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

June 24, 2024

PERMIT TO INSTALL
73-24

ISSUED TO
Air Liquide Advanced Technologies US, LLC

LOCATED AT
6790 East Mulder Road
Falmouth, Michigan 49632

IN THE COUNTY OF
Missaukee

STATE REGISTRATION NUMBER
P1427

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: **June 7, 2024**	
DATE PERMIT TO INSTALL APPROVED: **June 24, 2024**	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_2e	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_2S	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 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))	Flexible Group ID
EU_BUU	Biogas upgrading unit used to upgrade the raw anaerobic biogas to meet pipeline specifications. Following the removal of impurities such as CO_2, N_2 and small amounts of H_2S, the biogas will be injected into the pipeline and sold as renewable natural gas.	NA
EU_FLARE	One digester gas flare used as backup for EU_BUU during start up activities and process upsets. The flare is capable of burning up to 600 scfm, giving a heat input capacity of 23.4 MMBtu/hr when using an estimated higher heating value of the digester gas of 649 Btu/scf.	NA
EU_BOILER	Natural gas-fired boiler used to provide heat to the digesters when additional heat is necessary. The boiler has a maximum heat input of 6 MMBtu/hr.	NA
EU_CHP1	Combined heat and power (CHP) engine rated at 550 kW with a maximum heat input of 4.6 MMBtu/hr. The CHP unit is fueled by natural gas and used to supply power to the facility and heat the digesters.	FG_CHP
EU_CHP2	Combined heat and power (CHP) engine rated at 550 kW with a maximum heat input of 4.6 MMBtu/hr. The CHP unit is fueled by natural gas and used to supply power to the facility and heat the digesters.	FG_CHP

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.

EU_BUU
EMISSION UNIT CONDITIONS

DESCRIPTION

Biogas upgrading unit used to upgrade the raw anaerobic biogas to meet pipeline specifications. Following the removal of impurities such as CO_2, N_2 and small amounts of H_2S, the biogas will be injected into the pipeline and sold as renewable natural gas.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

1. The hydrogen sulfide (H_2S) concentration of the tail gas exiting EU_BUU shall not exceed 112 ppmv. **(R 336.1225, 40 CFR 52.21(c) & (d))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. No later than 90 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 EU_BUU. After approval of the PM/MAP by the AQD District Supervisor, the permittee shall not operate EU_BUU 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 336.1224, R 336.1225, R 336.1910, R 336.1911, R 336.1912)**

2. No later than 90 days after permit issuance, the permittee shall submit, implement, and maintain a nuisance minimization plan for odors as described in Appendix A, for EU_BUU. If at any time the plan fails to address or inadequately addresses odor management, the permittee shall amend the plan within 45 days after such an event occurs. The permittee shall also amend the plan within 45 days if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the plan and any amendments to the

plan to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the plan or amended plan shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to minimize odors. **(R 336.1901)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The maximum design flow rate of EU_BUU vent shall not exceed 272 standard cubic feet per minute. **(R 336.1225)**

2. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner, a device to monitor the H_2S content in the outlet of the lag H_2S media vessel. The concentration in the outlet of the lag H_2S media vessel is representative of the concentration in the vent gas exiting EU_BUU. Satisfactory manner includes operating and maintaining EU_BUU in accordance with an approved PM/MAP for EU_BUU, as required in SC III.1. **(R 336.1224, R 336.1225, R 336.1901)**

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 336.1224, R 336.1225, R 336.1910, R 336.1911, R 336.1912)**

2. The permittee shall keep, in a satisfactory manner, continuous records of the H_2S concentration in the outlet of the lag H_2S media vessel. The concentration in the outlet of the lag H_2S media vessel is representative of the concentration in the vent gas exiting EU_BUU. Continuous shall be defined in this permit as at least one reading every 15 minutes. The permittee shall keep all records on file and make them available to the Department upon request. **(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 EU_BUU. **(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. SV_BUU	4	31.8	R 336.1225, 40 CFR 52.21 (c) & (d)

IX. OTHER REQUIREMENT(S)

NA

EU_FLARE
EMISSION UNIT CONDITIONS

DESCRIPTION

One digester gas flare used as backup for EU_BUU during start up activities and process upsets. The flare is capable of burning up to 600 scfm, giving a heat input capacity of 23.4 MMBtu/hr when using an estimated higher heating value of the digester gas of 649 Btu/scf.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. SO_2	13.6 tpy	12-month rolling time period as determined at the end of each calendar month	EU_FLARE	SC VI.6	40 CFR 52.21(c) & (d)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. H_2S concentration of the biogas	5,000 ppmv	Operating Day	EU_FLARE	SC VI.3	R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d)

2. Except for natural gas in the pilot, the permittee shall burn only gas produced by the anaerobic digester (digester biogas) in EU_FLARE. **(R 336.1225, 40 CFR 52.21(c) & (d))**

3. The volumetric flow rate for EU_FLARE shall not exceed a maximum of 600 scfm at all times. **(R 336.1224, R 336.1225, R 336.1702, 40 CFR 52.21)**

4. The permittee shall not flare more than 33.4 MMscf of Biogas per year on a 12-month rolling time period as determined at the end of each calendar month. **(R 336.1225, R 336.1702, 40 CFR 52.21(c) & (d))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. No later than 90 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 EU_FLARE. After approval of the PM/MAP by the AQD District Supervisor, the permittee shall not operate EU_FLARE 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 336.1224, R 336.1225, R 336.1910, R 336.1911, R 336.1912)**

2. No later than 90 days after permit issuance, the permittee shall submit, implement, and maintain a nuisance minimization plan for odors as described in Appendix A, for EU_FLARE. If at any time the plan fails to address or inadequately addresses odor management, the permittee shall amend the plan within 45 days after such an event occurs. The permittee shall also amend the plan within 45 days if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the plan and any amendments to the plan to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the plan or amended plan shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to minimize odors. **(R 336.1901)**

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 volumetric flow rate of biogas burned in EU_FLARE. Continuous shall be defined in this permit as at least one reading every 15 minutes. **(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 H_2S content of biogas sent to EU_FLARE. Continuous shall be defined in this permit as at least one reading every 15 minutes. **(R 336.1224, R 336.1225, R 336.1901, 40 CFR 52.21(c) & (d))**

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 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 336.1224, 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 336.1224, 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, continuous records of the H_2S content of the digester biogas routed to EU_FLARE, for each day that the flare is operated. Continuous shall be defined in this permit at least one reading every 15 minutes. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**

4. The permittee shall keep, in a satisfactory manner, continuous records of the volumetric flow rate of digester biogas routed to EU_FLARE. Continuous shall be defined in this permit at least one reading every 15 minutes. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**

5. The permittee shall keep, in a satisfactory manner, records of the total volume (MMscf) of digester biogas burned in EU_FLARE 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 336.1224, 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 SO_2 mass emissions for EU_FLARE. Calculations shall be performed using data collected through the devices required in SC IV.1 and SC IV.2 and as described in Appendix B. The permittee shall keep all records on file and make them available to the Department upon request. **(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 EU_FLARE. **(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. SV_FLARE	24	29.5	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

NA

EU_BOILER
EMISSION UNIT CONDITIONS

DESCRIPTION

Natural gas-fired boiler used to provide heat to the digesters when additional heat is necessary. The boiler has a maximum heat input of 6 MMBtu/hr.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

1. The permittee shall burn only natural gas in EU_BOILER. **(R 336.1225, R 336.1702)**

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The maximum heat input capacity of EU_BOILER shall not exceed 6 MMBtu/hr. **(R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**

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))**

NA

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 Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV_BOILER	9.76	14.7	R 336.1225, 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
FG_CHP	Two (2) identical combined heat and power (CHP) engines rated at 550 kW with a maximum heat input of 4.6 MMBtu/hr. The CHP units are fueled by natural gas and used to supply power to the facility and heat the digesters.	EU_CHP1 EU_CHP2

FG_CHP
FLEXIBLE GROUP CONDITIONS

DESCRIPTION

Two identical Greenwatt KE-MNG-500-BL combined heat and power (CHP) engines rated at 550 kW with a maximum heat input of 4.6 MMBtu/hr. The CHP units are fueled by natural gas and used to supply power to the facility and heat the digesters. Engines are subject to requirements under 40 CFR 60 Subpart JJJJ.

Emission Unit IDs: EU_CHP1 & EU_CHP2

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. NO_x	1.0 g/HP-hr	Hourly	EU_CHP1, EU_CHP2	SC V.1	40 CFR 60.4233(e), Table 1 to 40 CFR Part 60 Subpart JJJJ
2. CO	2.0 g/HP-hr	Hourly	EU_CHP1, EU_CHP2	SC V.1	40 CFR 60.4233(e), Table 1 to 40 CFR Part 60 Subpart JJJJ
3. VOC	0.7 g/HP-hr[a]	Hourly	EU_CHP1, EU_CHP2	SC V.1	40 CFR 60.4233(e), Table 1 to 40 CFR Part 60 Subpart JJJJ

[a] For purposes of this emission limit, when calculating emissions of VOC, emissions of formaldehyde should not be included. *(See Table 1 to 40 CFR 60 Subpart JJJJ.)*

II. MATERIAL LIMIT(S)

1. The permittee shall burn only pipeline-quality natural gas in FG_CHP. Pipeline-quality natural gas shall be defined by 40 CFR Part 60 Subpart JJJJ. **(R 336.1224, R 336.1225, 40 CFR Part 60.4248)**

2. The permittee shall burn no more than 46.8 MMscf of pipeline-quality natural gas per 12 month rolling time period as determined at the end of each calendar month in each of EU_CHP1 and EU_CHP2. **(R 336.1225(2)[1])**

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. No later than 90 days after the initial startup of FG_CHP, the permittee shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance / malfunction abatement plan (PM / MAP) for FG_CHP. After approval of the PM / MAP by the AQD District Supervisor, the permittee shall not operate FG_CHP 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 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 PM / MAP to be inadequate, the AQD District Supervisor may request modification of the plan to address those inadequacies. **(R 336.1205, R 336.1225, R 336.1702(a), R 336.1910, R 336.1911, R 336.1912, 40 CFR 52.21(c) & (d), 40 CFR 60.4243(b))**

2. The permittee shall operate and maintain FG_CHP such that it meets the emission limits over the entire life of the engines. **(40 CFR 60.4234)**

3. If the permittee purchased certified engines, according to procedures specified in 40 CFR Part 60 Subpart JJJJ, for the same model year, the permittee shall meet the following requirements for FG_CHP:
   a) Operate and maintain the certified engines and control device according to the manufacturer's emission-related written instructions,
   b) May only adjust engine settings according to and consistent with the manufacturer's emission-related written instructions,
   c) Meet the requirements as specified in 40 CFR 1068 Subparts A through D.

   If the permittee does not operate and maintain the certified engines and control devices according to the manufacturer's emission-related written instructions, the engines will be considered non-certified engines. **(40 CFR 60.4243(b)(1))**

4. If the permittee purchased non-certified engines or certified engines operating in a non-certified manner, the permittee shall keep a maintenance plan and records of conducted maintenance for FG_CHP 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 nameplate heat input capacity of each engine in FG_CHP shall not exceed 4.6 MMBtu/hr as certified by the equipment manufacturer. **(R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d))**

V. TESTING/SAMPLING

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

1. If FG_CHP has a non-certified engine and control device or a certified engine operating in a non-certified manner, per 40 CFR Part 60 Subpart JJJJ, the permittee must demonstrate compliance 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 FG_CHP will be operated, but no later than 180 days after initial startup.
   b) If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4244.
   c) Conduct subsequent performance testing every 8,760 hours of engine operation or every 3 years, whichever comes first.

   If a performance test is required, 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. 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. **(40 CFR 60.8, 40 CFR 60.4243, 40 CFR 60.4244, 40 CFR 60.4245, 40 CFR Part 60 Subpart JJJJ)**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep all required records and/or calculations in a format acceptable to the AQD District Supervisor 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(1)(a) & (3), R 336.1225, 40 CFR 52.21(c) & (d))**

2. If FG_CHP has certified engines, the permittee shall keep, in a satisfactory manner, the following records:
   a) Documentation indicating that each engine has been maintained according to manufacturer written instructions, is certified to meet the emission standards, and other information as required in 40 CFR Parts 90, 1048, 1054, and 1060, as applicable.

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

3. If FG_CHP has a non-certified engine (or operated in a non-certified manner), the permittee shall keep, in a satisfactory manner, the following records:
   a) Testing for each engine, as required in SC V.1.
   b) Maintenance activities for each engine, as required by SC III.4.

   The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a), 40 CFR 52.21(c) & (d), 40 CFR 60.4245(a)(4))**

4. The permittee shall keep records of notifications submitted for the completion of construction and start-up of FG_CHP. **(40 CFR 60.4245(a))**

5. The permittee shall maintain records of all information necessary for all notifications and reports as specified in these special conditions as well as that information necessary to demonstrate compliance with the emission limits of this permit for FG_CHP. This information shall include, but shall not be limited to the following:
   a) Compliance tests and any testing required under the special conditions of this permit.
   b) Monitoring data.
   c) Verification of heat input capacity.
   d) Identification, type, and amount of fuel combusted on a calendar month basis.
   e) All calculations necessary to show compliance with the limits contained in this permit.
   f) All records related to, or as required by, the MAP.

   All of the above information shall be stored in a format acceptable to the AQD District. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1331, R 336.1702(a), R 336.1910, R 336.1910, R 336.1912, 40 CFR Part 60 Subpart JJJJ)**

6. The permittee shall keep, in a satisfactory manner, records of monthly and 12-month rolling pipeline-quality natural gas consumption in each of EU_CHP1 and EU_CHP2, as required by SC II.2. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1224, R 336.1225, 40 CFR 52.21(c) & (d))**

VII. REPORTING

1. If engines in FG_CHP have not been certified by an engine manufacturer to meet the emission standards in 40 CFR 60.4231, the permittee shall submit an initial notification as required in 40 CFR 60.7(a)(1). The notification must include the following information:
   a) The date construction of the engine commenced.
   b) Name and address of the owner or operator.
   c) The address of the affected source.
   d) The engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement.
   e) The emission control equipment.
   f) Fuel used in the engine.

The notification must be postmarked no later than 30 days after construction commenced for each engine. **(40 CFR 60.7(a)(1), 40 CFR 60.4245(c))**

2. The permittee shall submit a notification specifying whether FG_CHP will be operated in a certified or a non-certified manner to the AQD District Supervisor, in writing, within 30 days following the initial startup of the engine and within 30 days of switching the manner of operation. **(R 336.1201(3))**

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. SV_CHP1	12	40	R 336.1225, 40 CFR 52.21(c) & (d)
2. SV_CHP2	12	40	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable provisions of the New Source Performance Standards, as specified in 40 CFR Part 60, Subpart A and Subpart JJJJ, as they apply to FG_CHP. **(40 CFR Part 60 Subparts A and JJJJ)**

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 ZZZZ, as they apply to FG_CHP. **(40 CFR Part 63 Subparts A and ZZZZ, 40 CFR 63.6595)**

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

APPENDIX A
Nuisance Minimization Plan: Odors

I. Introduction

Purpose, description of each potential source of odors, permit number, background information, etc.

II. Potential Sources of Odorous Emissions and Related Equipment

Listing of equipment at source that could generate potential odors. Identify process and/or equipment, control equipment (if applicable), and any other information necessary to aid in addressing a complaint if received.

III. Maintenance Schedule

Description of maintenance schedule for equipment, procedures, etc.

IV. Best Management Practices/Housekeeping Measures

Identify best management practices and housekeeping measures the source will use to aid in the minimization of odorous emissions. Explain how odors will be minimized during all startups, shutdowns, and malfunctions. The plan shall incorporate procedures recommended by the equipment manufacturer(s), as well as incorporating standard industry practices.

V. Odor Incident Notification/Investigation/Response

Describe procedures that shall be taken to address odor complaints. Identify the individual(s) at the facility who will be responsible for initiating the response procedures upon the receipt of an odor complaint notification from the AQD, a neighbor, or other source. The response should include taking records that include the date and time of the complaint, meteorological data for the timeframe specified in the complaint, identification of the equipment/process that is most likely to be the source of the complaint, steps taken to identify any maintenance or corrective action necessary for the equipment involved, and other measures utilized by the permittee to address the complaint.

APPENDIX B
Procedures for Calculating Emissions for EU_FLARE

The permittee shall demonstrate compliance with the emission limits in this permit by monitoring digester biogas flow rates and digester biogas H_2S concentration.

Calculation for Monthly SO_2 Emissions using digester biogas H_2S Monitoring:

The following calculation for SO_2 emissions shall utilize the continuous H_2S concentration measurements and continuous flow rate measurements.

$$SO_2\ Monthly\ \left(\frac{ton\ SO_2}{month}\right) = \sum_{i=1}^{C}(A_i\ H_sS\ ppmv * B_i \frac{MMscf\ Biogas}{hour}) * \frac{64.06\ lb\ SO2}{lb-mol} * \frac{lb-mol}{385.3\ scf} * \frac{ton}{2{,}000\ lb}$$

A_i = Maximum measured H_2S concentration (ppmv) of biogas routed to EU_FLARE during each operational hour (as measured at least once every 15 minutes)

B_i = Total volume of biogas routed to EU_FLARE during the operational hour

C = Total number of operational hours in the calendar month

Alternative SO_2 emissions calculation methodology may be used upon approval of the AQD District Supervisor.