

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

May 19, 2020

**PERMIT TO INSTALL
37-19B**

ISSUED TO
City of Grand Rapids Water Resource Recovery Facility

LOCATED AT
1300 Market Street, S. W.
Grand Rapids, Michigan 49503

IN THE COUNTY OF
Kent

STATE REGISTRATION NUMBER
B1729

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: May 1, 2020 | |
| DATE PERMIT TO INSTALL APPROVED: May 19, 2020 | 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 ₂ 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 ₂ S | Hydrogen Sulfide |
| kW | Kilowatt |
| lb | Pound |
| m | Meter |
| mg | Milligram |
| mm | Millimeter |
| MM | Million |
| MW | Megawatts |
| NMOC | Non-Methane Organic Compounds |
| NO _x | Oxides of Nitrogen |
| ng | Nanogram |
| PM | Particulate Matter |
| PM10 | Particulate Matter equal to or less than 10 microns in diameter |
| PM2.5 | Particulate Matter equal to or less than 2.5 microns in diameter |
| pph | Pounds per hour |
| ppm | Parts per million |
| ppmv | Parts per million by volume |
| ppmw | Parts per million by weight |
| psia | Pounds per square inch absolute |
| psig | Pounds per square inch gauge |
| scf | Standard cubic feet |
| sec | Seconds |
| SO ₂ | 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 conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of 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 |
|-------------------------|--|--|--------------------------|
| EUSBLENDING1 | Sludge blending tank used to blend/store primary and secondary sludge prior to the volute thickening units. Emissions are controlled by a communal biofilter odor control system. | TBD | FGSLTANKS |
| EUSBLENDING2 | Sludge blending tank used to blend/store primary and secondary sludge prior to the volute thickening units. Emissions are controlled by a communal biofilter odor control system. | TBD | FGSLTANKS |
| EUVOLTHICK1 | Volute thickening unit for sludge thickening prior to the digesters. Emissions are controlled by a communal biofilter odor control system. | TBD | FGSLTANKS |
| EUVOLTHICK2 | Volute thickening unit for sludge thickening prior to the digesters. Emissions are controlled by a communal biofilter odor control system. | TBD | FGSLTANKS |
| EUVOLTHICK3 | Volute thickening unit for sludge thickening prior to the digesters. Emissions are controlled by a communal biofilter odor control system. | TBD | FGSLTANKS |
| EUVOLTHICK4 | Volute thickening unit for sludge thickening prior to the digesters. Emissions are controlled by a communal biofilter odor control system. | TBD | FGSLTANKS |
| EUDIGESTER1 | A tank for digestion of the liquid concentrated wastewater stream using an anaerobic membrane bioreactor. It has a minimum working volume of 1.4 MM gallon, a minimum freeboard of 4 feet, and a maximum tank diameter of 60 feet. | TBD | FGDIGESTERS |
| EUDIGESTER2 | A tank for digestion of thickened primary and secondary sludge from wastewater treatment. It has a minimum working volume of 1.4 MM gallon, a minimum freeboard of 4 feet, and a maximum tank diameter of 60 feet. | TBD | FGDIGESTERS |
| EUDIGESTER3 | A tank for digestion of thickened primary and secondary sludge from wastewater treatment. It has a minimum working volume of 1.4 MM gallon, a minimum freeboard of 4 feet, and a maximum tank diameter of 60 feet. | TBD | FGDIGESTERS |

| Emission Unit ID | Emission Unit Description (Including Process Equipment & Control Device(s)) | Installation Date / Modification Date | Flexible Group ID |
|-------------------------|--|--|--------------------------|
| EUCO2RTANK | The CO ₂ release tank receives digested biosolids and liquid from the digesters. Air is bubbled through the liquid to release CO ₂ and increase the pH. The tank is connected to the headspace of EUDSTTANK and vented to the same activated carbon system. | TBD | FGDS |
| EUDSTTANK | The digested sludge transfer (DST) tank. This is an intermediate tank used to hold sludge from EUCO2RTANK prior to transfer to a dewatering system. The tank has a hydraulic mix system with motive pumps and jet nozzles to maintain homogenous conditions. It will be covered and ventilated to an activated carbon system for odor treatment. | TBD | FGDS |
| EUNURESYS | After pH adjustment and dewatering, the centrate enters the Schwing Nutrient Removal System (NuReSys). This system starts with the struvite reactor (SR) tank, where magnesium chloride is added to form struvite (magnesium ammonium phosphate). Next is the settler tank where larger struvite crystals settle by gravity. Top effluent from the settler tank goes to a cyclone, and underflow goes to a harvest lock to separate larger particles from fines. Larger solids flow to the washer classifier to separate the struvite from the liquid and deposit it into containers for shipment off-site. Liquid overflow is recycled back to the head of the plant. Bulk tanks for storage of aqueous magnesium chloride and a chemical feed system are included. | TBD | FGDS |
| EUCHP1 | Natural gas/renewable natural gas-fired combined heat and power engine, 4 Stroke, Lean Burn, nominal rating of 1.411 MW (12.07 MMBTU/HR), Reciprocating Internal Combustion Engine used for electricity generation. No steam is generated, the heat is used in the heat loop for the digester tanks and incidental building heat. The engine is equipped with an oxidation catalyst for control. | TBD | FGCHP |

| Emission Unit ID | Emission Unit Description (Including Process Equipment & Control Device(s)) | Installation Date / Modification Date | Flexible Group ID |
|-------------------------|--|--|--------------------------|
| EUCHP2 | Natural gas/renewable natural gas-fired combined heat and power engine, 4 Stroke, Lean Burn, nominal rating of 1.411 MW (12.07 MMBTU/HR), Reciprocating Internal Combustion Engine used for electricity generation. No steam is generated, the heat is used in the heat loop for the digester tanks and incidental building heat. The engine is equipped with an oxidation catalyst for control. | TBD | FGCHP |
| EUCHP3 | Natural gas/renewable natural gas-fired combined heat and power engine, 4 Stroke, Lean Burn, nominal rating of 1.411 MW (12.07 MMBTU/HR), Reciprocating Internal Combustion Engine used for electricity generation. No steam is generated, the heat is used in the heat loop for the digester tanks and incidental building heat. The engine is equipped with an oxidation catalyst for control. | TBD | FGCHP |
| EUCONDSYS | Biogas conditioning system, using a membrane filtering technology to condition the biogas into renewable natural gas. It consists of parallel absorption vessels for H ₂ S removal and media adsorption for VOC and siloxane removal. Water and CO ₂ are also removed. Renewable natural gas is compressed after processing. Processed gas can either route to the flares, the engines, or a natural gas pipeline. | TBD | NA |
| EUFLARE1 | Open flare that may burn raw biogas, biogas with H ₂ S removed, or off-spec renewable natural gas. It can combust up to 24,000 cubic feet of gas per hour for a total heat input of about 14.16 MMBTU/hr. | TBD | FGFLARES |
| EUFLARE2 | Open flare that may burn raw biogas, biogas with H ₂ S removed, or off-spec renewable natural gas. It can combust up to 24,000 cubic feet of gas per hour for a total heat input of about 14.16 MMBTU/hr. | TBD | FGFLARES |
| EUSPACEHEAT1 | Natural gas, direct-fired space heating unit. It will provide heat to the CW screening building. | TBD | FGSPACEHEAT |
| EUSPACEHEAT2 | Natural gas, direct-fired space heating unit. It will provide heat to the phosphorus recovery building. | TBD | FGSPACEHEAT |
| EUWATERHEAT | Natural gas-fired, water heater to provide domestic hot water for the digester building. | TBD | FGSPACEHEAT |
| EUBOILER1 | Natural gas-fired boiler. It will provide building heat and digester heat. | TBD | FGSPACEHEAT |

| Emission Unit ID | Emission Unit Description (Including Process Equipment & Control Device(s)) | Installation Date / Modification Date | Flexible Group ID |
|-------------------------|--|--|--------------------------|
| EUBOILER2 | Natural gas-fired boiler. It will provide building heat and digester heat. | TBD | FGSPACEHEAT |
| EUBOILER3 | Natural gas-fired boiler. It will provide building heat and digester heat. | TBD | FGSPACEHEAT |
| EUBOILER4 | Natural gas-fired boiler. It will provide building heat and digester heat. | TBD | FGSPACEHEAT |
| EULUBEOILTANK | 1,000-gallon storage tank for engine lube oil. | TBD | FGSTORAGETANKS |
| EUUSEDILOILTANK | 1,000-gallon storage tank for engine used oil. | TBD | FGSTORAGETANKS |
| EUPOLRESTANK1 | 6,000-gallon storage tank for polymer resin. | TBD | FGSTORAGETANKS |
| EUPOLRESTANK2 | 6,000-gallon storage tank for polymer resin. | TBD | FGSTORAGETANKS |
| EUPOLRESDAYTANK1 | 1,000-gallon tank for daily use of polymer resin. | TBD | FGSTORAGETANKS |
| EUPOLRESDAYTANK2 | 1,000-gallon tank for daily use of polymer resin. | TBD | FGSTORAGETANKS |
| EUCAUSTICTANK1 | 6,000-gallon storage tank for sodium hydroxide (NaOH). | TBD | FGSTORAGETANKS |
| EUCAUSTICTANK2 | 6,000-gallon storage tank for sodium hydroxide (NaOH). | TBD | FGSTORAGETANKS |
| EUSODHYPCHLTO TE | 300-gallon storage tote for sodium hypochlorite (NaOCl). | TBD | FGSTORAGETOTES |
| EUCITACIDTOTE | 300-gallon storage tote for citric acid (C ₆ H ₈ O ₇). | TBD | FGSTORAGETOTES |
| EUFOAMSUPTOTE | 200-gallon or smaller storage tote for foam suppressant. | TBD | FGSTORAGETOTES |

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.

EUCONDSYS EMISSION UNIT CONDITIONS

DESCRIPTION

Biogas conditioning system, using a membrane filtering technology to condition the biogas into renewable natural gas. It consists of parallel absorption vessels for H₂S removal and media adsorption for VOC and siloxane removal. Water and CO₂ are also removed. Renewable natural gas is compressed after processing. Processed gas can either route to the flares, the engines, or a natural gas pipeline.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

There is a bypass after the H₂S removal system to the flares.

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. No later than 45 days after the completion of installation of the equipment, the permittee shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance / malfunction abatement plan (PM / MAP) for EUCONDSYS. After approval of the PM / MAP by the AQD District Supervisor, the permittee shall not operate EUCONDSYS 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, 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. At a minimum, this should include:
 - i. Method for evaluating breakthrough of absorption and adsorption media.
 - ii. Process to replace media.
 - iii. Description of media redundancy during changeouts.
 - iv. How to determine when the bypass following the H₂S-conditioning system will be used.
 - v. How the flow of gas will be switched between the bypass or the full conditioning system.
 - 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 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1910, R 336.1911, R 336.1912)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to continuously monitor and record the H₂S concentration in the biogas after the H₂S-conditioning portion of EUCONDYSYS. Satisfactory manner includes operating and maintaining the control device in accordance with an approved PM / MAP for EUCONDYSYS, as required in SC III.1. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1901)**

V. TESTING/SAMPLING

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep, in a satisfactory manner, all records related to, or as required by, the PM / MAP. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1910, R 336.1911, R 336.1912)**
2. The permittee shall keep, in a satisfactory manner, records of the H₂S concentration in the biogas after the H₂S-conditioning portion of EUCONDYSYS. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1901, 40 CFR 52.21(c) & (d))**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of EUCONDYSYS. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTION(S)

1. The permittee shall route all exhaust gases from the bypass after the H₂S-conditioning system to FGFLARES. The permittee shall route all exhaust gases from the full conditioning system in EUCONDYSYS to either FGCHP, FGFLARES, or to a natural gas pipeline. **(R 336.1225, R 336.1901, 40 CFR 52.21(c) & (d))**

IX. OTHER REQUIREMENT(S)

NA

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 |
|--------------------------|--|---|
| FGSLTANKS | Sludge blending tanks and volute thickening units prior to the digesters. Emissions are controlled from all of them by a communal biofilter odor control system. | EUSLBLENDING1, EUSLBLENDING2, EUVOLTHICK1, EUVOLTHICK2, EUVOLTHICK3, EUVOLTHICK4 |
| FGDIGESTERS | Three digester tanks that have a combined biogas maximum production rate of 800 cubic feet per minute with a 60% methane content. | EUDIGESTER1, EUDIGESTER2, EUDIGESTER3 |
| FGDS | The CO ₂ release (CO ₂ R) tank, digested sludge transfer (DST) tank, and the Schwing Nutrient Removal System. The DST tank and CO ₂ R tank are both vented to an activated carbon system. | EUCO ₂ RTANK, EUDSTTANK, EUNURESYS |
| FGCHP | Three combined heat and power (CHP) engines, each with a nominal rating of 1.411 MW (12.07 MMBTU/hr), used for electricity generation and heat for a heat loop for the digester tanks and incidental building heat. Each engine is equipped with an oxidation catalyst for control of CO, VOC, and formaldehyde. | EUCHP1, EUCHP2, EUCHP3 |
| FGFLARES | Two open flares that may burn raw biogas, biogas with H ₂ S removed, or off-spec renewable natural gas. | EUFLARE1, EUFLARE2 |
| FGSPACEHEAT | Two natural gas, direct-fired space heating units, one natural gas-fired water heater, and four natural gas-fired boilers. | EUSPACEHEAT1, EUSPACEHEAT2, EUWATERHEAT, EUBOILER1, EUBOILER2, EUBOILER3, EUBOILER4 |
| FGSTORAGETANKS | Eight storage tanks for various liquids. | EULUBEOILTANK, EUUSEDOILTANK, EUPOLRESTANK1, EUPOLRESTANK2, EUPOLRESDAYTANK1, EUPOLRESDAYTANK2, EUCAUSTICTANK1, EUCAUSTICTANK2 |
| FGSTORAGETOTES | Three storage totes for various liquids. | EUSODHYPCHLTOTE, EUCITACIDTOTE, EUFOAMSUPTOTE |

FGSLTANKS
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Sludge blending tanks and volute thickening units prior to the digesters. Emissions are controlled from all of them by a communal biofilter odor control system.

Emission Unit: EUSBLENDING1, EUSBLENDING2, EUVOLTHICK1, EUVOLTHICK2, EUVOLTHICK3, EUVOLTHICK4

POLLUTION CONTROL EQUIPMENT

Communal biofilter odor control system, which also reduces sulfur-bearing compounds.

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall keep and maintain a preventative maintenance / malfunction abatement plan (PM / MAP) for FGSLTANKS. After approval of the PM / MAP by the AQD District Supervisor, the permittee shall not operate FGSLTANKS 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, 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 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 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1910, R 336.1911, R 336.1912)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate FGSLTANKS unless a communal biofilter odor control system is installed, maintained, and operated in a satisfactory manner. Satisfactory manner includes operating and maintaining the control device in accordance with an approved PM / MAP for FGSLTANKS as required in SC III.1 and keeping the emissions from media changeouts to a minimum. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1910, R 336.1911)**

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 keep, in a satisfactory manner, all records related to, or as required by, the PM / MAP. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1910, R 336.1911, R 336.1912)**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of FGSLTANKS. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTION(S)

1. The permittee shall route all exhaust gases to the communal biofilter odor control system. **(R 336.1225, R 336.1901)**

IX. OTHER REQUIREMENT(S)

NA

FGDIGESTERS FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Three digester tanks that have a combined biogas maximum production rate of 800 cubic feet per minute with a 60% methane content.

Emission Unit: EUDIGESTER1, EUDIGESTER2, EUDIGESTER3

POLLUTION CONTROL EQUIPMENT

Gas routes to the conditioning system or to the flares.

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. No later than 45 days after the completion of installation of the equipment, the permittee shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance / malfunction abatement plan (PM / MAP) for FGDIGESTERS. After approval of the PM / MAP by the AQD District Supervisor, the permittee shall not operate FGDIGESTERS 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, 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. These may include:
 - i. Indicators of proper health of the biodigestion, and how often the indicators will be monitored.
 - ii. A list of additives and the procedure for determining when additives are needed.
 - iii. Indicators of struvite or other system disrupting compounds.
 - iv. How the system will be vented in case of an emergency, including if it will be to a control device or through a bypass.
 - 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 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1910, R 336.1911, R 336.1912)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

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 keep, in a satisfactory manner, all records related to, or as required by, the PM / MAP. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1910, R 336.1911, R 336.1912)**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of FGDIGESTERS. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTION(S)

1. The permittee shall route all exhaust gases (raw biogas) to either EUCONDSYS or FGFLARES. **(R 336.1225, R 336.1901)**

IX. OTHER REQUIREMENT(S)

NA

| |
|---|
| FGDS FLEXIBLE GROUP CONDITIONS |
|---|

DESCRIPTION

The digested sludge transfer (DST) tank, CO₂ release (CO₂R) tank, and the Schwing Nutrient Removal System. The DST tank and CO₂R tank are both vented to an activated carbon system.

Emission Unit: EUDSTTANK, EU_{CO2}RTANK, EUNURESYS

POLLUTION CONTROL EQUIPMENT

The DST tank and CO₂R tank are both vented to an activated carbon treatment system to control odors and sulfur-bearing compounds.

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall keep and maintain a preventative maintenance / malfunction abatement plan (PM / MAP) for the activated carbon treatment system. After approval of the PM / MAP by the AQD District Supervisor, the permittee shall not operate FGDS 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, 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 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 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1910, R 336.1911, R 336.1912)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate FGDS unless an activated carbon treatment system is installed, maintained, and operated in a satisfactory manner. Satisfactory manner includes operating and maintaining the control device in accordance with an approved PM / MAP, as required in SC III.1 and keeping the emissions from media changeouts to a minimum. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1910, R 336.1911)**

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. The permittee shall keep, in a satisfactory manner, all records related to, or as required by, the PM / MAP. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1910, R 336.1911, R 336.1912)**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of FGDS. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTION(S)

1. The permittee shall route all exhaust gases to the activated carbon treatment system. **(R 336.1225, R 336.1901)**

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

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

**FGCHP
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Three combined heat and power engines, each with a nominal rating of 1.411 MW (12.07 MMBTU/hr), used for electricity generation and heat for a heat loop for the digester tanks and incidental building heat. Each engine is equipped with an oxidation catalyst for control of CO, VOC, and formaldehyde.

Emission Unit: EUCHP1, EUCHP2, EUCHP3

POLLUTION CONTROL EQUIPMENT

Each engine is equipped with an oxidation catalyst to control CO and VOCs, which includes formaldehyde control.

I. EMISSION LIMIT(S)

| Pollutant | Limit | Time Period / Operating Scenario | Equipment | Monitoring / Testing Method | Underlying Applicable Requirements |
|---------------------|--|---|----------------------|--|---|
| 1. NO _x | 0.55 g/bhp-hr | Hourly | Each engine in FGCHP | SC V.2, SC VI.2 | R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d) |
| 2. NO _x | 1.0 g/hp-hr Or 82 ppmvd @15%O ₂ | Hourly | Each engine in FGCHP | SC III.2, SC III.3, SC V.1, SC VI.2 | 40 CFR 60.4233(e), Table 1 of 40 CFR Part 60 Subpart JJJJ |
| 3. CO | 0.44 g/bhp-hr | Hourly | Each engine in FGCHP | SC V.2, SC VI.2 | R 336.1205(1)(a) & (3), 40 CFR 52.21(d) |
| 4. CO | 2.0 g/hp-hr Or 270 ppmvd @15%O ₂ | Hourly | Each engine in FGCHP | SC III.2, SC III.3, SC V.1, SC VI.2 | 40 CFR 60.4233(e), Table 1 of 40 CFR Part 60 Subpart JJJJ |
| 5. VOC ^A | 0.105 g/hp-hr | Hourly | Each engine in FGCHP | SC V.2, SC VI.2 | R 336.1205(1)(a) & (3), R 336.1702(a) |
| 6. VOC ^B | 0.7 g/hp-hr Or 60 ppmvd @15%O ₂ | Hourly | Each engine in FGCHP | SC III.2, SC III.3, SC V.1, SC VI.2 | 40 CFR 60.4233(e), Table 1 of 40 CFR Part 60 Subpart JJJJ |
| 7. Formaldehyde | 0.056 pph | Hourly | Each engine in FGCHP | SC V.2, SC VI.2 | R 336.1205(1)(a) & (3), R 336.1224, R 336.1225 |
| 8. Formaldehyde | 0.25 tpy | 12-month rolling time period as determined at the end of each calendar month. | Each engine in FGCHP | SC VI.3 | R 336.1205(1)(a) & (3), R 336.1225 |

| Pollutant | Limit | Time Period / Operating Scenario | Equipment | Monitoring / Testing Method | Underlying Applicable Requirements |
|---|-------|----------------------------------|-----------|-----------------------------|------------------------------------|
| ppmvd = parts per million by volume at 15 percent oxygen and on a dry gas basis ^A This emission rate was developed specifically to include formaldehyde and is dependent upon the control technology. ^B Per footnote "d" of Table 1 of 40 CFR Part 60 Subpart JJJJ, when calculating emissions of VOCs, emissions of formaldehyde should not be included. | | | | | |

II. MATERIAL LIMIT(S)

1. The permittee shall burn only pipeline quality natural gas in each unit of FGCHP, where pipeline quality natural gas consists of gas from a natural gas pipeline or renewable natural gas from the facility that meets the requirements of entry into the natural gas pipeline. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart JJJJ)**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. No later than 45 days after the completion of installation of the equipment, the permittee shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance / malfunction abatement plan (PM / MAP) for each engine in FGCHP. After approval of the PM / MAP by the AQD District Supervisor, the permittee shall not operate any engine in FGCHP 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, 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 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 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), R 336.1910, R 336.1911, R 336.1912, 40 CFR 52.21(c) & (d))**

2. The permittee shall operate and maintain each engine in FGCHP such that it meets the emission limits in SC I.2, SC I.4, and SC I.6 over the entire life of the engine. **(40 CFR 60.4234, 40 CFR 60.4243(b))**
3. The permittee shall keep a maintenance plan for each engine in FGCHP 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)(2))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate any engine in FGCHP unless the associated oxidation catalyst is installed, maintained, and operated in a satisfactory manner. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 52.21(c) & (d), 40 CFR Part 60 Subpart JJJJ)**

2. The nameplate capacity of each engine in FGCHP shall not exceed 1,411 kW, as certified by the equipment manufacturer. **(R 336.1205(1)(a) & (3), 40 CFR 60.4230)**

V. TESTING/SAMPLING

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

1. The permittee must demonstrate compliance for each engine in FGCHP as follows:
 - a) Conduct an initial performance test to demonstrate compliance with the applicable emission standards in 40 CFR 60.4233(e), within 60 days after achieving the maximum production rate at which each engine included in FGCHP will be operated, but not later than 180 days after initial startup of each engine included in FGCHP.
 - b) The performance tests shall be conducted according to 40 CFR 60.4244.
 - c) Thereafter, for each engine, conduct subsequent performance testing every 8,760 hours of engine operation or every 3 years, whichever comes first, to demonstrate compliance with the applicable emission standards.

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 AQD must approve the final plan prior to testing. No less than 7 days prior to testing, the permittee shall notify the AQD Technical Programs Unit and District Office, in writing, of the time and place of the test and who shall conduct it. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.8, 40 CFR 60.4243, 40 CFR 60.4244, 40 CFR 60.4245, 40 CFR Part 60 Subpart JJJJ)**

2. Within 180 days after startup of each engine included in FGCHP, the permittee shall verify NO_x, CO, VOC, and formaldehyde emission rates from each engine included in FGCHP by testing at owner's expense, in accordance with Department requirements. Thereafter, the permittee must complete the required testing every 8,760 hours of engine operation or every 3 years, whichever comes first. Testing shall be performed using an approved EPA Method listed below.

| Pollutant | Test Method Reference |
|------------------|------------------------------|
| NO _x | 40 CFR Part 60, Appendix A |
| CO | 40 CFR Part 60, Appendix A |
| VOCs | 40 CFR Part 60, Appendix A |
| HAPs | 40 CFR Part 63, Appendix A |

An alternate method, or a modification to the approved EPA Method, may be specified in an AQD-approved Test Protocol. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. No less than 7 days prior to testing, the permittee shall notify the AQD Technical Programs Unit and District Office, in writing, of the time and place of the test and who shall conduct it. 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)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), 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 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(1)(a) & (3), R 336.1225)**
2. The permittee shall keep, in a satisfactory manner, the following records for each engine in FGCHP:
 - a) Test reports for each engine, as required in SC V.1 and SC V.2.
 - b) Maintenance activities for each engine, as required by SC III.3.
 - c) All notifications submitted for the completion of construction and start-up.

The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d), 40 CFR 60.7(a)(1), 40 CFR 60.4243(b)(2)(ii), 40 CFR 60.4245(a), 40 CFR 60.4245(c))**

3. The permittee shall calculate and keep, in a satisfactory manner, records of monthly and 12-month rolling total formaldehyde mass emissions for each engine in FGCHP, as required by SC I.8. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a) & (3), R 336.1225)**
4. The permittee shall keep, in a satisfactory manner, all records related to, or as required by, the PM / MAP. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), R 336.1910, R 336.1911, R 336.1912, 40 CFR 52.21(c) & (d))**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of each engine in FGCHP. **(R 336.1201(7)(a))**
2. The permittee must submit an initial notification as required in 40 CFR 60.7(a)(1), for each engine in FGCHP. The notification must include the following information:
 - a) The date construction commenced.
 - b) Name and address of the owner or operator.
 - c) The address of the engine.
 - d) Information about the engine, including make, model, engine family, serial number, model year, maximum engine power, and engine displacement.
 - e) The engine's emission control equipment.
 - f) Fuel used.

The notification shall be submitted to the AQD District Supervisor and must be postmarked no later than 30 days after the date construction commenced. **(40 CFR 60.7(a)(1), 40 CFR 60.4245(c))**

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. SVCHP1 | 15.4 | 32.8 | R 336.1225, 40 CFR 52.21(c) & (d) |
| 2. SVCHP2 | 15.4 | 32.8 | R 336.1225, 40 CFR 52.21(c) & (d) |
| 3. SVCHP3 | 15.4 | 32.8 | R 336.1225, 40 CFR 52.21(c) & (d) |

IX. OTHER REQUIREMENT(S)

1. The permittee shall notify the Department if a change in land use occurs for property classified as industrial or as a public roadway, where this classification was relied upon to demonstrate compliance with Rule 225(1). The permittee shall submit the notification to the AQD District Supervisor, within 30 days of the actual land

use change. Within 60 days of the land use change, the permittee shall submit to the AQD District Supervisor a plan for complying with the requirements of Rule 225(1). The plan shall require compliance with Rule 225(1) no later than one year after the due date of the plan submittal. **(R 336.1225(4))**

2. 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 FGCHP. **(40 CFR Part 60 Subparts A & JJJJ, 40 CFR 63.6590(c)(1))**
3. 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 FGCHP. **(40 CFR Part 63 Subparts A & ZZZZ)**

**FGFLARES
 FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two open flares that may burn raw biogas, biogas with H₂S removed, or off-spec renewable natural gas.

Emission Unit: EUFLARE1, EUFLARE2

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

| Pollutant | Limit | Time Period / Operating Scenario | Equipment | Monitoring / Testing Method | Underlying Applicable Requirements |
|--------------------|-----------|--|-----------|-----------------------------|--|
| 1. SO ₂ | 3.57 tpy* | 12-month rolling time period as determined at the end of each calendar month | FGFLARES | SC VI.4 | R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d) |

*This is based upon a H₂S concentration of 1,200 ppm in raw biogas and 15 ppm in H₂S-conditioned biogas and pipeline quality natural gas.

II. MATERIAL LIMIT(S)

| Material | Limit | Time Period / Operating Scenario | Equipment | Monitoring / Testing Method | Underlying Applicable Requirements |
|--|-----------------------------|--|-----------|-----------------------------|---|
| 1. H ₂ S-conditioned biogas and pipeline quality natural gas burned | 103.68 million scf per year | 12-month rolling time period as determined at the end of each calendar month | FGFLARES | SC VI.4, VI.5 | R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702, 40 CFR 52.21(c) & (d) |
| 2. Raw biogas burned | 34.56 million scf per year | 12-month rolling time period as determined at the end of each calendar month | FGFLARES | SC VI.4, VI.5 | R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702, 40 CFR 52.21(c) & (d) |

3. The permittee shall burn only raw biogas, H₂S-conditioned biogas, or pipeline quality natural gas in each unit of FGFLARES, where raw biogas is directly from a digester tank, H₂S-conditioned biogas is raw biogas that has passed through the H₂S conditioning portion of EUCONDNSYS, and pipeline quality natural gas consists of gas from a natural gas pipeline or renewable natural gas from the facility that meets the requirements of entry into the natural gas pipeline. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. No later than 45 days after the completion of installation of the equipment, the permittee shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance / malfunction abatement plan (PM / MAP) for each unit of FGFLARES. After approval of the PM / MAP by the AQD District Supervisor, the permittee shall not operate any unit of FGFLARES 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, 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 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 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), R 336.1910, R 336.1911, R 336.1912, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to continuously monitor and record the H₂S concentration in the biogas sent to FGFLARES. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1901, 40 CFR 52.21(c) & (d))**
2. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to continuously monitor and record the total volumetric flow rate of gas burned in FGFLARES. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1901, 40 CFR 52.21(c) & (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(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702, 40 CFR 52.21(c) & (d))**
2. The permittee shall keep, in a satisfactory manner, all records related to, or as required by, the PM / MAP. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), R 336.1910, R 336.1911, R 336.1912, 40 CFR 52.21(c) & (d))**
3. The permittee shall keep, in a satisfactory manner, records of the H₂S concentration in the biogas sent to FGFLARES. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1901, 40 CFR 52.21(c) & (d))**
4. The permittee shall keep, in a satisfactory manner, records of the times when raw biogas bypasses EUCONDSYS and is sent directly to FGFLARES. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1901, 40 CFR 52.21(c) & (d))**

5. The permittee shall keep, in a satisfactory manner, records of the total volume (MMscf) of H₂S-conditioned biogas and pipeline quality natural gas burned in FGFLARES, and the total volume of raw biogas (MMscf) burned in FGFLARES, on a monthly and 12-month rolling time period. The permittee shall keep all records on file 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))**
6. The permittee shall calculate and keep, in a satisfactory manner, records of monthly and 12-month rolling total SO₂ mass emissions for FGFLARES. Calculations shall be performed using data collected through the devices required in SC IV.1 and SC IV.2. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d))**

VII. REPORTING

1. Within 30 days after completion of the installation, construction, reconstruction, relocation, or modification authorized by this Permit to Install, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, or modification is considered to occur not later than commencement of trial operation of each unit in FGFLARES. **(R 336.1201(7)(a))**

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. SVFLARE1 | 48 | 28.5 | R 336.1225, 40 CFR 52.21(c) & (d) |
| 2. SVFLARE2 | 48 | 28.5 | R 336.1225, 40 CFR 52.21(c) & (d) |

IX. OTHER REQUIREMENT(S)

NA

**FGSPACEHEAT
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two natural gas, direct-fired space heating units, one natural gas-fired water heater, and four natural gas-fired boilers.

Emission Unit: EUSPACEHEAT1, EUSPACEHEAT2, EUWATERHEAT, EUBOILER1, EUBOILER2, EUBOILER3, EUBOILER4

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

1. The permittee shall burn only pipeline quality natural gas in each unit of FGSPACEHEAT, where pipeline quality natural gas consists of gas from a natural gas pipeline or renewable natural gas from the facility that meets the requirements of entry into the natural gas pipeline. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The maximum combined design heat input capacity for FGSPACEHTRS shall not exceed 12.4 MMBTU per hour on a fuel heat input basis. **(R 336.1205(1)(a) & (b), R 336.1225, 40 CFR 52.21(c) & (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 keep manufacturer documentation showing the maximum heat input for each unit in FGSPACEHEAT. The permittee shall calculate the sum of the maximum heat inputs for all units in FGSPACEHEAT. **(R 336.1205(1)(a) & (b), R 336.1225, 40 CFR 52.21(c) & (d))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

| |
|---|
| FGSTORAGETANKS FLEXIBLE GROUP CONDITIONS |
|---|

DESCRIPTION

Eight storage tanks for various liquids.

Emission Unit: EULUBEOILTANK, EUUSED OILTANK, EUPOLRESTANK1, EUPOLRESTANK2, EUPOLRES DAYTANK1, EUPOLRES DAYTANK2, EUCAUSTICTANK1, EUCAUSTICTANK2

POLLUTION CONTROL EQUIPMENT

Closed when not in use.

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall keep and maintain a preventative maintenance / malfunction abatement plan (PM / MAP) for FGSTORAGETANKS. After approval of the PM / MAP by the AQD District Supervisor, the permittee shall not operate FGSTORAGETANKS 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, 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. This may include:
 - i. Procedure for containing and cleaning up spills.

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 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1910, R 336.1911, R 336.1912)

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

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 keep, in a satisfactory manner, all records related to, or as required by, the PM / MAP. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1910, R 336.1911, R 336.1912)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

| |
|---|
| FGSTORAGETOTES FLEXIBLE GROUP CONDITIONS |
|---|

DESCRIPTION

Three storage totes for various liquids.

Emission Unit: EUSODHYPCHLTOTE, EUCITACIDTOTE, EUFOAMSUPTOTE

POLLUTION CONTROL EQUIPMENT

Closed when not in use.

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall keep and maintain a preventative maintenance / malfunction abatement plan (PM / MAP) for FGSTORAGETOTES. After approval of the PM / MAP by the AQD District Supervisor, the permittee shall not operate FGSTORAGETOTES 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, 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. This may include:
 - i. Procedure for containing and cleaning up spills.

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 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), R 336.1910, R 336.1911, R 336.1912, 40 CFR 52.21(c) & (d))

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

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 keep, in a satisfactory manner, all records related to, or as required by, the PM / MAP. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1910, R 336.1911, R 336.1912)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA