capacity of EUICEENGINE3-S2 shall not exceed 1,148 bhp as specified by the equipment manufacturer. (R 336.1205(1)(a), R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))
3. The permittee shall equip and maintain EUICEENGINE3-S2 with non-resettable hours meters to track the operating hours. (40 CFR 60.4243)

**V. TESTING/SAMPLING**

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

1. Within 180 days after permit issuance, the permittee shall verify the SO<sub>2</sub> emission rate from EUICEENGINE3-S2 by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A. The resulting SO<sub>2</sub> emission rates shall be compared to emission rates calculated based upon H<sub>2</sub>S sampling during the test. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol and must meet the requirements of the federal Clean Air Act, all applicable state and federal rules and regulations, and be within the authority of the AQD to make the change. 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. The permittee must submit 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 336.1224, R 336.1225, R 336.1702, R 336.1902, R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

2. Within 5 years from the date of completion of the most recent stack test, the permittee shall verify formaldehyde emission rates from EUICEENGINE3-S2 by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 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 and must meet the requirements of the federal Clean Air Act, all applicable state and federal rules and regulations, and be within the authority of the AQD to make the change. 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. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor not less than 30 days of the time and place before performance tests are conducted. The permittee must submit 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 336.1225, 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 complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**
2. The permittee shall keep, in a satisfactory manner, records of the landfill gas usage for the engines in EUICEENGINE3-S2 on a monthly and 12-month rolling time period basis as determined at the end of each calendar month, as required by SC VI.1. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. **(R 336.1205(3), R 336.1225, R 336.1702, R 336.1910, 40 CFR 52.21(c) & (d))**
3. The permittee shall keep, in a satisfactory manner, records of the hours of operation from each engine in EUICEENGINE3-S2, on a monthly and 12-month rolling time period basis as determined at the end of each calendar month, as required by SC VI.1. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. **(R 336.1225, R 336.1702, R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR 60.4243)**
4. The permittee shall keep, in a satisfactory manner, records of the H<sub>2</sub>S (TRS equivalent) concentration sampling results of the treated landfill gas routed to EUICEENGINE3-S2. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. **(R 336.1225, R 336.1702, R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR 60.4243)**

**See Appendix 7**

## **VII. REPORTING**

1. In accordance with R 336.1285(2)(a)(vi), engine replacements can only be done under a normal maintenance program. If EUICEENGINE3-S2 is replaced with an equivalent-emitting or lower-emitting engine, the permittee shall notify the AQD District Supervisor of such change-out and submit a description of the engine and acceptable emissions data to show that the alternate engine is equivalent-emitting or lower-emitting. The data shall be submitted within 30 days of the engine change out. **(R 336.1205, R 336.1702(a), R 336.1911, 40 CFR 52.21 (c) & (d))**

**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. SVICEENGINE3	14.0	65.0	<b>R 336.1225, 40 CFR 52.21(c)&amp;(d)</b>

**IX. OTHER REQUIREMENT(S)**

1. 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 ZZZZ, as they apply to EUICEENGINE3-S2. **(40 CFR Part 63 Subparts A & ZZZZ)**
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, Subpart A and Subpart AAAA for Municipal Solid Waste Landfills. **(40 CFR Part 63, Subpart A and Subpart AAAA)**

**Footnotes:**

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

**EUOPENFLARE-GE-S2  
 EMISSION UNIT CONDITIONS**

**DESCRIPTION**

Open flare is an open combustor without enclosure or shroud. The design capacity of the flare is 1,350 standard cubic feet per minute (scfm). Landfill gas that is not combusted in the facility engines is destroyed by this flare.

**Flexible Group ID:** FGLFGFUEL

**POLLUTION CONTROL EQUIPMENT**

NA

**I. EMISSION LIMIT(S)**

Pollutant	Limit	Time Period/Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. SO <sub>2</sub>	150.4 tpy	12-month rolling time period as determined at the end of each calendar month	EUOPENFLARE-GE-S2	SC V.1 and SC VI.3 of FGLFGFUEL	R 336.1205(1)(a)&(3)

**II. MATERIAL LIMIT(S)**

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

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

1. No later than 60 days after permit issuance, the permittee shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance / malfunction abatement plan (PM / MAP) for EUOPENFLARE-GE-S2. After approval of the PM / MAP by the AQD District Supervisor, the permittee shall not operate EUOPENFLARE unless the PM / MAP, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained. The plan shall incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices. At a minimum the plan shall include:
  - a) Identification of the equipment and the supervisory personnel responsible for overseeing the inspection, maintenance, and repair.
  - b) Description of the items or conditions to be inspected and frequency of the inspections or repairs.
  - c) Identification of the equipment and, if applicable, air-cleaning device, operating parameters that shall be monitored to detect a malfunction or failure, the normal operating range of these parameters and a description of the method of monitoring or surveillance procedures.
  - d) Identification of the major replacement parts that shall be maintained in inventory for quick replacement.
  - e) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If at any time the PM / MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the PM / MAP within 45 days after such an event occurs. The permittee shall also amend the PM / MAP within 45 days, if new equipment is installed or upon request from the AQD District Supervisor. The permittee shall submit the PM / MAP and any amendments to the PM / MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the PM / MAP or amended PM / 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, R 336.1912)**

2. The permittee shall operate EUOPENFLARE-GE-S2 at all times when the collected gas is routed to it. **(R 336.1224, R 336.1225, R 336.1702)**
3. The permittee shall operate EUOPENFLARE-GE-S2 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 336.1224, R 336.1225, R 336.1702)**
4. The permittee shall operate EUOPENFLARE-GE-S2 with a pilot flame present at all times, as determined by the methods specified in 40 CFR 60.18(f). **(R 336.1224, R 336.1225, R 336.1702)**
5. Non-assisted flares shall be designed for and operated with an exit velocity, as determined by the methods specified in 40 CFR 60.18(f)(4), less than 18.3 m/sec (60 ft/sec), except as provided in 40 CFR 60.18(c)(4)(ii) and (iii).
  - a) Non-assisted flares designed for and operated with an exit velocity, equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec) are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 BTU/scf).
  - b) Non-assisted flares designed for and operated with an exit velocity, as determined by the methods specified in 40 CFR 60.18(f)(4) less than the velocity,  $V_{max}$ , as determined by the method specified in 40 CFR 60.18(f)(5), and less than 122 m/sec (400 ft/sec) are allowed. **(R 336.1224, R 336.1225, R 336.1702)**
6. The permittee shall install, calibrate, maintain, and operate, according to the manufacturer's specifications, a heat sensing device for EUOPENFLARE-GE-S2, 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. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702)**
7. The permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications, a landfill gas flow rate measuring device for EUOPENFLARE-GE-S2 to record the flow to or bypass of the flare at least every 15 minutes. **(R 336.1205, R 336.1225, R 336.1702)**

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

1. The design capacity of EUOPENFLARE-GE-S2 shall not exceed 1,350 scfm. **(R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

#### **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 complete all required calculations in a format acceptable to the AQD District Supervisor by the 30th day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804)**

2. The permittee shall continuously monitor and record the gas flow rate for EUOPENFLARE-GE-S2. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804)**
3. The permittee shall maintain a record the following information for EUOPENFLARE-GE-S2:
  - a) All visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR 60.18, continuous records of the flare pilot flame or flare flame monitoring, and records of all periods of operations during which the pilot flame of the flare flame is absent.  
 The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804)**
4. The permittee shall keep up-to-date, readily accessible records of all control system exceedances of the Process/Operational Restrictions. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804)**
5. The permittee shall keep, in a satisfactory manner, all records related to, or as required by, the PM / MAP for EUOPENFLARE. **(R 336.1911, R 336.1912)**
6. The permittee shall keep, in a satisfactory manner, records of gas sampling and analysis for H<sub>2</sub>S or TRS concentration in the landfill gas routed to EUOPENFLARE-GE-S2. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702(a), R 336.1910, R 336.1911, R 336.2803, R 336.2804)**
7. The permittee shall calculate and keep, in a satisfactory manner, records of the SO<sub>2</sub> emission rates from EUOPENFLARE-GE-S2 using the equation in Appendix 7 or other method as approved by the AQD District Supervisor. The calculations shall utilize, at a minimum, gas sampling data, 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, R 336.2803, R 336.2804)**
8. The permittee shall keep, in a satisfactory manner, records of the monthly hours of operation for EUOPENFLARE-GE-S2. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205, R 336.1225, R 336.2803, R 336.2804)**

**VII. REPORTING**

NA

**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. SVOPENFLARE-GE-S2	8	28	R 336.1225 R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d)

**IX. OTHER REQUIREMENT(S)**

1. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart AAAA for Municipal Solid Waste Landfills. **(40 CFR Part 63, Subpart A and Subpart 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.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGICEENGINES-S2	Two internal combustion engines (Caterpillar G3520C) for combusting treated landfill gas to produce electricity.	EUICEENGINE1-S2 EUICEENGINE2-S2
FG-RICEMACT-S2	New and reconstructed non-emergency engines greater than 500 hp firing landfill/digester gas, located at a major source of HAP. Commenced construction or reconstruction on or after December 19, 2002. Compliance date is upon start-up.	EUICEENGINE1-S2 EUICEENGINE2-S2 EUICEENGINE3-S2
FGLFGFUEL	All existing equipment at the stationary source which burns landfill gas regardless of ownership	EUICEENGINE1-S2, EUICEENGINE2-S2, EUICEENGINE3-S2, EUOPENFLARE-GE-S2, EUOPENFLARE-S1

**FGICEENGINES-S2  
 FLEXIBLE GROUP CONDITIONS**

**DESCRIPTION**

Two internal combustion engines (Caterpillar G3520C) for combusting treated landfill gas to produce electricity.

**Emission Units:** EUICEENGINE1-S2, EUICEENGINE2-S2

**POLLUTION CONTROL EQUIPMENT**

NA

**I. EMISSION LIMIT(S)**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. CO	3.5 g/hp-hr per engine	Hourly	EUICEENGINE1-S2, EUICEENGINE2-S2	SC V.1	40 CFR 60.4233(e)
2. CO	17.3 pph per engine	Hourly	EUICEENGINE1-S2, EUICEENGINE2-S2	SC V.1 SC VI.1 SC VI.2	R 336.2804, 40 CFR 52.21(d)
3. NOx	1.0 g/hp-hr per engine	Hourly	EUICEENGINE1-S2, EUICEENGINE2-S2	SC V.1	40 CFR 60.4233(e)
4. NOx	4.94 pph per engine	Hourly	EUICEENGINE1-S2, EUICEENGINE2-S2	SC V.1 SC VI.1 SC VI.2	R 336.2803 R 336.2804, 40 CFR 52.21(c) and (d)
5. VOC (Without Formaldehyde)	1.0 g/hp-hr per engine	Hourly	EUICEENGINE1-S2, EUICEENGINE2-S2	SC V.1	40 CFR 60.4233(e)
6. SO <sub>2</sub>	13.99 lb/hr per engine	Hourly	EUICEENGINE1-S2, EUICEENGINE2-S2	SC V.3	R 336.1205(1)(a)
7. Formaldehyde	2.08 pph per engine	Hourly	EUICEENGINE1-S2, EUICEENGINE2-S2	SC V.2	R 336.1225(2)

**II. MATERIAL LIMIT(S)**

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Landfill Gas	578.16 MMscf per year	12-month rolling time period as determined at the end of each calendar month	FGICEENGINES-S2	SC VI.1	R 336.1205(3),

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

1. The permittee shall only burn treated landfill gas in FGICEENGINES-S2. **(R 336.1205(1)(a)&(3))**
2. The permittee shall not operate FGICEENGINES-S2 unless the malfunction abatement/preventative maintenance plan, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained. The plan shall incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices. At a minimum the plan shall include:
  - a) Identification of the equipment and, if applicable, air-cleaning device, and the supervisory personnel responsible for overseeing the inspection, maintenance, and repair.
  - b) Description of the items or conditions to be inspected and frequency of the inspections or repairs.
  - c) Identification of the equipment and, if applicable, air-cleaning device, operating parameters that shall be monitored to detect a malfunction or failure, the normal operating range of these parameters and a description of the method of monitoring or surveillance procedures.
  - d) Identification of the major replacement parts that shall be maintained in inventory for quick replacement.
  - e) A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If the plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the owner or operator shall revise the plan within 45 days after such an event occurs and submit the revised plan for approval to the AQD District Supervisor. Should the AQD determine the malfunction abatement/preventative maintenance plan to be inadequate, the AQD District Supervisor may request modification of the plan to address those inadequacies. **(R 336.1702(a), R 336.1910, R 336.1911, R 336.1912, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d), 40 CFR 60.4243(b)(2))**

3. Based on each engine's kilowatt output, the permittee shall adjust the engine's air/fuel ratio, as needed, to ensure that each engine in FGICEENGINES-S2 operates at its maximum design output based on the fuel available to burn. **(R 336.1702(a), R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
4. The permittee shall operate and maintain each engine in FGICEENGINES-S2 such that it meets the emission limits in SC I.1, I.3, and I.5 over the entire life of the engine. **(40 CFR 60.4234, 40 CFR 60.4243(b))**
5. If the permittee purchased a non-certified engine or operates a certified engine in a non-certified manner, the permittee shall keep a maintenance plan for FGICEENGINES-S2 and shall, to the extent practicable, maintain and operate each engine in a manner consistent with good air pollution control practice for minimizing emissions. **(40 CFR 60.4243(b))**

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

1. The permittee shall not operate any engine in FGICEENGINES-S2 unless the engines air/fuel ratio controller is installed, maintained and operated in a satisfactory manner. **(R 336.1702, R 336.1910)**
2. The permittee shall equip and maintain each engine in FGICEENGINES-S2 with non-resettable hours meters to track the operating hours. **(R 336.1225, 40 CFR 60.4243)**

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

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

1. The permittee shall conduct performance tests for each engine in FGICEENGINES-S2, to verify NO<sub>x</sub>, CO, and VOC emission rates. The permittee shall conduct a performance test every 8,760 hours of operation or three years, whichever occurs first, to demonstrate compliance. The performance tests shall be conducted according to 40 CFR 60.4244. No less than 30 days prior to testing, a complete test plan shall be submitted to the AQD Technical Programs Unit and District Office. The final plan must be approved by the AQD prior to testing. 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. **(CFR 60.8, 40 CFR 60.4243, 40 CFR 60.4244, 40 CFR Part 60 Subpart JJJJ)**

2. Within 5 years from the date of completion of the most recent stack test, permittee shall verify formaldehyde emission rates from FGICEENGINES-S2 by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 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 and must meet the requirements of the federal Clean Air Act, all applicable state and federal rules and regulations, and be within the authority of the AQD to make the change. 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. The permittee must submit 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 336.1225, R 336.2001, R 336.2003, R 336.2004)**
3. Within 180 days after permit issuance, the permittee shall verify SO<sub>2</sub> emission rates for each engine in FGICEENGINES-S2 by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 40 CFR Part 60, Appendix A. The resulting SO<sub>2</sub> emission rates shall be compared to emission rates calculated based upon H<sub>2</sub>S sampling during the test. An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol and must meet the requirements of the federal Clean Air Act, all applicable state and federal rules and regulations, and be within the authority of the AQD to make the change. 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. The permittee must submit 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(1), R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.2(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 continuously monitor and record, in a satisfactory manner, the landfill gas usage for the engines in FGICEENGINES-S2. **(R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
2. The permittee shall continuously monitor, in a satisfactory manner, the kilowatt output from each engine in FGICEENGINES-S2. **(R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
3. The permittee shall continuously monitor, in a satisfactory manner, the hours of operation from each engine in FGICEENGINES. **(40 CFR 60.4243)**
4. The permittee shall keep, in a satisfactory manner, records of all maintenance activities conducted according to the malfunction abatement/preventative maintenance plan (pursuant to SC III.2). The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. **(R 336.1702(a), R 336.1911, R 336.1912, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
5. The permittee shall keep, in a satisfactory manner, records of the landfill gas usage for the engines in FGICEENGINES-S2 on a monthly and 12-month rolling time period basis as determined at the end of each calendar month, as required by SC VI.1. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. **(R 336.1225, R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**
6. The permittee shall record the kilowatt output from each engine in FGICEENGINES-S2, a minimum of once per day, excluding holidays and weekends when an engine operator is not scheduled, or called in, to be on site, as required by SC VI.2. A list of excluded holidays shall be maintained on site and made available to the Air Quality Division upon request. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. **(R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d))**

7. The permittee shall keep, in a satisfactory manner, records of the hours of operation from each engine in FGICEENGINES-S2, on a monthly and 12-month rolling time period basis as determined at the end of each calendar month, as required by SC VI.3. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. **(R 336.1225, R 336.1702, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d), 40 CFR 60.4243)**
8. The permittee shall keep records of the following information for each engine included in FGICEENGINES-S2:
  - a) All notifications submitted to comply with 40 CFR Part 60 Subpart JJJJ and all documentation supporting any notification.
  - b) Maintenance conducted on any engine in FGICEENGINES-S2.
  - c) If any engine in FGICEENGINES-S2 is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR Parts 90, 1048, 1054, and 1060, as applicable.
  - d) If any engine in FGICEENGINES-S2 is not a certified engine or is a certified engine operating in a non-certified manner and subject to 40 CFR 60.4243(a)(2), documentation that any engine in FGICEENGINES-S2 meets the emission standards. **(40 CFR 60.4245(a))**

**VII. REPORTING**

NA

**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 Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SVICEENGINE1-S2	14.0	65.0	<b>R 336.1225 R 336.2803 R 336.2804, 40 CFR 52.21 (c) and (d)</b>
2. SVICEENGINE2-S2	14.0	65.0	<b>R 336.1225 R 336.2803 R 336.2804, 40 CFR 52.21 (c) and (d)</b>

**IX. OTHER REQUIREMENT(S)**

1. The permittee shall comply with the provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subpart A and Subpart JJJJ, as they apply to each engine in FGICEENGINES-S2. **(40 CFR Part 60, Subpart A and JJJJ)**
2. The permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, as they apply to each engine in FGICEENGINES-S2. **(40 CFR Part 63, Subparts A and ZZZZ)**
3. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart AAAA for Municipal Solid Waste Landfills. **(40 CFR Part 63, Subpart A and Subpart AAAA)**

**Footnotes:**

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

<b>FG-RICEMACT-S2 FLEXIBLE GROUP CONDITIONS</b>
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**DESCRIPTION**

New and reconstructed non-emergency engines greater than 500 hp firing landfill/digester gas, located at a major source of HAP. Commenced construction or reconstruction on or after December 19, 2002. Compliance date is upon start-up.

**Emission Units:** EUICEENGINE-S1, EUICEENGINE2-S2, EUICEENGINE3-S2

**POLLUTION CONTROL EQUIPMENT**

NA

**I. EMISSION LIMIT(S)**

NA

**II. MATERIAL LIMIT(S)**

NA

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

1. Each engine in FG-RICEMACT-S2 shall operate in a manner which reasonably minimizes HAP emissions. **(40 CFR 63.6625(c))**
2. Each engine in FG-RICEMACT-S2 shall operate in a manner which minimizes time spent at idle during startup and minimize the startup time to a period needed for appropriate and safe loading of each engine, not to exceed 30 minutes. **(40 CFR 63.6625(h))**

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

1. The engines in FG-RICEMACT-S2 shall equip and maintain separate fuel meters to monitor and record the daily fuel usage and volumetric flow rate of each fuel used. **(40 CFR 63.6625(c))**

**V. TESTING/SAMPLING**

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

NA

**VI. MONITORING/RECORDKEEPING**

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

1. Each engine in FG-RICEMACT-S2, which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, must monitor and record the daily fuel usage with separate fuel meters to measure the volumetric flow rate of each fuel. **(40 CFR 63.6625(c))**

## **VII. REPORTING**

1. The permittee shall submit an annual report in accordance with Table 7 of 40 CFR Part 63, Subpart ZZZZ to the appropriate AQD district office by March 15th for the reporting period from January 1 to December 31. The following information shall be included in this annual report:<sup>2</sup> **(40 CFR 63.6650(g), 40 CFR 63.6650(b)(5))**
  - a) The fuel flow rate and the heating values that were used in the permittee's calculations to determine the gross heat input on an annual basis. Also, the permittee must demonstrate that the percentage of heat input provided by landfill gas or digester gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis.<sup>2</sup> **(40 CFR 63.6650(g)(1))**
  - b) The operating limits provided in the permittee's federally enforceable permit, and any deviations from these limits. **(40 CFR 63.6650(g)(2))**
  - c) Any problems or errors suspected from the fuel flow rate meters.<sup>2</sup> **(40 CFR 63.6650(g)(3))**

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

NA

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

1. The permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, as they apply to each engine in FG-RICEMACT-S2. **(40 CFR Part 63, Subparts A and ZZZZ)**

### **Footnotes:**

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

<sup>2</sup> This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**FGLFGFUEL  
 FLEXIBLE GROUP CONDITIONS**

**DESCRIPTION**

All existing equipment at the stationary source which burns landfill gas regardless of ownership

**Emission Units:** EUICEENGINE1-S2, EUICEENGINE2-S2, EUICEENGINE3-S2, EUOPENFLARE-GE-S2, EUOPENFLARE-S1

**POLLUTION CONTROL EQUIPMENT**

NA

**I. EMISSION LIMIT(S)**

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. SO <sub>2</sub>	247.1 tpy	12-month rolling time period as determined at the end of each calendar month	FGLFGFUEL	SC V1 and SC VI.3	R 336.1205(1)

**II. MATERIAL LIMIT(S)**

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Landfill Gas	1165.6 MMscf per year	12-month rolling time period as determined at the end of each calendar month	FGLFGFUEL	SC VI.2	R 336.1205(1)

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

NA

**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 treated landfill gas burned in FGLFGFUEL on a monthly basis by gas testing (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. No less than 30 days prior to the initial test, 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. Thereafter, the permittee shall submit a test plan upon the request of the AQD District Supervisor. If, after a year, each of the monthly concentrations of the hydrogen sulfide or total reduced sulfur concentration of the landfill gas are below 2,500 ppm (TRS equivalent), the permittee may petition the AQD District Supervisor to reduce the frequency of gas sampling and recording the hydrogen sulfide / total

reduced sulfur concentration of the treated landfill gas to quarterly. If at any time the H<sub>2</sub>S (TRS equivalent) concentration of the landfill gas sample exceeds 2,500 ppm, the permittee shall conduct sampling and recording on a weekly basis 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 concentration determined from the weekly readings are maintained below 2,500 ppm of H<sub>2</sub>S (TRS equivalent) concentration in the landfill gas for one month after an exceedance, the permittee may resume monthly monitoring and recordkeeping. 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), 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 complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**
2. The permittee shall keep, in a satisfactory manner, records of the landfill gas usage for FGLFGFUEL on a monthly and 12-month rolling time period basis as determined at the end of each calendar month. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. **(R 336.1205(1), R 336.1225, R 336.1910, 40 CFR 52.21(c) & (d))**
3. The permittee shall calculate and record the monthly and 12-month SO<sub>2</sub> emission rate from each emission unit in FGLFGFUEL and total SO<sub>2</sub> emissions for FGLFGFUEL using the equation in Appendix 7, or other method as approved by the AQD District Supervisor. The calculations shall utilize the actual gas usage, actual hours of operation, and the sulfur concentration from the most recent gas sampling data unless otherwise requested by the AQD. All records shall be kept on file at the facility and make them available to the Department upon request. **(R 336.1205(1)), R 336.2803, R 336.2804)**

## **VII. REPORTING**

NA

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

NA

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

NA

### **Footnotes:**

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

## APPENDIX 7

### Emission Calculations for SO<sub>2</sub>

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

#### SO<sub>2</sub> Emission Calculations

##### Calculation for SO<sub>2</sub> Emissions

The following calculation for SO<sub>2</sub> emissions shall utilize the actual gas usage, and the sulfur concentration from the most recent laboratory test sample.

$$\text{SO}_2 = [(\text{scf}) \times (\text{ppmv}_{\text{sulfur}} * 1\text{E-}06) \times (\text{MW SO}_2)] \div [(R \times T)] = \text{pounds/month}$$

##### Where:

scf = standard cubic feet of LFG for the period; this value can be estimated using LFG totalizer readings, by multiplying standard cubic feet per minute by the number of minutes in the period, or another acceptable method.

ppmv<sub>sulfur</sub> = parts per million by volume of Sulfur in the gas (based on the most recent test sample)

MW<sub>SO<sub>2</sub></sub> = Molecular Weight of SO<sub>2</sub> = 64.066 lb/lb-mol

R = Universal Gas Constant = 0.7302 atm-ft<sup>3</sup>/lb-mol-R

T = Standard Temperature at which the flowmeter is calibrated.