

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

March 4, 2021

**PERMIT TO INSTALL**  
110-20

**ISSUED TO**  
Wilkinson Minerals, LLC

**LOCATED AT**  
101 Picard Street  
Bay City, Michigan 48708

**IN THE COUNTY OF**  
Bay

**STATE REGISTRATION NUMBER**  
P1146

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: <b>December 22, 2020</b>	
DATE PERMIT TO INSTALL APPROVED: <b>March 4, 2021</b>	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 <sub>2e</sub>	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 <sub>2</sub> S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO <sub>x</sub>	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 <sub>2</sub>	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
EUBOILER1	Natural gas-fired boiler with heat input capacity of 98 MMBTU/hr and equipped with low-NOx burners and flue gas recirculation. The boiler is subject to 40 CFR Part 60 Subpart Dc.	FGBOILERS
EUBOILER2	Natural gas-fired boiler with heat input capacity of 98 MMBTU/hr and equipped with low-NOx burners and using flue gas recirculation. The boiler is subject to 40 CFR Part 60 Subpart Dc.	FGBOILERS
EUBROMINE	Bromine removal process with wet scrubber control	FGPROCESS
EUHCLTK	Aqueous hydrogen chloride storage tank with emissions controlled by the bromine process scrubber.	FGPROCESS
EUTAILBRINETK	Storage tanks for aqueous solution of salts and hydrogen chloride with emissions controlled by the bromine process scrubber.	FGPROCESS
EUCL2STORAGE	Storage for liquified compressed chlorine gas, including surge tanks and rail car storage.	FGPROCESS
EULIMESILO1	Lime silo with bin vent fabric filter control	FGPROCESS
EULIMESILO2	Lime silo with bin vent fabric filter control	FGPROCESS
EUSLAKING	Lime slaking process with baghouse control	FGPROCESS
EUPRILLDRYER	Natural gas-fired process heater to produce product in prill form, with heat input capacity of 80 MMBTU/hr with wet scrubber control	FGPROCESS
EUFLAKEDRYER	Natural gas-fired process heater to produce product in flake form, with heat input capacity of 30 MMBTU/hr with wet scrubber control	FGPROCESS
EUHANDLING	Solids processing and material handling activities with wet scrubber control	FGPROCESS
EUPACKAGING	Dry product packaging with wet scrubber control	FGPROCESS
EULOADOUT	Dry product loadout to trucks with wet scrubber control	FGPROCESS
EUEMGEN	Natural gas-fired reciprocating internal combustion engine (RICE) with a nameplate rating of 750 kW and a heat input capacity of 8.56 MMBTU/hr, manufactured on or after January 1, 2009. The engine is subject to 40 CFR Part 60 Subpart JJJJ and 40 CFR Part 63 Subpart ZZZZ.	NA
EUCOLDCLEANER	Maintenance department cold cleaner subject to Rule 707.	NA
EUBR2STORETKS	Storage tanks containing elemental bromine.	NA
EUBR2SURGETK	Surge tank containing elemental bromine.	NA
EUBR2OFFSPECTK	Tank for elemental bromine.	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.

**EUEMGEN  
 EMISSION UNIT CONDITIONS**

**DESCRIPTION**

Natural gas-fired reciprocating internal combustion engine (RICE) with a nameplate rating of 750 kW and a heat input capacity of 8.56 MMBTU/hr, manufactured on or after January 1, 2009. The engine is subject to 40 CFR Part 60 Subpart JJJJ and 40 CFR Part 63 Subpart ZZZZ.

**Flexible Group ID:** NA

**POLLUTION CONTROL EQUIPMENT**

NA

**I. EMISSION LIMIT(S)**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period / Operating Scenario</b>	<b>Equipment</b>	<b>Monitoring / Testing Method</b>	<b>Underlying Applicable Requirements</b>
1. NOx	1 gram per horsepower hour (g/HP-hr)	Hourly	EUEMGEN	SC IV.1, V.1, VI.2, VI.3	40 CFR 52.21(c)&(d)
2. NOx	2.0 g/HP-hr	Hourly	EUEMGEN	SC IV.1, V.1, VI.2, VI.3	40 CFR 60.4233(e)
3. VOC	0.7 g/HP-hr	Hourly	EUEMGEN	SC IV.1, V.1, VI.2, VI.3	R 336.1702(b)
4. VOC (excluding formaldehyde)	1.0 g/HP-hr	Hourly	EUEMGEN	SC IV.1, V.1, VI.2, VI.3	40 CFR 60.4233(e)
5. CO	2 g/HP-hr	Hourly	EUEMGEN	SC IV.1, V.1, VI.2, VI.3	R 336.1205(1)(a), R 336.1205(3), 40 CFR 52.21(c)&(d)
6. CO	4.0 g/HP-hr	Hourly	EUEMGEN	SC IV.1, V.1, VI.2, VI.3	40 CFR 60.4233(e)

**II. MATERIAL LIMIT(S)**

1. The permittee shall burn only pipeline quality natural gas in EUEMGEN. **(R 336.1205(1)(a), 40 CFR 52.21(c)&(d))**

**III. PROCESS/OPERATIONAL RESTRICTION(S)**

1. The permittee shall not operate EUEMGEN for more than 500 hours per year, based on a 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205(1)(a)&(3), R 336.1225, R 336.1702(a), 40 CFR 52.21(c)&(d))**
2. There is no time limit on the use of emergency stationary RICE in emergency situations. **(40 CFR 60.4243(d)(1))**

3. The permittee may operate EUEMGEN for no more than 100 hours per calendar year for the purpose of necessary maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The permittee may petition the Department for approval of additional hours to be used for maintenance checks and readiness testing. A petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency internal combustion engines beyond 100 hours per calendar year. **(40 CFR 60.4243(d)(2))**
4. EUEMGEN may operate up to 50 hours per calendar year in non-emergency situations, but those 50 hours are counted towards the 100 hours per calendar year provided for maintenance and testing as provided in SC III.3. Except as provided in 40 CFR 60.4243(d)(3)(i), the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or demand response, or to generate income for the permittee to supply non-emergency power as part of a financial arrangement with another entity. **(40 CFR 60.4243(d)(3))**
5. The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met. **(40 CFR 60.4243(d)(3)(i))**
  - a) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.
  - b) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
  - c) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
  - d) The power is provided only to the facility itself or to support the local transmission and distribution system.
  - e) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching.
6. The permittee shall operate and maintain EUEMGEN such that it meets the emission limits in SC I.2, I.4, and I.6 over the entire life of the engine. **(40 CFR 60.4234, 40 CFR 60.4243(b))**
7. If the permittee purchased a certified engine, according to procedures specified in 40 CFR Part 60 Subpart JJJJ, for the same model year, the permittee shall meet the following requirements for EUEMGEN:
  - a) Operate and maintain the certified engine 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 engine and control device according to the manufacturer's emission-related written instructions, the engine will be considered a non-certified engine and be subject to SC III.4. **(40 CFR 60.4243(b)(1))**
8. If the permittee purchased a non-certified engine or a certified engine operating in a non-certified manner, the permittee shall keep a maintenance plan for EUEMGEN 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. EUEMGEN shall be certified to meet the applicable emission standard of 40 CFR 60.4233. The permittee shall install and configure EUEMGEN according to the manufacturer's specifications. **(40 CFR 60.4243)**
2. The permittee shall equip and maintain EUEMGEN with a non-resettable hours meter to track the operating hours. **(R 336.1205(1)(a)&(3), R 336.1225, 40 CFR 60.4237)**

3. The nameplate capacity of EUEMGEN shall not exceed 750 kW, as certified by the equipment manufacturer. **(R 336.1205(1)(a)&(3), R 336.1225, 40 CFR 60.4230)**
4. The heat input capacity of EUEMGEN shall not exceed 8.56 MM BTU per hour. **(R 336.1205, R 336.1225, 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 EUEMGEN is not installed, configured, operated, and maintained according to the manufacturer's emission-related written instructions, or the permittee changes emission-related settings in a way that is not permitted by the manufacturer, 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 EUEMGEN will be operated, but not later than 180 days after initial startup of EUEMGEN, or within 1 year after EUEMGEN is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after changing emission-related settings in a way that is not permitted by the manufacturer.
  - 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 thereafter, whichever comes first, to demonstrate compliance with the applicable emission standards.

If a performance test is required, 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, R 336.2001, R 336.2003, R 336.2004, 40 CFR 52.21(c)&(d), 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 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(1)(a)&(3), 40 CFR 52.21(c)&(d))**
2. If EUEMGEN is certified, the permittee shall keep, in a satisfactory manner, the following records:
  - a) Documentation indicating that EUEMGEN 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 60.4233(e), 40 CFR 60.4243(b))**

3. If EUEMGEN is non-certified, the permittee shall keep, in a satisfactory manner, the following records:
  - a) Testing, as required in SC V.2;
  - b) Maintenance activities, as required by SC III.3.

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 60.4233(e), 40 CFR 60.4243(b))**

4. The permittee shall keep records of notifications submitted for the completion of construction and start-up of EUEMGEN. **(40 CFR 60.4245(a))**
5. The permittee shall monitor and record the hours of operation of EUEMGEN during emergencies and non-emergencies, on a monthly, 12-month rolling, and calendar year basis, in a manner acceptable to the AQD

District Supervisor. The permittee shall record the time of operation of EUEMGEN and the reason it was in operation during that time. **(R 336.1205(1)(a)&(3), R 336.1225, R 336.1702(a), 40 CFR 60.4243)**

**VII. REPORTING**

1. Except as provided in R 336.1285, if EUEMGEN 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)**
2. The permittee shall submit the following notifications if EUEMGEN is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in 40 CFR 60.4243(d)(3)(i). The permittee must submit an annual report including the information in a) through e) below. If the engine is operated in a non-certified manner during any year in which a report is required, the report shall also include the information in items f) through i) below. **(40 CFR 60.4245(e), 40 CFR 60.4245(c), 40 CFR Part 60 Subparts A and JJJJ)**
  - a) The company name and address where the engine is located;
  - b) Date of the report and beginning and ending dates of the reporting period;
  - c) Engine site rating and model year;
  - d) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place;
  - e) Hours spent for operation for the purposes specified in 40 CFR 60.4243(d)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in 40 CFR 60.4243(d)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.
  - f) Address of the affected source;
  - g) Engine make, model, engine family, serial number, model year, maximum engine power, and engine displacement;
  - h) Emission control equipment;
  - i) Fuel used.
3. The permittee shall submit a notification specifying whether EUEMGEN 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. **(40 CFR 60.4246)**

**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. SVEMGEN	12	20	R 336.1225, 40 CFR 52.21(c)&(d)

**IX. OTHER REQUIREMENT(S)**

1. The permittee shall comply with the provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subpart A and Subpart JJJJ, as they apply to EUEMGEN. **(40 CFR Part 60 Subparts A & JJJJ)**
2. The permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subparts A and Subpart ZZZZ, as they apply to EUEMGEN, upon startup. **(40 CFR Part 63 Subparts A and ZZZZ, 40 CFR 63.6595)**

**Footnotes:**

<sup>1</sup> This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

## FLEXIBLE GROUP SPECIAL CONDITIONS

### FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

<b>Flexible Group ID</b>	<b>Flexible Group Description</b>	<b>Associated Emission Unit IDs</b>
FGPROCESS	Calcium chloride manufacturing process	EUBROMINE, EUHCLTK, EUTAILBRINETK, EUCL2STORAGE, EULIMESILO1, EULIMESILO2, EUSLAKING, EUPRILLDRYER, EUFLAKEDRYER, EUHANDLING, EUPACKAGING, EULOADOUT
FGBOILERS	Natural gas-fired boilers equipped with low-NOx burners and using flue gas recirculation, each rated at 98 MMBTU per hour heat input.	EUBOILER1, EUBOILER2

**FGPROCESS  
 FLEXIBLE GROUP CONDITIONS**

**DESCRIPTION**

Calcium chloride manufacturing process

**Emission Unit:** EUBROMINE, EUHCLTK, EUTAILBRINETK, EUCL2STORAGE, EULIMESILO1, EULIMESILO2, EUSLAKING, EUPRILLDRYER, EUFLAKEDRYER, EUHANDLING, EUPACKAGING, EULOADOUT

**POLLUTION CONTROL EQUIPMENT**

- Bin vent filter for EULIMESILO1
- Bin vent filter for EULIMESILO2
- Baghouse for EUSLAKING
- Venturi scrubber for EUPRILLDRYER
- Venturi scrubber for EUFLAKEDRYER
- Venturi scrubber for EUHANDLING
- Venturi scrubber for EUPACKAGING
- Venturi scrubber for EULOADOUT
- Packed tower scrubber for EUBROMINE and EUHCLTK

**I. EMISSION LIMIT(S)**

<b>Pollutant</b>	<b>Limit</b>	<b>Time Period / Operating Scenario</b>	<b>Equipment</b>	<b>Monitoring / Testing Method</b>	<b>Underlying Applicable Requirements</b>
1. PM	0.01 gr/dscf	Hourly	Each bin vent filter for EULIMESILO1 and EULIMESILO2	SC VI.2, VI.3	R 336.1205(1)(a), R 336.1331
2. PM	0.01 gr/dscf	Hourly	EUSLAKING	SC VI.4	R 336.1205(1)(a), R 336.1331
3. PM	0.03 lb/1,000 lbs exhaust gases on a dry gas basis	Hourly	EUPRILLDRYER	SC V.1, VI.5	R 336.1205(1)(a), R 336.1331
4. PM	0.03 lb/1,000 lbs exhaust gases on a dry gas basis	Hourly	EUFLAKEDRYER	SC V.1, VI.5	R 336.1205(1)(a), R 336.1331
5. PM	0.10 lb/1,000 lbs exhaust gases on a dry gas basis	Hourly	Each scrubber for EUHANDLING, EUPACKAGING, and EULOADOUT	SC VI.5	R 336.1331
6. PM10	11.4 lb/hr	Hourly	EUPRILLDRYER	SC V.1, VI.5	R 336.1205(1)(a), 40 CFR 52.21(c)&(d)
7. PM10	2.0 lb/hr	Hourly	EUFLAKEDRYER	SC V.1, VI.5	R 336.1205(1)(a), 40 CFR 52.21(c)&(d)

**II. MATERIAL LIMIT(S)**

NA

**III. PROCESS/OPERATIONAL RESTRICTION(S)**

1. The permittee shall not operate EUPRILLDRYER, EUFLAKEDRYER, EUHANDLING, EUPACKAGING, or EULOADOUT unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the emission units and their emission control devices, has been submitted within 120 days of commencing trial operation, and is implemented and maintained. 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.

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 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), R 336.1331, R 336.1910, R 336.1911, 40 CFR 52.21(c)&(d))**

2. The permittee shall not operate the equipment in FGPROCESS listed below unless the associated emission control devices listed below are installed, maintained, and operated in a satisfactory manner acceptable to the AQD District Supervisor. Satisfactory operation includes meeting the operating parameter requirements listed below. **(R 336.1205, R 336.1301, R 336.1331, R 336.1910, 40 CFR 52.21(c)&(d))**

	<b>Equipment in FGPROCESS</b>	<b>Control device</b>	<b>Operating Parameter Requirements</b>
a)	EULIMESILO1	Fabric filter collector (bin vent filter)	Manufacturer's specifications or as specified in the approved MAP
b)	EULIMESILO2	Fabric filter collector (bin vent filter)	Manufacturer's specifications or as specified in the approved MAP
c)	EUSLAKING	Fabric filter collector (baghouse)	Manufacturer's specifications or as specified in the approved MAP
d)	EUPRILLDRYER	Prill dryer scrubber	Minimum recirculation rate 800 gallons per minute (gpm) and minimum pressure drop 10 inches water or as specified in the approved MAP
e)	EUFLAKEDRYER	Flake dryer scrubber	Minimum recirculation rate 150 gallons per minute (gpm) and minimum pressure drop 10 inches water or as specified in the approved MAP
f)	EUHANDLING	Processing/material handling scrubber	Manufacturer's specifications or as specified in the approved MAP
g)	EUPACKAGING	Packaging scrubber	Manufacturer's specifications or as specified in the approved MAP
h)	EULOADOUT	Loadout scrubber	Manufacturer's specifications or as specified in the approved MAP.

3. The permittee shall not operate EUBROMINE or EUHCLTK unless the bromine process scrubber is installed, maintained, and operated in a satisfactory manner acceptable to the AQD District Supervisor. **(R 336.1224, R 336.1225, R 336.1910)**
4. The heat input capacity of EUPRILLDRYER shall not exceed 80 MMBTU per hour. **(R 336.1205, 40 CFR 52.21(c)&(d))**

- The heat input capacity of EUFLAKEDRYER shall not exceed 30 MMBTU per hour. **(R 336.1205, 40 CFR 52.21(c)&(d))**

**IV. DESIGN/EQUIPMENT PARAMETER(S)**

- The permittee shall equip and maintain the equipment in FGPROCESS listed below with devices as specified below. **(R 336.1910)**

	<b>Equipment in FGPROCESS</b>	<b>Devices to be equipped and maintained</b>
a)	EUSLAKING baghouse	Pressure drop indicator
b)	EUPRILLDRYER scrubber	Liquid flow rate and pressure drop indicators
c)	EUFLAKEDRYER scrubber	Liquid flow rate and pressure drop indicators
d)	EUHANDLING scrubber	Liquid flow rate and pressure drop indicators
e)	EUPACKAGING scrubber	Liquid flow rate and pressure drop indicators
f)	EULOADOUT scrubber	Liquid flow rate and pressure drop indicators

- The permittee shall equip and maintain the bromine process scrubber with indicators for the liquid flow rate and pH. **(R 336.1910)**

**V. TESTING/SAMPLING**

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

- Within 180 days after commencement of trial operation of FGPROCESS, the permittee shall verify PM and PM10 emission rates from EUPRILLDRYER and EUFLAKEDRYER by testing at owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed below.

<b>Pollutant</b>	<b>Test Method Reference</b>
PM	40 CFR Part 60, Appendix A; Part 10 of the Michigan Air Pollution Control Rules
PM10 / PM2.5	40 CFR Part 51, Appendix M, or 40 CFR Part 60, Appendix A-3 (if water droplets are known to exist)

An alternate method, or a modification to the approved EPA Method, may be specified in an AQD approved Test Protocol and must meet the requirements of the federal Clean Air Act, all applicable state and federal rules and regulations, and be within the authority of the AQD to make the change. 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, R 336.1902, 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))**

- The permittee shall complete all required calculations and records 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 336.1910)**
- The permittee shall monitor the bin vent filters to verify they are operating properly by taking visible emission observations for EULIMESILO1 and EULIMESILO2 a minimum of once per calendar week. Visible emission observations shall be taken during routine operating conditions, and do not require Method 9 certification. Multiple stacks may be observed simultaneously. If any visible emissions (other than uncombined water vapor) are observed, the permittee shall immediately inspect the affected bin vent filter and perform any required maintenance. **(R 336.1910)**

3. The permittee shall keep, in a manner satisfactory to the AQD District Supervisor, records of all visible emission observations for EULIMESILO1 and EULIMESILO2. At a minimum, records shall include the date, time, name of observer, and status of visible emissions. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1910)**
4. The permittee shall monitor and record, in a satisfactory manner acceptable to the AQD District Supervisor, the pressure drop for the EUSLAKING baghouse once each day EUSLAKING operates. **(R 336.1910)**
5. The permittee shall monitor and record, in a satisfactory manner acceptable to the AQD District Supervisor, the liquid flow rate and the pressure drop for the emission control devices listed below once each shift the associated process equipment operates. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1910)**
  - a) The EUPRILLDRYER scrubber
  - b) The EUFLAKEDRYER scrubber
  - c) The EUHANDLING scrubber
  - d) The EUPACKAGING scrubber
  - e) The EULOADOUT scrubber
6. The permittee shall monitor and record, in a satisfactory manner acceptable to the AQD District Supervisor, the liquid flow rate and the pH for the bromine process scrubber once each shift EUBROMINE operates. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1910)**

**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 EUBROMINE. **(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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter / Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SVBROMINE (Bromine process scrubber)	20	80	R 336.1225, 40 CFR 52.21(c)&(d)
2. SVLIMESILO1 (Lime silo 1 bin vent)	12	80	40 CFR 52.21(c)&(d)
3. SVLIMESILO2 (Lime silo 2 bin vent)	12	80	40 CFR 52.21(c)&(d)
4. SVSLAKING (Slaking system baghouse)	12	60	40 CFR 52.21(c)&(d)
5. SVPRILLDRYER (Prill dryer scrubber)	60	195	40 CFR 52.21(c)&(d)
6. SVFLAKEDRYER (Flake dryer scrubber)	36	195	40 CFR 52.21(c)&(d)
7. SVHANDLING (Processing / material handling scrubber)	24	60	40 CFR 52.21(c)&(d)

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter / Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
8. SVPACKAGING (Packaging scrubber)	12	25	40 CFR 52.21(c)&(d)
9. SVLOADOUT (Loadout scrubber)	30	25	40 CFR 52.21(c)&(d)

**IX. OTHER REQUIREMENT(S)**

NA

**Footnotes:**

<sup>1</sup> This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

## FGBOILERS FLEXIBLE GROUP CONDITIONS

### DESCRIPTION

Natural gas-fired boilers equipped with low-NOx burners and using flue gas recirculation, each rated at 98 MMBTU per hour heat input.

**Emission Unit:** EUBOILER1, EUBOILER2

### POLLUTION CONTROL EQUIPMENT

NA

### I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. NOx	6.7 pph	Hourly	FGBOILERS	SC V.1, VI.2	40 CFR 52.21(c)&(d)
2. CO	9.6 pph	Hourly	FGBOILERS	SC V.1, VI.2	R 336.1205, 40 CFR 52.21(c)&(d)

### II. MATERIAL LIMIT(S)

1. The permittee shall burn only pipeline quality natural gas in the boilers in FGBOILERS. **(R 336.1205, 40 CFR 52.21(c)&(d))**

### III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The heat input capacity of each boiler in FGBOILERS shall not exceed 98 MM BTU per hour. **(R 336.1205, R 336.1225, 40 CFR 52.21(c)&(d), 40 CFR Part 60 Subpart Dc)**
2. The permittee shall operate each boiler in FGBOILERS in accordance with manufacturer's recommendations for safe and proper operation to minimize emissions during periods of startup, shutdown and malfunction. **(R 336.1912)**

### IV. DESIGN/EQUIPMENT PARAMETER(S)

1. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the fuel use for FGBOILERS. **(R 336.1205(1)(a))**
2. The permittee shall equip and maintain each boiler in FGBOILERS with low-NOx burners and flue gas recirculation. **(R 336.1205, R 336.1910, 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 180 days after commencement of trial operation of either boiler in FGBOILERS, the permittee shall verify NOx and CO emission rates from each boiler in FGBOILERS by testing at the owner's expense, in accordance with Department requirements. Testing shall be performed using an approved EPA Method listed in 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 and must meet the requirements of the federal Clean Air Act, all applicable state and federal rules and regulations, and be within the authority of the AQD to make the change. 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, R 336.1902, 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 keep, in a satisfactory, monthly fuel use records for FGBOILERS. The records must indicate the total amount of fuel used in FGBOILERS. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. **(40 CFR 60.48c(g))**
2. The permittee shall keep, in a satisfactory manner, records of the date, duration, and description of any malfunction of the low-NOx burners and flue gas recirculation, any maintenance performed and any testing results for each boiler in FGBOILERS. The permittee shall keep all records on file for a period of at least five years and make them available to the Department upon request. **(R 336.1910)**

#### **VII. REPORTING**

1. For each boiler in FGBOILERS, the permittee shall submit the following notifications to the AQD District Supervisor in accordance with 40 CFR 60.48c. **(40 CFR Part 60 Subparts A & Dc)**
  - a) A notification of the date when construction was commenced, submitted no later than 30 calendar days after such date.
  - b) A notification of the actual date of startup of the boiler, submitted within 30 calendar days after such date.

#### **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:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter / Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SVBOILERS	60	80	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 Dc, as they apply to each boiler in FGBOILERS. **(40 CFR Part 60 Subparts A & Dc)**

#### **Footnotes:**

<sup>1</sup> This condition is state only enforceable and was established pursuant to Rule 201(1)(b).