

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION**

June 29, 2017

**PERMIT TO INSTALL**  
86-17

**ISSUED TO**  
The Regents of the University of Michigan

**LOCATED AT**  
7500 Challis Road  
Brighton, Michigan

**IN THE COUNTY OF**  
Livingston

**STATE REGISTRATION NUMBER**  
P0821

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203:

**June 5, 2017**

DATE PERMIT TO INSTALL APPROVED:

**June 29, 2017**

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

**PERMIT TO INSTALL**

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**Common Abbreviations / Acronyms**

<b>Common Acronyms</b>		<b>Pollutant / Measurement Abbreviations</b>	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO <sub>2e</sub>	Carbon Dioxide Equivalent
CFR	Code of Federal Regulations	dscf	Dry standard cubic foot
COM	Continuous Opacity Monitoring	dscm	Dry standard cubic meter
Department/ department	Michigan Department of Environmental Quality	°F	Degrees Fahrenheit
EU	Emission Unit	gr	Grains
FG	Flexible Group	HAP	Hazardous Air Pollutant
GACS	Gallons of Applied Coating Solids	Hg	Mercury
GC	General Condition	hr	Hour
GHGs	Greenhouse Gases	HP	Horsepower
HVLP	High Volume Low Pressure*	H <sub>2</sub> S	Hydrogen Sulfide
ID	Identification	kW	Kilowatt
IRSL	Initial Risk Screening Level	lb	Pound
ITSL	Initial Threshold Screening Level	m	Meter
LAER	Lowest Achievable Emission Rate	mg	Milligram
MACT	Maximum Achievable Control Technology	mm	Millimeter
MAERS	Michigan Air Emissions Reporting System	MM	Million
MAP	Malfunction Abatement Plan	MW	Megawatts
MDEQ	Michigan Department of Environmental Quality	NMOC	Non-methane Organic Compounds
MSDS	Material Safety Data Sheet	NO <sub>x</sub>	Oxides of Nitrogen
NA	Not Applicable	ng	Nanogram
NAAQS	National Ambient Air Quality Standards	PM	Particulate Matter
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM <sub>10</sub>	Particulate Matter equal to or less than 10 microns in diameter
NSPS	New Source Performance Standards	PM <sub>2.5</sub>	Particulate Matter equal to or less than 2.5 microns in diameter
NSR	New Source Review	pph	Pounds per hour
PS	Performance Specification	ppm	Parts per million
PSD	Prevention of Significant Deterioration	ppmv	Parts per million by volume
PTE	Permanent Total Enclosure	ppmw	Parts per million by weight
PTI	Permit to Install	psia	Pounds per square inch absolute
RACT	Reasonable Available Control Technology	psig	Pounds per square inch gauge
ROP	Renewable Operating Permit	scf	Standard cubic feet
SC	Special Condition	sec	Seconds
SCR	Selective Catalytic Reduction	SO <sub>2</sub>	Sulfur Dioxide
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		µm	Micrometer or Micron
		VOC	Volatile Organic Compounds
		yr	Year

\*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

### GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
  - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
  - b) A visible emission limit specified by an applicable federal new source performance standard.
  - c) A visible emission limit specified as a condition of this Permit to Install.
  
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**
  
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

### SPECIAL CONDITIONS

#### EMISSION UNIT SUMMARY TABLE

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

<b>Emission Unit ID</b>	<b>Emission Unit Description (Process Equipment &amp; Control Devices)</b>	<b>Installation Date / Modification Date</b>	<b>Flexible Group ID</b>
EUBRIGHTONENG1	Cummins model QSK50-G4 NR2, 1,250 kW emergency generator powered by a compression ignition 2220 BHP, 50.3-liter displacement, 16 cylinder engine.	June 29, 2017	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 336.1290.			

**The following conditions apply to: EUBRIGHTONENG1**

**DESCRIPTION:** Cummins model QSK50-G4, NR2 1,250 kW emergency generator powered by a compression ignition 2220 BHP, 50.3-liter displacement, 16 cylinder engine

**Flexible Group ID:** NA

**POLLUTION CONTROL EQUIPMENT:** NA

**I. EMISSION LIMITS**

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NOx	4.2 g/HP-hr	Hourly	EUBRIGHTONENG1	SC VI.2	R 336.1205, 40 CFR 60.4205(b), 60.4202(a)(2) , Table 1 of 40 CFR 89.112
2. CO	2.6 g/HP-hr	Hourly	EUBRIGHTONENG1	SC VI.2	R 336.1205, 40 CFR 60.4205(b), 60.4202(a)(2) , Table 1 of 40 CFR 89.112
3. PM	0.15 g/HP-hr	Hourly	EUBRIGHTONENG1	SC VI.2	R 336.1205, 40 CFR 60.4205(b), 60.4202(a)(2) , Table 1 of 40 CFR 89.112
4. VOC	0.6 g/HP-hr	Hourly	EUBRIGHTONENG1	SC VI.2	R 336.1205, 40 CFR 60.4205(b), 60.4202(a)(2) , Table 1 of 40 CFR 89.112

**II. MATERIAL LIMITS**

1. The permittee shall burn only diesel fuel, in EUBRIGHTONENG1 with the maximum sulfur content of 15 ppm (0.0015 percent) by weight and a minimum Cetane index of 40 or a maximum aromatic content of 35 volume percent. **(R 336.1205(1)(a)&(3), R 336.1402(1), 40 CFR 60.4207(b), 40 CFR 80.510(b))**

**III. PROCESS/OPERATIONAL RESTRICTIONS**

1. The permittee shall not operate EUBRIGHTONENG1 for more than 500 hours per year on a 12-month rolling time period basis as determined at the end of each calendar month. The 500 hours includes the hours for the purpose of necessary maintenance checks and readiness testing as described in SC III.2. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), 40 CFR 52.21 (c) & (d))**

2. The permittee may operate EUBRIGHTONENG1 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. 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. EUBRIGHTONENG1 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. The 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply non-emergency power as part of a financial arrangement with another entity. **(40 CFR 60.4211(f))**
3. If the permittee purchased a certified engine, according to procedures specified in 40 CFR Part 60 Subpart IIII, for the same model year and maximum engine power, the permittee shall meet the following requirements for EUBRIGHTONENG1:
  - a) Operate and maintain the certified engine and control device according to the manufacturer's emission-related written instructions;
  - b) Change only those emission-related settings that are permitted by the manufacturer; and
  - c) Meet the requirements as specified in 40 CFR 89, 94, and/or 1068, as they apply.

If the applicant does not operate and maintain the certified engine and control device according to the manufacturer's emission-related written instructions, the engine shall be considered a non-certified engine. **(40 CFR 60.4211(a))**

4. 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 EUBRIGHTONENG1 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 60.4211(g)(3))**

#### **IV. DESIGN/EQUIPMENT PARAMETERS**

1. The permittee shall equip and maintain EUBRIGHTONENG1 with a non-resettable hours meter to track the operating hours. **(R 336.1205(1)(a) & (3), R 336.1225, 40 CFR 60.4209)**
2. The nameplate capacity of EUBRIGHTONENG1 shall not exceed 2,220 BHP, as certified by the equipment manufacturer. **(R 336.1205(1)(a) & (3), 40 CFR 60.4202)**

#### **V. TESTING/SAMPLING**

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

1. The permittee shall conduct an initial performance test for EUBRIGHTONENG1 within one year after startup of the engine to demonstrate compliance with the emission limits in 40 CFR 60.4205 unless the engine has been certified by the manufacturer as described by 40 CFR Part 60 Subpart IIII. If the permittee does not install, configure, operate, or maintain the engine in accordance with the manufacturer's emission related written instruction or change emission related settings in a way that is not permitted by the manufacturer, the engine shall no longer be considered a certified engine. Initial performance testing shall be performed within one year upon the engine losing certification status. If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4212. Any test shall include measuring the engine BHP at each engine speed. No less than 30 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. Subsequent performance testing shall be conducted every 8,760 hours of engine operation or 3 years, whichever comes first. **(40 CFR 60.4211, 40 CFR 60.4212 , 40 CFR Part 60 Subpart IIII)**

#### **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) & (b), R 336.1225, R 336.1702(a), 40 CFR 52.21 (c) & (d))**
2. The permittee shall keep, in a satisfactory manner, records of testing required in SC V.1 or manufacturer certification documentation indicating that EUBRIGHTONENG1 meets the applicable requirements contained in the federal Standards of Performance for New Stationary Sources 40 CFR Part 60 Subpart IIII. If EUBRIGHTONENG1 becomes uncertified then the permittee must also keep records of a maintenance plan and maintenance activities. The permittee shall keep all records on file and make them available to the Department upon request. **(40 CFR 60.4211(g))**
3. The permittee shall keep records of the operation of EUBRIGHTONENG1 in emergency and non-emergency service that are recorded through the non-resettable hour meter, on a calendar year basis. The owner must record the time of operation of the engine and the reason the engine was in operation during that time. **(40 CFR 60.4211, 40 CFR 60.4214(b))**
4. The permittee shall monitor and record the total hours of operation for EUBRIGHTONENG1, on a monthly and 12-month rolling time period basis, in a manner acceptable to the District Supervisor, Air Quality Division. **(R 336.1205(1)(a) & (b), R 336.1225, R 336.1702(a), 40 CFR 52.21 (c) & (d))**
5. The permittee shall keep, in a satisfactory manner, fuel supplier certification records or fuel sample test data, for each delivery of diesel fuel oil used in EUBRIGHTONENG1, demonstrating that the fuel meets the requirement of 40 CFR 80.510(b). The certification or test data shall include the name of the oil supplier or laboratory, the sulfur content, and cetane index or aromatic content of the fuel oil. **(R 336.1205(1)(a)&(3), R 336.1402(1), 40 CFR 80.510(b))**

#### **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 EUBRIGHTONENG1. **(R 336.1201(7)(a))**

2. The permittee shall submit a notification specifying whether EUBRIGHTONENG1 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 Part 60 Subpart IIII)**

### **VIII. STACK/VENT RESTRICTIONS**

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

<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. SVBRIGHTONENG1*	14	6.1	R 336.1225, 40 CFR 52.21 (c) & (d)
*Flapper type rain protection device			

### **IX. OTHER REQUIREMENTS**

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 IIII, as they apply to EUBRIGHTONENG1. **(40 CFR Part 60 Subparts A & IIII, 40 CFR 63.6590)**
2. The permittee shall comply with the provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, as they apply to EUBRIGHTONENG1. **(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).