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

September 16, 2024

PERMIT TO INSTALL
110-24

ISSUED TO
Great Lakes Gas Transmission LP

LOCATED AT
151 Oss Road
Crystal Falls, Michigan 49920

IN THE COUNTY OF
Iron

STATE REGISTRATION NUMBER
N3760

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: **September 4, 2024**	
DATE PERMIT TO INSTALL APPROVED: **September 16, 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 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
EUUNIT804	Unit 804 – Solar Mars 100 stationary gas turbine. EU-UNIT804 is 16,149 hp at ISO conditions (0°F at site conditions). There is no associated control device. The turbine will be equipped with pilot active control logic (PACO) to keep the unit in SoLoNO$_x$ mode when temperatures drop below 0°F.	Estimated April 2025	NA

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.

EUUNIT804
EMISSION UNIT CONDITIONS

DESCRIPTION

Unit 804 – Solar Mars 100 stationary gas turbine scheduled to be installed in 2025. EU-UNIT804 is 16,149 hp at ISO conditions (0°F at site conditions). There is no associated control device. The turbine will be equipped with pilot active control logic (PACO) to keep the unit in SoLoNO$_x$ mode when temperatures drop below 0°F.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

EUUNIT804 is equipped with SoLoNO$_x$ dry low NO$_x$ combustion control

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. NO$_x$	25 ppmvd or 150 ng/J of useful output (1.2 lb/MWh) [A,B,C]	Hourly	EUUNIT804	SC V.2, SC V.3, SC VI.5	40 CFR 60.4320(a), Table 1 of 40 CFR Part 60 Subpart KKKK
2. NO$_x$	7.38 pph [A, B, D, E]	Hourly, except during startup and shutdown, low load operations, and cold weather operations	EUUNIT804	SC V.1, SC VI.5	R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d)
3. NO$_x$	35 tpy	12-month rolling time period as determined at the end of each calendar month	EUUNIT804	SC VI.4, SC VI.5	R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d)
4. CO	7.49 pph [A, B, D, E]	Hourly, except during startup and shutdown, low load operations, and cold weather operations	EUUNIT804	SC V.1, SC VI.5	R 336.1205(1)(a) & (3), 40 CFR 52.21(d)
5. CO	70 tpy	12-month rolling time period as determined at the end of each calendar month	EUUNIT804	SC VI.4, SC VI.5	R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
ppmvd = parts per million by volume at 15 percent O_2 and on a dry gas basis lb/MWh = pound per megawatt hour [A] Does not include startup and shutdown. [B] Startup is defined as the period of time from initiation of the combustion process (flame-on) from shutdown status and continues until steady state operation (loads greater than a demonstrated percent of design capacity) is achieved. Shutdown is defined as that period of time from the lowering of the turbine output below the demonstrated steady state level, with the intent to shut down, until the combustion process ends at flame-off. The demonstrated percent of design capacity, or demonstrated steady state level, shall be described in the plan required in SC III.2. [C] Table 1 of 40 CFR Part 60 Subpart KKKK allows 150 ppmvd NO_x at 15 percent O_2 when the turbines are operating at less than 75 percent of peak load, or at temperatures less than 0°F. [D] Cold weather operation shall be defined as anytime when the ambient outdoor temperature is less than 0°F [E] Low load operation shall be defined as anytime when the turbine is operating at 50% or less of full load.					

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Sulfur content in natural gas	20 gr/100 scf	At all times	EUUNIT804	SC VI.5	R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d), 40 CFR 60.4365

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. Within 180 days of initial startup, the permittee shall submit, implement, and maintain a malfunction abatement plan (MAP) as described in Rule 911(2) for EUUNIT804. The MAP shall, at a minimum, specify the following:
   a) A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
   b) An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
   c) 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.
   d) Operating variables and ranges under various load conditions shall be monitored and recorded. The normal operating range of these variables and a description of the method of monitoring shall be maintained.

   If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days if new equipment is installed or upon request from the AQD District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1702(a), R 336.1910, R 336.1911)**

2. Within 180 days of initial startup, the permittee shall submit, implement, and maintain a plan that describes how emissions will be minimized during startup and shutdown. The plan shall incorporate procedures recommended by the equipment manufacturer as well as incorporate standard industry practices, and shall describe the demonstrated percent of design capacity, or demonstrated steady state level. Unless notified by

the District Supervisor within 30 business days after plan submittal, the plan shall be deemed approved. **(R 336.1911, R 336.1912, 40 CFR 60.4333(a))**

3. EUUNIT804 shall not exceed 200 startup and shutdown events per 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d))**

4. The total hours of low load operation for EUUNIT804 shall not exceed 200 hours per 12-month rolling time period as determined at the end of each calendar month. Low load operation shall be defined as anytime when the turbine is operating at 50% or less of full load. Low load operation does not include startups and shutdowns. **(R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d))**

5. The total hours of cold weather operation for EUUNIT804 shall not exceed 300 hours per 12-month rolling time period as determined at the end of each calendar month. Cold weather operation shall be defined as anytime when the ambient outdoor temperature is less than 0°F. Cold weather operation does not include startups and shutdowns. **(R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d))**

6. The permittee shall operate and maintain EUUNIT804, including associated equipment and monitors, in a manner consistent with safety and good air pollution control practice. **(40 CFR 60.4333(a))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The maximum design heat input capacity for EUUNIT804 shall not exceed, on a fuel heat input basis, 123 MMBTU per hour (HHV) at 0°F, as described in the manufacturer's product documentation. **(R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d))**

2. The permittee shall not operate EUUNIT804 unless the dry-low-NO_x ($SoLoNO_x$) control and pilot active control logic (PACO) are installed, maintained, and operated in a satisfactory manner. Satisfactory manner includes operating and maintaining the turbine in accordance with an approved MAP for EUUNIT804 as required in SC III.1. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1910)**

3. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the natural gas usage rate of EUUNIT804 on a continuous basis. **(R 336.1205(1)(a) & (3), 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. Within 60 days after achieving the maximum production rate of EUUNIT804, but no later than 180 days after commencement of initial startup, the permittee shall verify CO and NO_x emission rates from EUUNIT804 at maximum routine operating conditions, by testing at owner's expense, in accordance with Department requirements. The permittee must complete the required testing once every five years of operation, thereafter. Testing shall be based on an average of three 1-hour or longer test runs performed using an approved EPA Method listed in:

Pollutant	Test Method Reference
NO_x	40 CFR Part 60, Appendix A
CO	40 CFR Part 60, Appendix A

An alternate method, or a modification to the approved EPA Method, may be specified in an AQD-approved Test Protocol. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), R 336.2001, R 336.2003, R 336.2004)**

2. The permittee must conduct an initial performance test of NO_x emission rates from EUUNIT804, as required in 40 CFR 60.8. Subsequent NO_x performance tests shall be conducted on an annual basis (no more than

14 calendar months following the previous performance test) in accordance with 40 CFR 60.4400 to demonstration continuous compliance. If the NO_x emission result from the performance test is less than or equal to 75 percent of the NO_x emission limit specified in SC I.1, the permittee may reduce the frequency of subsequent performance tests to once every 2 years (no more than 26 calendar months following the previous performance test). If the results of any subsequent performance test exceed 75 percent of the NO_x emission limit for the turbine, the permittee must resume annual performance tests. **(40 CFR 60.4340(a), 40 CFR 60.4400(a))**

3. The performance test required under SC V.2 must be done at any load conditions within plus or minus 25 percent of 100 percent peak load. The permittee may perform testing at the highest achievable load point, if at least 75 percent of peak load cannot be achieved in practice. The permittee must conduct three separate test runs for each performance test. The minimum time per run is 20 minutes. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.4375(b), 40 CFR 60.4400(b))**

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), 40 CFR 60.4345)**

2. The permittee shall monitor and record, in a satisfactory manner, the natural gas usage in EUUNIT804 on an hourly and monthly basis. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a) & (3))**

3. The permittee shall keep, in a satisfactory manner, a record of the monthly and 12-month rolling total hours of startup and shutdown, cold weather operation, and low-load for EUUNIT804. 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))**

4. The permittee shall calculate and keep, in a satisfactory manner, records of monthly and 12-month rolling NO_X and CO mass emissions for EUUNIT804**.** The permittee shall keep records of the basis of the calculations, including any product documentation from the turbine manufacturer used to determine emissions during startup and shutdown, cold weather operation, and low-load. **(R 336.1205(1)(a) & (3), 40 CFR 52.21(c) & (d))**

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 EUUNIT804. 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) Total sulfur content of the natural gas as required by 40 CFR 60.4365(b);
   c) Verification of heat input capacity as required by SC IV.1;
   d) Identification, type, and amount of fuel combusted on a calendar month basis;
   e) All records required by 40 CFR 60.7;
   f) Records of the duration of all dates and times of startup and shutdown events;
   g) Records of the duration of all dates and times of low load operations;
   h) Records of the duration of all dates and times of cold weather operations;
   i) All calculations necessary to show compliance with the limits contained in this permit;
   j) All records related to, or as required by, the MAP and the startup and shutdown plan.

   All of the above information shall be stored in a format acceptable to the AQD District Supervisor. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1331(1)(c), R 336.1702(a), R 336.1912, 40 CFR 60.7, 40 CFR 60.4365, 40 CFR Part 60 Subpart KKKK)**

VII. REPORTING

1. The permittee shall provide written notification of construction and operation to comply with the federal Standards of Performance for New Stationary Sources, 40 CFR 60.7. The permittee shall submit this notification to the AQD District Supervisor within the time frames specified in 40 CFR 60.7. **(40 CFR 60.7(a))**

2. 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 EUUNIT804. **(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. SVUNIT804	90	65	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and KKKK as they apply to EUUNIT804. **(40 CFR Part 60 Subparts A & KKKK)**

2. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and OOOOb as they apply to EUUNIT804. **(40 CFR Part 60 Subparts A & OOOOb)**