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

October 13, 2023

PERMIT TO INSTALL
120-23

ISSUED TO
VCP Michigan

LOCATED AT
REED CPF; NW/SE/NE Sec. 15 T24N-R15W; UTM-East: 571237.88, North: 4925901.33, Zone: 16; N44.482912 – W86.104163
Pleasanton Township, Michigan 49614

IN THE COUNTY OF
Manistee

STATE REGISTRATION NUMBER
P1013

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: **August 17, 2023**	
DATE PERMIT TO INSTALL APPROVED: **October 13, 2023**	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))	Installation Date / Modification Date
EUENGINE	631 HP natural gas-fired 4-stroke rich-burn internal combustion engine.	TBD
EUDEHY	Glycol dehydration system processing natural gas from the Antrim formation; contains a 0.125 MMBTU/hr natural gas-fired burner and a 3.1 MMscf/day regenerator.	TBD

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.

EUENGINE
EMISSION UNIT CONDITIONS

DESCRIPTION

631 HP natural gas-fired 4-stroke rich-burn internal combustion engine.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

EUENGINE is controlled by a NSCR 3-way catalyst.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. NOx	8 tpy	12-month rolling time period as determined at the end of each calendar month	EUENGINE	SC V 1, SC VI 6	R 336.1205, 40 CFR 52.21 (c) & (d)
2. CO	14 tpy	12-month rolling time period as determined at the end of each calendar month	EUENGINE	SC V 1, SC VI 7	R 336.1205, 40 CFR 52.21 (c) & (d)

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall submit to the AQD District Supervisor, for review and approval, a preventative maintenance/malfunction abatement plan (PM/MAP) for EUENGINE. After approval of the PM/MAP by the AQD District Supervisor, the permittee shall not operate EUENGINE 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 336.1910, R 336.1911, R 336.1912)**

2. The permittee shall not operate EUENGINE for more than 200 hours per year without the catalytic oxidation system consistent with the PM / MAP (pursuant to SC III 1). The 200 hours shall include times after general maintenance performed as allowed by the PM / MAP. The hours per year limit is based on a 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205, R 336.1225)**

3. The permittee shall burn only sweet natural gas, as defined in R 336.1119. **(R 336.1225, 40 CFR 52.21 (c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall not operate EUENGINE unless the associated oxidation catalyst is installed, maintained, and operated in a satisfactory manner, except as specified in SC III.2. Satisfactory manner includes operating and maintaining the control device in accordance with an approved MAP for EUENGINE as required in SC III.1. **(R 336.1205(1)(a) & (3), R 336.1224, R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 52.21(c) & (d))**

2. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner a device to monitor and record the natural gas usage for EUENGINE on a continuous basis. **(R 336.1205, 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. Upon request of the AQD District Supervisor, the permittee shall verify NO_x and CO emission factors used to calculate emissions from EUENGINE, by testing at the owner's expense, in accordance with Department requirements. If a test has been conducted, any resulting increase in an emission factor shall be implemented to calculate NO_x and CO. Testing shall be performed using an approved EPA Method listed:

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 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing, including any modifications to the method in the test protocol that are proposed after initial submittal. The permittee must submit a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.1205, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c) & (d))**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the LAST day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.1702(a), R 336.1901)**

2. The permittee shall monitor, in a satisfactory manner, the natural gas usage for EUENGINE on a continuous basis. **(R 336.1205, R 336.1225)**

3. The permittee shall maintain a log of all maintenance activities conducted according to the PM / MAP (pursuant to SC III 1). The permittee shall keep this log on file at a location approved by the AQD District Supervisor for a period of at least five years and make it available to the Department upon request. **(R 336.1205, R 336.1225)**

4. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period records of the hours that EUENGINE is operated without the catalytic oxidation system. The permittee shall keep all records on file at a location approved by the AQD District Supervisor for a period of at least five years and make them available to the Department upon request. **(R 336.1205, R 336.1225)**

5. The permittee shall keep, in a satisfactory manner, monthly fuel use records for EUENGINE, as required by SC VI.2. The permittee shall keep all records on file at a location approved by the AQD District Supervisor for a period of at least five years and make them available to the Department upon request. **(R 336.1205, R 336.1225)**

6. The permittee shall keep, in a satisfactory manner, records of maintenance, corrective procedures, operational changes, and other parameters for EUENGINE, as specified in the MAP. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c) and (d))**

7. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period NOx emission calculation records for EUENGINE, as required by SC I.1. The permittee shall keep all records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request. **(R 336.1205, 40 CFR 52.21 (c) & (d))**

8. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period CO emission calculation records for EUENGINE, as required by SC I. 2. The permittee shall keep all records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request. **(R 336.1205)**

VII. REPORTING

1. Except as provided in R 336.1285, if the engine is replaced with an equivalent-emitting or lower-emitting engine, the permittee shall notify the AQD District Supervisor of such change-out and submit acceptable emissions data to show that the alternate engine is equivalent-emitting or lower-emitting. The data shall be submitted within 30-days of the engine change out. **(R 336.1205, R 336.1702(a), R 336.1911, 40 CFR 52.21 (c) & (d))**

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVEUENGINE	8	36	**40 CFR 52.21(c) & (d)**

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all provisions of the 40 CFR 63, Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines as they apply to EUENGINE. **(40 CFR Part 63, Subpart ZZZZ)**

2. The permittee shall comply with the provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60, Subpart OOOOa, as they apply to EUENGINE. **(40 CFR Part 60, Subpart OOOOa)**

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

EUDEHY
EMISSION UNIT CONDITIONS

DESCRIPTION

Glycol dehydration system processing natural gas from the Antrim formation; contains a 0.125 MMBTU/hr natural gas-fired burner and a 3.1 MMscf/day regenerator.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

NA

II. MATERIAL LIMIT(S)

1. The permittee shall not use stripping gas in EUDEHY. **(R 336.1205, R 336.1225, R 336.1702(a))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

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

1. Verification of H_2S and/or sulfur content of the natural gas processed in EUDEHY may be required upon request by the AQD District Supervisor. **(R 336.1205(3))**

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 LAST day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205, R 336.1225, R 336.1702(a))**

2. The permittee shall monitor, in a satisfactory manner, glycol recirculation rate of EUDEHY on a weekly basis. **(R 336.1205, R 336.1225, R 336.1702(a), R 336.1910)**

3. If EUDEHY meets the exemption criteria in 40 CFR 63.764(e)(1)(i) for glycol dehydrators with actual annual average flow rate of natural gas less than 85,000 cubic meters per day, the actual flow rate of natural gas shall be determined using either of the procedures below:

   a) The permittee shall install and operate a monitoring instrument that directly measures natural gas flow rate to the glycol dehydration unit with an accuracy of plus or minus 2 percent or better. The permittee shall convert annual natural gas flow rate to a daily average by dividing the annual flow rate by the number of days per year the glycol dehydration unit processed natural gas. (40 CFR 63.772(b)(1)(i))

b) The permittee shall document, to the AQD District Supervisor's satisfaction, that the actual annual average natural gas flow rate to the glycol dehydration unit is less than 85,000 cubic meters per day. (40 CFR 63.772(b)(1)(ii))

If EUDEHY meets the exemption criteria in 40 CFR 63.764(e)(1)(ii) for glycol dehydrators with actual average benzene emissions less than 0.90 megagram per year, the emissions shall be determined either uncontrolled, or with federally enforceable controls in place and using either of the procedures below:

c) The permittee shall determine actual average benzene emissions using the model GRI-GLYCalc™, Version 3.0 or higher, and the procedures presented in the associated GRI-GLYCalc™ Technical Reference Manual. Inputs to the model shall be representative of actual operating conditions of the glycol dehydration unit and may be determined using the procedures documented in the Gas Research Institute (GRI) report entitled "Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions" (GRI–95/0368.1). **(40 CFR 63.772(b)(2)(i))**

d) The permittee shall determine an average mass rate of benzene emissions in kilograms per hour through direct measurement using the methods in 40 CFR 63.772(a)(1)(i) or (ii), or an alternative method according to 40 CFR 63.7(f). Annual emissions in kilograms per year shall be determined by multiplying the mass rate by the number of hours the unit is operated per year. This result shall be converted to megagrams per year. **(40 CFR 63.772(b)(2)(ii))**

4. The permittee shall keep, in a satisfactory manner, weekly records of the glycol recirculation rate for EUDEHY, as required by SC VI.2. The permittee shall keep all records on file at the facility / a location approved by the AQD District Supervisor and make them available to the Department upon request. **(R 336.1205, R 336.1225, R 336.1702(a))**

5. If EUDEHY complies with the exemption criteria in 40 CFR 63.764(e)(1)(i) for glycol dehydrators with actual annual average flow rate of natural gas less than 85,000 cubic meters per day, the permittee shall keep records of the actual annual average natural gas throughput (in terms of natural gas flow rate to the glycol dehydration unit per day) as determined in accordance with SC VI.3. The permittee shall keep all records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request. **(40 CFR 63.774(d)(1)(i))**

6. As an alternative to SC VI.5, if EUDEHY complies with the exemption criteria in 40 CFR 63.764(e)(1)(ii) for glycol dehydrators with actual average benzene emissions less than 0.90 megagram per year, the permittee shall keep records of the actual average benzene emissions (in terms of benzene emissions per year) as determined in accordance with SC VI.3. The permittee shall keep all records on file at a location approved by the AQD District Supervisor and make them available to the Department upon request. **(40 CFR 63.774(d)(1)(ii))**

VII. REPORTING

1. The permittee shall submit all applicable notifications and reports required by 40 CFR 63.775 by the dates specified in 40 CFR 63.775. **(40 CFR 63.775)**

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. SVDEHY	TBD	TBD	

IX. OTHER REQUIREMENT(S)

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

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