MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

July 14, 2017

PERMIT TO INSTALL
89-15A

ISSUED TO
Merit Energy Company – Manistee 23

LOCATED AT
4000 Fisk Road
Manistee, Michigan

IN THE COUNTY OF
Manistee

STATE REGISTRATION NUMBER
B6013

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. 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 27, 2017**	
DATE PERMIT TO INSTALL APPROVED: **July 14, 2017**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	BTU	British Thermal Unit
BACT	Best Available Control Technology	°C	Degrees Celsius
CAA	Clean Air Act	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
CO_2e	Carbon Dioxide Equivalent	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H_2S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
GHGs	Greenhouse Gases	kW	Kilowatt
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfunction Abatement Plan	NO_x	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate Matter
MSDS	Material Safety Data Sheet	PM10	PM with aerodynamic diameter ≤10 microns
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	PM with aerodynamic diameter ≤ 2.5 microns
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	psia	Pounds per square inch absolute
PTI	Permit to Install	psig	Pounds per square inch gauge
RACT	Reasonably Available Control Technology	scf	Standard cubic feet
ROP	Renewable Operating Permit	sec	Seconds
SC	Special Condition	SO_2	Sulfur Dioxide
SCR	Selective Catalytic Reduction	THC	Total Hydrocarbons
SRN	State Registration Number	tpy	Tons per year
TAC	Toxic Air Contaminant	µg	Microgram
TEQ	Toxicity Equivalence Quotient	VOC	Volatile Organic Compound
VE	Visible Emissions	yr	Year

* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

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 Environmental Quality, 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 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 R 336.1219 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 R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(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 R 336.1301, 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 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 R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

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 (Process Equipment & Control Devices)	Flexible Group ID
EUSOURGASPLANT	Hydrogen sulfide is removed from the sour gas by the amine process and the residue gas is sold. Hydrogen sulfide/acid gas is sent to an acid gas injection (AGI) system to be completely re-injected into oil or gas bearing geologic strata. There is also an emergency/ pressure relief flare.	NA
EUDEHY	Glycol dehydrator. Saturated water vapor is removed from natural gas by glycol dehydration. Vented to a vapor recovery unit or emergency/pressure relief flare.	NA
EUCIENGINE	450 HP diesel fired reciprocating engine powering a 0.25 MW emergency electrical generator.	NA
EUTANK1	1,000 barrel (42,500 gallons) fixed roof sour crude oil tank vented to a vapor recovery system or emergency/pressure relief flare.	FGTANKS
EUTANK2	1,000 barrel (42,500 gallons) fixed roof sour crude oil tank vented to a vapor recovery system or emergency/pressure relief flare.	FGTANKS
EU-MN23GEN1	750 HP natural gas fired reciprocating engine powering a 0.6 MW electric generator with catalytic control to reduce NO_x, CO, and VOC emissions.	FGSIENGINES
EU-MN23GEN3	750 HP natural gas fired reciprocating engine powering a 0.6 MW electric generator with catalytic control to reduce NO_x, CO, and VOC emissions.	FGSIENGINES
EU-MN23-COMP1	1000 HP natural gas fired reciprocating compressor engine with catalytic control to reduce NO_x, CO, and VOC emissions.	FGSIENGINES
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 336.1290.		

The following conditions apply to:
EUSOURGASPLANT

DESCRIPTION: Hydrogen sulfide is removed from the sour gas by the amine process and the residue gas is sold. Hydrogen sulfide/acid gas is sent to an acid gas injection (AGI) system to be completely re-injected into oil or gas bearing geologic strata.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Acid gas injection (AGI) system and emergency/pressure relief flare.

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall implement and maintain a Malfunction Abatement Plan (MAP). If the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall revise the MAP within 45 days after such an event occurs. The revised plan shall include procedures for operating and maintaining the process equipment, add-on pollution control device(s), or monitoring equipment during similar malfunction events, and a program for corrective actions for such events. Any revisions made to the MAP shall be submitted to the AQD District Supervisor for review and approval. **(R 336.1910, R 336.1911)**

2. The permittee shall operate in compliance with an approved H_2S Monitoring Plan including the following information:
   a. A diagram showing the locating of all monitors at EUSOURGASPLANT;
   b. A description of the monitoring equipment and the alarm systems and levels that will be utilized;
   c. An overall plan for ensuring the monitors will be operated at all times when EUSOURGASPLANT is operating.

   Modifications or revisions to the plan shall be submitted to and approved by the AQD District Supervisor. **(R 336.1403(5)(d))**

3. The permittee shall not operate EUSOURGASPLANT unless the AGI system and emergency/pressure relief flare are installed and operating properly, except as allowed in SC III.4. **(R 336.1403(1))**

4. If any malfunction or abnormal condition requires the permittee to temporarily limit or discontinue use of the AGI system and to bypass any acid gas to the emergency/pressure relief flare, the permittee shall immediately curtail all process inflow streams to the facility to minimal levels and shall otherwise operate the facility in a manner consistent with good air pollution control practices for minimizing emissions. If the malfunction or abnormal condition is not remedied within 240 minutes, the permittee shall commence shut-in of the facility and immediately stop routing any process inflow streams to the facility unless or until the acid gas can be re-routed to the AGI system. **(R 336.1403, R 336.1113(a))**

5. The permittee shall not operate EUSOURGASPLANT unless all sour gas emergency relief valves are exhausted to the emergency/pressure relief flare. **(R 336.1403(5)(c))**

6. In the event of indicated flame failure at the emergency/pressure relief flare, the process inflow streams will be automatically shut in. Operation of this facility shall not be restarted unless corrective measures taken to reignite the flame are successful. **(R 336.1403(5)(f), R 336.1403(2))**

7. The permittee shall automatically begin a safe and orderly shutdown of all process inflow streams to the facility if the concentration of H_2S is more than 100 ppm in any building enclosing a sweetening process. Full operation may resume only after successful corrective measures have been applied. **(R 336.1403(5)(e))**

8. The permittee shall expeditiously take corrective actions, consistent with good engineering practices to minimize the likelihood of a recurrence of any malfunction or abnormal condition. **(R 336.1205)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The emergency/pressure relief flare shall be equipped with a continuously burning pilot flame or automatic ignitors. **(R 336.1403(2))**

2. The emergency/pressure relief flare shall be equipped with failsafe flame sensors with an audible alarm activated by flame failure. **(R 336.1403(2))**

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 conduct a program of continuous monitoring of concentrations of H_2S in any building enclosing a sweetening process. The sensors shall be placed as close to process equipment as possible. The system shall be designed, installed and maintained to provide a visual alarm when the H_2S concentration is more than 50 ppm. **(R 336.1403(5)(d))**

2. The permittee shall monitor and record the mass flow of hydrogen sulfide either entering the plant or going to the emergency/pressure relief flare in a manner and with instrumentation acceptable to the AQD District Supervisor. The permittee shall maintain the monitoring system in proper operating condition. **(R 336.1403(5)(a))**

3. The permittee shall keep records, in a satisfactory manner, of the following information:
   a. The date and time that venting of acid gas to the emergency/pressure relief flare started and ended. If the venting involved multiple releases, the permittee shall set forth the starting and ending dates and times of each release;
   b. An estimate of the quantity of SO_2 that was emitted and the calculations that were performed in accordance with **Appendix A** to determine that quantity;
   c. The steps, if any, that the permittee took to limit the duration and/or quantity of SO_2 emissions associated with the venting;
   d. A detailed analysis that sets forth the root cause of the venting and all significant contributing causes, to the extent determinable;
   e. An analysis of the measures, if any, available to reduce the likelihood of a recurrence of venting to the emergency/pressure relief flare resulting from the same root cause or significant contributing causes in the future. If two or more reasonable alternatives exist to address the root cause, the analysis shall discuss the alternatives, if any, that are available, the probable effectiveness and cost of the alternatives, and whether or not an outside consultant should be retained to assist in the analysis. Possible design, operation, and maintenance changes shall be evaluated. If the permittee concludes that corrective action(s) is (are) required, the report shall include a description of the action(s) and, if not already completed, a schedule for implementation, including proposed commencement and completion dates. If the permittee concludes that corrective action is not required, the report shall explain the basis for that conclusion.

   (R 336.1205)

4. The permittee shall maintain records of malfunctions and abnormal conditions. The records shall include the date, time, the cause of the malfunction or abnormal condition, and the corrective action taken and/or operational changes made to prevent a reoccurrence. **(R 336.1912)**

VII. REPORTING

1. Not later than 45 days following any venting of acid gas to the emergency/pressure relief flare, the permittee shall submit to the AQD District Supervisor a report that includes all of the information specified in SC VI.3. **(R 336.1205)**

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

1. The permittee shall install and maintain fencing and warning signs and/or other measures as necessary to prevent unauthorized individuals from entering the plant property or buildings. Signs shall read “Danger – Poison Gas” and shall be spaced no more than 100 feet apart with at least one sign on each side of the plant property. **(R 336.1403(5)(b))**

The following conditions apply to:
EUDEHY

DESCRIPTION: Glycol dehydrator. Saturated water vapor is removed from natural gas by glycol dehydration.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Vapor recovery unit or emergency/pressure relief flare.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VOC	42.3 pounds/day	Calendar Day	EUDEHY	SC VI.1	R 336.1702(a)
2. VOC	7.72 tons/yr	Based on a 12 month rolling time period as determined at the end of each calendar month	EUDEHY	SC VI.1	R 336.1702(a)

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate the glycol dehydrator unless the glycol regenerator still is vented to the vapor recovery unit or the emergency/pressure relief flare. **(R 336.1702(a))**

2. The permittee shall not operate the glycol dehydrator unless the vapor recovery unit or emergency/pressure relief flare is installed and operating properly. Proper operation of the vapor recovery system includes capturing the VOC emissions and directing them to the suction side of the facility compressors. **(R 336.1910, R 336.1702(a))**

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

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

1. At least once each calendar year the permittee shall obtain, by sampling, an analysis of the wet gas stream. The permittee shall analyze the sample for nitrogen, carbon dioxide, hydrogen sulfide, C1 through C6 series hydrocarbons, benzene, toluene, xylene, ethylbenzene, and heptanes plus. The permittee must submit any request for a change in the sampling frequency to the AQD District Supervisor for review and approval. **(R 336.1205, R 336.1225, R 336.1702(a))**

VI. MONITORING/RECORDKEEPING

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

1. By the fifteenth day of each month, the permittee shall calculate the VOC emission rates for the previous month, in pounds per day and tons per 12 month rolling time period, using the most recent wet gas analysis and GRI-Glycalc Version 3.0 or higher. Other methods of calculating the VOC emission rates must be approved by the AQD prior to implementing. **(R 336.1205, R 336.1702(a))**

2. The permittee shall monitor and record the wet gas temperature and pressure, the flash tank temperature and pressure, and the ambient air temperature on a monthly basis. **(R 336.1205, R 336.1702(a))**

3. The permittee shall monitor and record the dry gas flow rate, the glycol flow rate, and the stripping gas flow rate on a daily basis. **(R 336.1205, R 336.1702(a))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

1. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants from Oil And Natural Gas Production Facilities, 40 CFR Part 63, Subpart HH. **(40 CFR Part 63, Subpart HH)**

The following conditions apply to:
EUCIENGINE

DESCRIPTION: 450 HP diesel fired reciprocating engine powering a 0.25 MW emergency electrical generator.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: NA

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

1. The permittee shall only use No. 1 or No. 2 fuel oil with a maximum sulfur content of 0.5 percent in EUCIENGINE. **(R 336.1205(1)(a) & (3), R 336.1402)**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EUCIENGINE for more than 500 hours per year. The hours of operation shall be based on the cumulative hours during the first 12-months following permit issuance, and the annual hours thereafter, per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205(1)(a) & (3))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall equip and maintain EUCIENGINE with a non-resettable hour meter to track the operating hours. **(R 336.1205(1)(a) & (3))**

2. The nameplate capacity of EUCIENGINE shall not exceed 450 HP, as certified by the equipment manufacturer. **(R 336.1205(1)(a) & (3))**

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. For each shipment of diesel fuel oil received, the permittee shall obtain records of the percent sulfur content from the supplier. All records shall be kept on file and made available to the Department upon request. **(R 336.1205(1)(a) & (3), R 336.1402)**

2. The permittee shall monitor and record the total hours of operation for EUCIENGINE. The total hours of operation shall be based on the cumulative hours during the first 12-months following permit issuance, and the annual hours thereafter, per 12-month rolling time period as determined at the end of each calendar month. All records shall be kept on file in a manner acceptable to the AQD District Supervisor, and made available to the Department upon request. **(R 336.1205(1)(a) & (3))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

1. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines. **(40 CFR 63.6595, 40 CFR Part 63, Subparts A and ZZZZ)**

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
FGTANKS	Two 1,000 barrel (42,500 gallons) fixed roof sour crude oil tanks, vented to a vapor recovery system or emergency/pressure relief flare.	EUTANK1 EUTANK2
FGSIENGINES	Three (3) non-emergency natural gas fired spark ignition 4-stroke rich burn (4SRB) reciprocating internal combustion engines (RICE) rated at 750 brake horsepower (bhp) or 1000 (bhp). All three engines have catalytic control to reduce NO_x, CO, and VOC emissions.	EU-MN23GEN1, EU-MN23GEN3, EU-MN23-COMP1

The following conditions apply to:
FGTANKS

DESCRIPTION: Two 1,000 barrel (42,500 gallons) fixed roof sour crude oil tanks.

Emission Units: EUTANK1, EUTANK2

POLLUTION CONTROL EQUIPMENT: Vapor recovery system or emergency/pressure relief flare.

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall equip and maintain FGTANKS with a vapor recovery system, which recovers not less than 90 percent by weight, of the uncontrolled organic vapor that would otherwise be emitted into the atmosphere. **(R 336.1604(1)(c))**

V. TESTING/SAMPLING

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

NA

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall conduct visual inspections of the tanks and vapor recovery system for leaks on a daily basis. **(R 336.1205, R 336.1604(1)(a), R 336.1403(5)(c))**

2. The permittee shall maintain a log of the visual inspections which includes the date, equipment identification, leak status, action taken to repair the leak, date repaired, and inspector's initials. **(R 336.1205, R 336.1604(1)(a), R 336.1403(5)(c))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

The following conditions apply to:
FGSIENGINES

DESCRIPTION: Three (3) non-emergency natural gas fired spark ignition 4-stroke rich burn (4SRB) reciprocating internal combustion engines (RICE) rated at 750 brake horsepower (bhp) or 1000 (bhp). All three engines have catalytic control to reduce NO_x, CO, and VOC emissions.

Emission Units: EU-MN23GEN1, EU-MN23GEN3, EU-MN23-COMP1

POLLUTION CONTROL EQUIPMENT: Catalytic control to reduce NO_x, CO, and VOC emissions.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NOx	11.4 tpy	12-month rolling time period as determined at the end of each calendar month	EU-MN23GEN1	SC VI.6	R 336.1205(1)(a) & (3)
2. NOx	11.4 tpy	12-month rolling time period as determined at the end of each calendar month	EU-MN23GEN3	SC VI.6	R 336.1205(1)(a) & (3)
3. NOx	15.2 tpy	12-month rolling time period as determined at the end of each calendar month	EU-MN23-COMP1	SC VI.6	R 336.1205(1)(a) & (3)
4. CO	14.3 tpy	12-month rolling time period as determined at the end of each calendar month	EU-MN23GEN1	SC VI.6	R 336.1205(1)(a) & (3)
5. CO	14.3 tpy	12-month rolling time period as determined at the end of each calendar month	EU-MN23GEN3	SC VI.6	R 336.1205(1)(a) & (3)
6. CO	19.0 tpy	12-month rolling time period as determined at the end of each calendar month	EU-MN23-COMP1	SC VI.6	R 336.1205(1)(a) & (3)

II. MATERIAL LIMITS

1. The permittee shall not burn any sour natural gas in FGSIENGINES. Sour gas is defined as any gas containing more than 1 grain of hydrogen sulfide or more than 10 grains of total sulfur per 100 standard cubic feet. **(R 336.1205(1)(a) & (3))**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. No later than 60 days after issuance of this permit, the permittee shall submit to the AQD District Supervisor, for review and approval, a revised malfunction abatement plan (MAP) for FGSIENGINES. After approval of the MAP by the AQD District Supervisor, the permittee shall not operate FGSIENGINES unless the 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 MAP to be inadequate, the AQD District Supervisor may request modification of the plan to address those inadequacies. **(R 336.1205, R 336.1702(a), R 336.1910, R 336.1911, R 336.1912)**

2. The permittee shall not operate any engine equipped with an add-on control device for more than 200 hours per engine per year without that control device consistent with the MAP (pursuant to SC III.1). The 200 hours shall include times after general maintenance is performed as allowed by the MAP. The hours per year limit is cumulative during the first 12-months following permit issuance, and the annual emission rate thereafter, in tons per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205(1)(a) & (3), R 336.1702(a))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EU-MN23GEN1, EU-MN23GEN3, or EU-MN23-COMP1 unless the associated catalytic control device is installed, maintained, and operated in a satisfactory manner, except as specified in SC III.2. Satisfactory operation includes performing the manufacturer's recommended maintenance on the control device and operating in conjunction with the MAP specified in SC III.1. **(R 336.1205(1)(a) & (3), R 336.1910)**

V. TESTING/SAMPLING

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

1. Upon request by the AQD District Supervisor, the permittee shall verify NO_x and CO emission factors used to calculate emissions from one or more engine(s) in FGSIENGINES, by testing at owner's expense, in accordance with Department requirements. If a test has been conducted, any resulting increase or decrease in an emission factor shall be implemented to calculate NO_x and CO. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. **(R 336.1205(1)(a) & (3), R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor and make them available by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(1)(a) & (3))**

2. The permittee shall monitor, in a satisfactory manner, the natural gas usage for each engine included in FGSIENGINES on a continuous basis. **(R 336.1205(1)(a) & (3))**

3. The permittee shall maintain a log of all maintenance activities conducted according to the MAP (pursuant to SC III.1). The permittee shall keep this log on file and make it available to the Department upon request. **(R 336.1205, R 336.1702(a), R 336.1911)**

4. The permittee shall keep, in a satisfactory manner, for any engine equipped with an add-on control device, monthly and 12-month rolling time period records of the hours that the engine is operated without the control device. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a) & (3), R 336.1702(a))**

5. The permittee shall keep, in a satisfactory manner, monthly fuel use records for each engine included in FGSIENGINES, as required by SC VI.2. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a) & (3))**

6. The permittee shall keep, in a satisfactory manner, NO_x and CO emission calculations for each engine included in FGSIENGINES, as required by SC I.1 through SC I.6 and **Appendix B**. The calculations shall determine the cumulative emission rate during the first 12-months following permit issuance, and the annual emission rate thereafter, in tons per 12-month rolling time period as determined at the end of each calendar month. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a) & (3))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

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-MN23-COMP1	18[1]	24[1]	R 336.1225

IX. OTHER REQUIREMENTS

1. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines. **(40 CFR 63.6595, 40 CFR Part 63, Subparts A and ZZZZ)**

Footnotes:

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

APPENDIX A
Calculations For Flaring Incidents

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

Venting Acid Gas to the Emergency/Pressure Relief Flare:

$$Tons\ SO_2 = FR \times TD \times Conc(H_2S) \times 8.44 \times 10^{-5}$$

Where:

FR = Average flow rate to the emergency/pressure relief flare during the venting of acid gas to the flare (scf per hour)

TD = Total duration of venting of acid gas to the emergency/pressure relief flare (hours)

Conc(H_2S) = Average concentration of H_2S in the acid gas vented to the emergency/pressure relief flare. (scf H_2S per scf gas)

$$8.44 \times 10^{-5} = \frac{lbmol\ H_2S}{379\ scf\ H_2S} \times \frac{64\ lb\ SO_2}{lbmol\ H_2S} \times \frac{ton}{2000\ lbs}$$

APPENDIX B
Procedures for Calculating NOx and CO Emissions

The permittee shall demonstrate compliance with the NOx and CO emission limits by keeping track of all fuel usage for each engine included in FGSIENGINES and multiplying that fuel usage by an equipment-specific emission factor. The emission factors are typically expressed as the mass of pollutant per unit of fuel.

The engine included in FGSIENGINES:
The permittee shall use emission factors from vendor data or from source specific testing (stack testing), as available for each engine included in FGSIENGINES. If emission factors from other sources are used, the permittee shall obtain the approval of the AQD District Supervisor before using the emission factors to calculate emissions.

The permittee shall document the source of each emission factor used in the calculations.