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

September 10, 2014
REVISED July 7, 2017

# PERMIT TO INSTALL
97-14

**ISSUED TO**
Henry Ford Hospital System

**LOCATED AT**
HFHS Rochester Hills Data Center
2571 Product Drive
Rochester Hills, Michigan

**IN THE COUNTY OF**
Oakland

**STATE REGISTRATION NUMBER**
P0530

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:<br>**August 11, 2014** | |
| DATE PERMIT TO INSTALL APPROVED:<br>**September 10, 2014** | SIGNATURE: |
| DATE PERMIT VOIDED: | SIGNATURE: |
| DATE PERMIT REVOKED: | SIGNATURE: |

# PERMIT TO INSTALL

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## Common Abbreviations / Acronyms

| Common Acronyms | | Pollutant / Measurement Abbreviations | |
|---|---|---|---|
| AQD | Air Quality Division | BTU | British Thermal Unit |
| BACT | Best Available Control Technology | °C | Degrees Celsius |
| CAA | Clean Air Act | CO | Carbon Monoxide |
| CEM | Continuous Emission Monitoring | dscf | Dry standard cubic foot |
| CFR | Code of Federal Regulations | dscm | Dry standard cubic meter |
| $CO_2e$ | Carbon Dioxide Equivalent | °F | Degrees Fahrenheit |
| COM | Continuous Opacity Monitoring | g | Gram |
| EPA | Environmental Protection Agency | gr | Grain |
| EU | Emission Unit | Hg | Mercury |
| FG | Flexible Group | hr | Hour |
| GACS | Gallon of Applied Coating Solids | $H_2S$ | Hydrogen Sulfide |
| GC | General Condition | hp | Horsepower |
| GHGs | Greenhouse Gases | lb | Pound |
| HAP | Hazardous Air Pollutant | kW | Kilowatt |
| HVLP | High Volume Low Pressure * | m | Meter |
| ID | Identification | mg | Milligram |
| LAER | Lowest Achievable Emission Rate | mm | Millimeter |
| MACT | Maximum Achievable Control Technology | MM | Million |
| MAERS | Michigan Air Emissions Reporting System | MW | Megawatts |
| MAP | Malfunction Abatement Plan | ng | Nanogram |
| MDEQ | Michigan Department of Environmental Quality (Department) | $NO_x$ | Oxides of Nitrogen |
| MSDS | Material Safety Data Sheet | PM | Particulate Matter |
| NESHAP | National Emission Standard for Hazardous Air Pollutants | PM10 | PM with aerodynamic diameter ≤10 microns |
| NSPS | New Source Performance Standards | PM2.5 | PM with aerodynamic diameter ≤ 2.5 microns |
| 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 | Reasonably 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 | $SO_2$ | Sulfur Dioxide |
| SRN | State Registration Number | THC | Total Hydrocarbons |
| TAC | Toxic Air Contaminant | tpy | Tons per year |
| TEQ | Toxicity Equivalence Quotient | µg | Microgram |
| VE | Visible Emissions | VOC | Volatile Organic Compound |
| | | yr | Year |

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

## GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**

2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**

3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**

4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**

5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**

6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**

7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**

8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.

9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
    a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
    b) A visible emission limit specified by an applicable federal new source performance standard.
    c) A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**

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

## SPECIAL CONDITIONS

### EMISSION UNIT SUMMARY TABLE

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

| Emission Unit ID | Emission Unit Description (Process Equipment & Control Devices) | Installation Date / Modification Date | Flexible Group ID |
|---|---|---|---|
| EUENGINE1 | A Cummins 2250 kW (3,280 hp) diesel-fueled emergency engine generator set manufactured in 2013. | TBD | FGENGINES |
| EUENGINE2 | A Cummins 2250 kW (3,280) diesel-fueled emergency engine generator set manufactured in 2016. | TBD | FGENGINES |
| EUENGINE3 | A portable rental Cummins 2000 kW diesel fueled emergency engine generator set. | Portable | 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. | | | |

### FLEXIBLE GROUP SUMMARY TABLE

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

| Flexible Group ID | Flexible Group Description | Associated Emission Unit IDs |
|---|---|---|
| FGENGINES | Two (2) 2,250 kW (3,280 hp) diesel-fueled emergency engine generator sets. These engine generators must comply with 40 CFR Part 63 Subpart ZZZZ by complying with the requirements in 40 CFR Part 60 Subpart IIII. | EUENGINE1, EUENGINE2 |

**The following conditions apply to: EUENGINE3**

**DESCRIPTION:** A portable rental Cummins 2000 kW diesel fueled emergency engine generator set.

**Flexible Group ID:** N/A

**POLLUTION CONTROL EQUIPMENT:** N/A

## I. EMISSION LIMITS

N/A

## II. MATERIAL LIMITS

1. The permittee shall burn only diesel fuel, in FGENGINES with the maximum sulfur content of 15 ppm (0.0015 percent) by weight. **(R 336.1402(1))**

## III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EUENGINE3 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 336.1225, R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

## IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall equip and maintain each engine of EUENGINE3 with non-resettable hours meters to track the operating hours. **(R 336.1225)**

2. The nameplate capacity of EUENGINE3 shall not exceed 2,000 kW as certified by the equipment manufacturer. **(R 336.1225)**

## V. TESTING/SAMPLING

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

N/A

## 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 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

2. The permittee shall monitor and record the total hours of operation of EUENGINE3, on a monthly and 12-month rolling time period basis, in a manner acceptable to the District Supervisor, Air Quality Division. **(R 336.1225)**

3. 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 EUENGINE3, demonstrating that the fuel sulfur content meets the requirement of 40 CFR 80.510(b). The certification or test data shall include the name of the oil supplier or laboratory, and the sulfur content of the fuel oil. **(R 336.1402(1))**

## 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 EUENGINE3. **(R 336.1201(7)(a))**

## VIII. STACK/VENT RESTRICTIONS

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

| Stack & Vent ID | Maximum Exhaust Diameter/ Dimensions (inches) | Minimum Height Above Ground (feet) | Underlying Applicable Requirements |
|---|---|---|---|
| 1. SVENGINE3 | 101 X 80 | 13.0 | R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d) |

## IX. OTHER REQUIREMENTS

1. EUENGINE3 shall not stay at the same location for more than 12 consecutive months. If EUENGINE3 remains at the same location for more than 12 consecutive months, then it will become a stationary source and this portion of the permit will no longer be valid. **(R 336.1201, R 336.1205, R 336.1901, 40 CFR 1068.30)**

**The following conditions apply to: FGENGINES**

**DESCRIPTION:** Two (2) 2,250 kW (3,280 hp) diesel-fueled emergency engine generator sets manufactured in 2013 and 2016. These engine generators must comply with 40 CFR Part 63 Subpart ZZZZ by complying with the requirements in 40 CFR Part 60 Subpart IIII.

**Emission Units:** EUENGINE1, EUENGINE2

**POLLUTION CONTROL EQUIPMENT:** NA

## I. EMISSION LIMITS

| Pollutant | Limit | Time Period / Operating Scenario | Equipment | Testing / Monitoring Method | Underlying Applicable Requirements |
|---|---|---|---|---|---|
| 1. NMHC + NOx | 6.4 g/kW-hr | Test Protocol* | FGENGINES | SC VI.2 | 40 CFR 60.4202, 40 CFR 89.112 |
| 2. CO | 3.5 g/kW-hr | Test Protocol* | FGENGINES | SC VI.2 | 40 CFR 60.4202, 40 CFR 89.112 |
| 3. PM | 0.20 g/kW-hr | Test Protocol* | FGENGINES | SC VI.2 | 40 CFR 60.4202, 40 CFR 89.112 |
| *Test Protocol shall determine averaging time. | | | | | |

## II. MATERIAL LIMITS

1. The permittee shall burn only diesel fuel, in FGENGINES with the maximum sulfur content of 15 ppm (0.0015 percent) by weight. **(R 336.1402(1), 40 CFR 60.4207, 40 CFR 80.510(b))**

## III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate each engine of FGENGINES 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 336.1225, R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

2. The permittee may operate each engine of FGENGINES 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, 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. Each engine of FGENGINES 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 to generate income for a facility to supply non-emergency power as part of a financial arrangement with another entity. **(40 CFR 60.4211)**

3. If the permittee purchased a certified engine, according to procedures specified in 40 CFR Part 60 Subpart IIII, for the same model year, the permittee shall meet the following requirements for each engine of FGENGINES:
   a) Operate and maintain the certified engine and control device according to the manufacturer's emission-related written instructions,
   b) Keep a maintenance plan and the permittee may only change those engine settings that are permitted by the manufacturer. If you do 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
   c) Meet the requirements as specified in 40 CFR 89, as it applies to you.
   **(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 FGENGINES 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 each engine of FGENGINES with non-resettable hours meters to track the operating hours. **(R 336.1225, 40 CFR 60.4209)**

2. The nameplate capacity of each engine of FGENGINES shall not exceed 3,280 hp (2,250 kW for each generator set), as certified by the equipment manufacturer. **(40 CFR 60.4202, 40 CFR 89.112(a))**

## 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 FGENGINES within one year after startup of each engine to demonstrate compliance with the emission limits in 40 CFR 60.4205 unless the engines have been certified by the manufacturer and the permittee maintains the engine as required by 40 CFR Part 60 Subpart IIII. If a performance test is required, the performance tests shall be conducted according to 40 CFR 60.4212. 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 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

2. For each engine, the permittee shall keep, in a satisfactory manner, records of testing required in SC V.1 or manufacturer certification documentation indicating that each engine of FGENGINES meets the applicable emission limitations contained in the federal Standards of Performance for New Stationary Sources 40 CFR Part 60 Subpart IIII. If any engine of FGENGINES 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)**

3. The permittee shall monitor and record the total hours of operation and the hours of operation during non-emergencies for each engine of FGENGINES, on a monthly and 12-month rolling time period basis, in a manner acceptable to the District Supervisor, Air Quality Division. The permittee shall document how many hours are spent for emergency operation of each engine, including what classified the operation as emergency and how many hours are spent for non-emergency operation. **(40 CFR 60.4211, 40 CFR 60.4214)**

4. 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 FGENGINES, demonstrating that the fuel sulfur content meets the requirement of 40 CFR 80.510(b). The certification or test data shall include the name of the oil supplier or laboratory, and the sulfur content of the fuel oil. **(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 each engine of FGENGINES. **(R 336.1201(7)(a))**

2. The permittee shall submit a notification specifying whether each engine of FGENGINES 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:

| Stack & Vent ID | Maximum Exhaust Diameter/ Dimensions (inches) | Minimum Height Above Ground (feet) | Underlying Applicable Requirements |
|---|---|---|---|
| 1. SVENGINE1 | 18 | 12.5 | R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d) |
| 2. SVENGINE2 | 18 | 12.5 | R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d) |

## 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 each engine of FGENGINES. **(40 CFR Part 60 Subparts A & IIII)**

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 each engine of FGENGINES. **(40 CFR Part 63 Subparts A and ZZZZ, 40 CFR 63.6595)**

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