

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

March 1, 2023

PERMIT TO INSTALL

38-23

ISSUED TO

Toyota Motor North America R&D

LOCATED AT

1555 & 1558 Woodridge Road
Ann Arbor, Michigan 48105

IN THE COUNTY OF

Washtenaw

STATE REGISTRATION NUMBER

N2915

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: February 15, 2023	
DATE PERMIT TO INSTALL APPROVED: March 1, 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 ₂ e	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 ₂ S	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	Flexible Group ID
EU-ANECHOIC	Anechoic chamber in the Evaluation building.	6-01-2002	FGULEV, FGLEV
EU-ENVIRON	Environmental chamber in the Evaluation building.	6-01-2002	FGULEV, FGLEV
EU-COLD	Test Cell for fully assembled vehicles and stand-alone engines in Evaluation building with uncontrolled emissions.	3-27-2014	FGUNCONTROLLED
EU-UPDOWN ^A	Up/down Engine test cell in the Powertrain building with an individual production ULEV or LEV catalyst.	5-2-1991 / 3-27-2014	FGULEV, FGLEV
EU-EG6 ^A	Catalyst-aging dynamometer in Powertrain building used to perform tests for accelerated aging and evaluation of development catalysts. Emissions are controlled with an installed catalyst. During fuel-rich high air intake operation a reduced catalyst efficiency may occur.	7-1-2016	FGCONTROLLED
EU-EG1 ^A	Engine test cell 1 in the Powertrain building with an individual catalytic oxidizer.	5-2-1991 / 8-11-2014	FGCONTROLLED
EU-EG2 ^A	Engine test cell 2 in the Powertrain building with an individual catalytic oxidizer.	5-2-1991 / 8-11-2014	FGCONTROLLED
EU-EG3 ^A	Engine test cell 3 in the Powertrain building. Engines tested in this test cell may be equipped with individual production ULEV or LEV catalyst or may be uncontrolled if high speed tests are being performed (due to excessive temperature).	10-1-2008 / 3-27-2014	FGULEV, FGLEV, FGUNCONTROLLED
EU-EG4 ^A	Engine test cell 4 in the Powertrain building. Engines tested in this test cell may be equipped with individual production ULEV or LEV catalyst or may be uncontrolled if high speed tests are being performed (due to excessive temperature).	10-16-2014	FGULEV, FGLEV, FGUNCONTROLLED
EU-EG5 ^A	Engine test cell 5 in the Powertrain building with an individual catalytic oxidizer.	10-21-2014	FGCONTROLLED
EU-TM1 ^A	Transmission dynamometer 1 in the Powertrain building with an individual catalytic oxidizer.	5-2-1991 / 8-11-2014	FGCONTROLLED
EU-TM4 ^A	Transmission dynamometer 4 in the Powertrain building with individual catalytic oxidizer.	11-11-2014	FGCONTROLLED
EU-TM5 ^A	Transmission dynamometer 5 in the Powertrain building with individual catalytic oxidizer.	11-7-2014	FGCONTROLLED

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date / Modification Date	Flexible Group ID
EU-EG7 ^A	Engine test cell 7 in the Evaluation building controlled by a thermal oxidizer.	TBD	FGCONTROLLED
EU-EG8 ^A	Engine test cell 8 in the Evaluation building controlled by a thermal oxidizer.	2-20-2018	FGCONTROLLED
EU-EG9 ^A	Engine test cell 9 in the Evaluation building controlled by a thermal oxidizer.	2-26-2018	FGCONTROLLED
EU-CHDY1	Chassis dynamometer 1 in the Powertrain building.	6-1-2002 / 3-27-2014	FGULEV, FGLEV
EU-CHDY2	Chassis dynamometer 2 in the Powertrain building.	6-1-2002 / 3-27-2014	FGULEV, FGLEV
EU-CHDY3	Chassis dynamometer 3 in the Powertrain building.	6-1-2002 / 3-27-2014	FGULEV, FGLEV
EU-CHDY4	Chassis dynamometer 4 in the Powertrain building.	6-1-2002 / 3-27-2014	FGULEV, FGLEV
EU-CHDY5	Chassis dynamometer 5 in the Powertrain building.	10-1-2008 / 3-27-2014	FGULEV, FGLEV
EU-CHDY6	Chassis dynamometer 6 in the Powertrain building.	10-1-2008 / 3-27-2014	FGULEV, FGLEV, FGUNCONTROLLED
EU-CHDY7	Chassis dynamometer 7 in the Evaluation building.	5-15-2018	FGULEV, FGLEV, FGUNCONTROLLED
EU-CHDY8	Chassis dynamometer 8 in the Evaluation building.	4-18-2018	FGULEV, FGLEV
EU-CHDY9	Chassis dynamometer 9 in the Evaluation building.	6-18-2018	FGULEV, FGLEV
EU-CHDY10	Chassis dynamometer 10 in the Evaluation building.	6-4-2018	FGULEV, FGLEV
EU-GENSET1	1,573 bhp (1,141 kW) natural gas-fired engine generator equipped with an oxidizing catalyst and LEANOX air to fuel controllers.	11-20-2017	FG-GENSETS
EU-GENSET2	1,573 bhp (1,141 kW) natural gas-fired engine generator equipped with an oxidizing catalyst and LEANOX air to fuel controllers.	11-20-2017	FG-GENSETS

^A These emission units have CAM requirements contained in a ROP.

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.

FLEXIBLE GROUP SPECIAL CONDITIONS

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
FGULEV	Engines or other vehicle components tested under this flexible group meet ULEV emission standards.	EU-ANECHOIC, EU-ENVIRON, EU-UPDOWN, EU-EG3, EU-EG4, EU-CHDY1, EU-CHDY2, EU-CHDY3, EU-CHDY4, EU-CHDY5, EU-CHDY6, EU-CHDY7, EU-CHDY8, EU-CHDY9, EU-CHDY10
FGLEV	Engines or other vehicle components tested under this flexible group meet LEV emission standards.	EU-ANECHOIC, EU-ENVIRON, EU-UPDOWN, EU-EG3, EU-EG4, EU-CHDY1, EU-CHDY2, EU-CHDY3, EU-CHDY4, EU-CHDY5, EU-CHDY6, EU-CHDY7, EU-CHDY8, EU-CHDY9, EU-CHDY10
FGCONTROLLED	Engines tested under this flexible group are controlled through either catalytic or thermal oxidation.	EU-EG6, EU-EG1, EU-EG2, EU-EG5, EU-TM1, EU-TM4, EU-TM5, EU-EG7, EU-EG8, EU-EG9
FGUNCONTROLLED	Engines or other vehicle components tested under this flexible group have uncontrolled emissions.	EU-COLD, EU-EG3, EU-EG4, EU-CHDY6, EU-CHDY7

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-GENSETS	Two natural gas-fired engine generators, each equipped with an oxidizing catalyst and LEANOX air to fuel controllers. (PTI No. 186-13C)	EU-GENSET1, EU-GENSET2

**FG-GENSETS
FLEXIBLE GROUP CONDITIONS**

DESCRIPTION

Two natural gas-fired engine generators, each equipped with an oxidizing catalyst and LEANOX air to fuel controllers.

Emission Unit: EU-GENSET1, EU-GENSET2

POLLUTION CONTROL EQUIPMENT

Oxidizing catalyst and LEANOX air to fuel controller on each engine.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. NO _x	0.57 g/hp-hr ^a	Three separate test runs of at least 1 hour, for each performance test required in 40 CFR 60.4244 and Table 2 to Subpart JJJJ of Part 60	Each engine in FG-GENSETS	SC V.1 SC VI.1	R 336.1205(1)(a), 40 CFR 52.21(c) & (d), 40 CFR 60.4233(e), Table 1 of 40 CFR Subpart JJJJ
2. CO	0.9 g/hp-hr ^b	Three separate test runs of at least 1 hour, for each performance test required in 40 CFR 60.4244 and Table 2 to Subpart JJJJ of Part 60	Each engine in FG-GENSETS	SC V.1 SC VI.1	R 336.1205(1)(a), 40 CFR 52.21 (d), 40 CFR 60.4233(e), Table 1 of 40 CFR Subpart JJJJ
3. VOC	0.7 g/hp-hr	Three separate test runs of at least 1 hour, for each performance test required in 40 CFR 60.4244 and Table 2 to Subpart JJJJ of Part 60	Each engine in FG-GENSETS	SC V.1 SC VI.1	R 336.1205(1)(a), 40 CFR 52.21 (d), 40 CFR 60.4233(e), Table 1 of 40 CFR Subpart JJJJ

^a Compliance with this streamlined NO_x limit shall be considered compliance with the 1.0 g/hp-hr NO_x limit established by 40 CFR 60.4233(e).

^b Compliance with this streamlined CO limit shall be considered compliance with the 2.0 g/hp-hr CO limit established by 40 CFR 60.4233(e).

II. MATERIAL LIMIT(S)

- The permittee shall only burn natural gas, as defined in 40 CFR 72.2, in any engine in FG-GENSETS. **(R 336.1225, R 336.1702(a), 40 CFR 52.21 (c) & (d))**

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall operate and maintain each engine in FG-GENSETS such that it meets the emission limits in SC I.1, I.2, and I.3 over the entire life of the engine. **(40 CFR 60.4234, 40 CFR 60.4243(b))**
- 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 each engine in FG-GENSETS: **(40 CFR 60.4243(b)(1))**
 - Operate and maintain the certified engine and control device according to the manufacturer's emission-related written instructions,
 - Only change engine settings according to and consistent with the manufacturer's instructions, and

- c) Meet the requirements as specified in 40 CFR 1068 Subparts A through D, as they apply to each engine.
3. If the permittee purchased a non-certified engine (or a certified engine which was not operated and maintained as specified), the permittee shall keep a maintenance plan for the non-certified engine 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. The permittee shall equip and maintain each engine in FG-GENSETS with non-resettable hours meters to track the operating hours. **(R 336.1205(1)(a) & (3), R 336.1225, 40 CFR 60.4243)**
2. The nameplate capacity of each engine in FG-GENSETS shall not exceed 1,573 bhp, as certified by the equipment manufacturer. **(R 336.1205(1)(a), R 336.1224, R 336.1225, R 336.1702(a), 40 CFR 52.21(c) & (d), 40 CFR 60.4230)**
3. The permittee shall not operate an engine in FG-GENSETS unless the engine's oxidation catalyst and LEANOX air to fuel controller is installed, maintained, and operated in a satisfactory manner. Satisfactory manner includes operating and maintaining each oxidation catalyst in accordance with the manufacturer's instructions for a certified engine, or a maintenance plan for a non-certified engine. **(R 336.1205, R 336.1224, R 336.1225, R 336.1702(a), R 336.1910, 40 CFR 52.21 (c) & (d), 40 CFR Part 60 Subpart JJJJ)**

V. TESTING/SAMPLING

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

1. If any engine in FG-GENSETS is not a certified engine consistent with 40 CFR 60.4243(b)(1), or 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 within one year of startup, or within one year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within one year after you change 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 three years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

No less than 30 days prior to testing, a complete test plan shall be submitted to the AQD. The protocol shall describe the test method(s) and the maximum routine operating conditions, including targets for key operational parameters associated with air pollution control equipment to be monitored and recorded during 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. **(40 CFR 60.4243(b), 40 CFR 60.4245(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 manner, the following records for each engine in FG-GENSETS:
 - a) For each certified engine: The permittee shall keep documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR Parts 90, 1048, 1054, and 1060, as applicable.
 - b) For each uncertified engine or certified engine operating in a non-certified manner and subject to 40 CFR 60.4243(a)(2): The permittee shall keep documentation that the engine meets the emission standards.

The permittee shall keep all records on file and make them available to the Department upon request.²
(40 CFR 52.21 (c) & (d), 40 CFR 60.4245(a))

2. The permittee shall keep, in a satisfactory manner, the following records of maintenance activity for each engine in FG-GENSETS:
 - a) For each certified engine: The permittee shall keep records of the manufacturer's emission-related written instructions, and records demonstrating that the engine has been maintained according to those instructions, as specified in SC III.3.
 - b) For each uncertified engine: The permittee shall keep records of a maintenance plan, as required by SC III.4, and maintenance activities.

The permittee shall keep all records on file and make them available to the Department upon request. **(40 CFR 60.4243(b)(1), 40 CFR 60.4243(b)(2))**

3. The permittee shall keep, in a satisfactory manner, records for FG-GENSETS of all notifications submitted to comply with 40 CFR Part 60 Subpart JJJJ and all documentation supporting any notification. **(40 CFR 60.4245(a))**
4. The permittee shall keep, in a satisfactory manner, a log of the monthly and 12-month rolling time period hours of operation of both engines in FG-GENSETS. The permittee shall keep all records on file at the facility and make them available to the department upon request. **(R 336.1205(1)(a) & (3), R 336.1225, 40 CFR 60.4243, 40 CFR 52.21(c) & (d))**

VII. REPORTING

1. Owners and operators of stationary SI ICE greater than or equal to 500 HP that have not been certified by an engine manufacturer to meet the emission standards in §60.4231 must submit an initial notification as required in §60.7(a)(1). The notification must include the following information: **(40 CFR 60.7(a)(1))**
 - a) Name and address of the owner or operator; **(40 CFR 60.4245(c)(1))**
 - b) The address of the affected source; **(40 CFR 60.4245(c)(2))**
 - c) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement; **(40 CFR 60.4245(c)(3))**
 - d) Emission control equipment; and **(40 CFR 60.4245(c)(4))**
 - e) Fuel used. **(40 CFR 60.4245(c)(5))**
2. The permittee shall submit a notification specifying whether each engine of FG-GENSETS 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. **(R 336.1201(3))**
3. The permittee shall notify the AQD Technical Programs Unit Supervisor and the District Supervisor no less than 7 days prior to the anticipated test date. **(R 336.2001(4))**

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 Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-GENSET1	16	35	R 336.1225, 40 CFR 52.21(c) & (d)
2. SV-GENSET2	16	35	R 336.1225, 40 CFR 52.21(c) & (d)

IX. OTHER REQUIREMENT(S)

1. The permittee shall comply with all applicable provisions of the New Source Performance Standards as specified in 40 CFR Part 60, Subpart A and Subpart JJJJ, as they apply to each engine in FG-GENSETS. **(40 CFR Part 60 Subpart A and JJJJ)**

2. 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 ZZZZ, as they apply to FG-GENSETS. **(40 CFR, Part 63, Subparts A and ZZZZ)**

FGFACILITY CONDITIONS

DESCRIPTION

The following conditions apply source-wide to all process equipment including equipment covered by other permits, grand-fathered equipment, and exempt equipment.

POLLUTION CONTROL EQUIPMENT

Defined in flexible group special conditions in MI-ROP-N2915-2017c.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. CO	249.0 tpy	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.2	R 336.1205(1)(a) & (b)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Total fuel ^D	618,709 gallons/yr	12-month rolling time period as determined at the end of each calendar month.	Engines or other vehicle components tested in FGFACILITY	SC VI.2	R 336.1205(1)(a) & (b), R 336.1225
1a. Total fuel	516,830 gallons/yr of SC II.1	12-month rolling time period as determined at the end of each calendar month.	Engines or other vehicle components tested in FGLEV, FGCONTROLLED, and FGUNCONTROLLED	SC VI.2	R 336.1205(1)(a) & (b)
1b. Total fuel	448,718 gallons/yr of SC II.1a	12-month rolling time period as determined at the end of each calendar month.	Engines or other vehicle components tested in FGCONTROLLED, and FGUNCONTROLLED	SC VI.2	R 336.1205(1)(a) & (b)
1c. Total fuel	22,995 gallons/yr of SC II.1b	12-month rolling time period as determined at the end of each calendar month.	Engines or other vehicle components tested in FGUNCONTROLLED	SC VI.2	R 336.1205(1)(a) & (b), R 336.1225
2. Natural Gas	532.23 MMscf/yr	12-month rolling time period as determined at the end of each calendar month.	FGFACILITY	SC VI.2	R 336.1205(1)(a) & (b)

^D The emission factor for engines or other vehicle components tested with diesel fuel is less than the emission factors listed for FGULEV, FGLEV, FGCONTROLLED, and FGUNCONTROLLED; therefore, diesel fuel use in engine or other vehicle component testing is restricted with SC II.1.

3. The permittee shall only burn unleaded gasoline (with ethanol contents less than 20 percent), various ethanol and gasoline blends (with ethanol contents from 20 to 85 percent by volume), and ethanol fuel (fuel with an ethanol content of at least 85 percent by volume) in engines or other vehicle components tested in FGFACILITY, with the exception of engines or other vehicle components tested in EU-ANECHOIC, EU-ENVIRON, EU-CHDY1, EU-CHDY2, EU-CHDY3, EU-CHDY4, EU-CHDY5, EU-CHDY6, EU-CHDY7, EU-CHDY8, EU-CHDY9, and EU-CHDY10, which may also burn diesel. **(R 336.1205(1)(a) & (b), R 336.1224, R 336.1225, R 336.1702, 40 CFR 52.21(c) & (d))**

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))**

NA

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 15th 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)**
2. The permittee shall keep the following information on a monthly basis for FGFACILITY:
 - a) Gallons of the total fuel used per month and 12-month rolling time period as determined at the end of each calendar month in each total fuel category (SC II.1, SC II.1a, SC II.1b, and SC II.1c).
 - b) MMscf of natural gas used month and 12-month rolling time period as determined at the end of each calendar month.
 - c) Records of operation sufficient enough to calculate emissions from engines.
 - d) CO emission calculations determining the monthly emission rate in tons per calendar month per the calculation method prescribed in Appendix A.
 - e) CO emission calculations determining the annual emission rate in tons per 12-month rolling time period as determined at the end of each calendar month per the calculation method prescribed in Appendix A.

The permittee shall keep the records in a format acceptable to the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205(1)(a) & (b), R 336.1225)**

3. The permittee shall keep, in a satisfactory manner, records showing the annual potential to emit calculations for CO, in tons per year, for FGFACILITY. The permittee shall update the potential to emit calculation whenever a new permitted or exempt emission unit is installed, whenever a permitted, exempt, or grandfathered emission unit is modified or removed, or whenever emission factors change for installed equipment. Potential to emit calculations shall be based on the maximum operational capacity of the equipment operated for the entire year, except they may account for applicable permit requirements or applicable laws or rules limiting the potential to emit. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205(1)(a) & (b))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

APPENDIX A CO Facility-Wide Calculations

Compliance Calculation Method for FGFACILITY CO Emission Limit

The following contains the formula that should be used on a monthly basis to evaluate CO emissions.

Monthly CO from engines or other vehicle components tested =

$(FGULEV \text{ [gal/month} \times \text{lb/1,000 gal}^*] + FGLEV \text{ [gal/month} \times \text{lb/1,000 gal}^*] + FGCONTROLLED \text{ [gal/month} \times \text{lb/1,000 gal}^*] + FGUNCONTROLLED \text{ [gal/month} \times \text{lb/1,000 gal}^*]) / 1000$

* The lb/1,000 gal emission factors shall be the emission factors listed in the applicable flexible group or the most recently tested value.

Monthly CO from natural gas =

$\text{non-NSPS engine [MMscf/month} \times 399 \text{ lb/MMscf]} + \text{natural gas-fired heaters/boilers/burners [MMscf/month} \times 84 \text{ lb/MMscf]} + \text{NSPS engines [MMscf/month} \times \text{XX lb/MMscf}^{**}]$

** This emission factor (XX) shall be specific to the engines in question; however, the currently permitted engines (as of issuance of this permit) have an emission factor of 323.09 lb/MMscf.

Total Monthly CO emissions = Monthly CO from engines or other vehicle components tested + Monthly CO from natural gas

After calculating the monthly CO emissions, the following formula shall be used to calculate the 12-month rolling CO emissions.

12-month rolling CO emissions = (Previous 12-month rolling calculation – First month included in the calculation) + New month calculation