

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

September 28, 2005

PERMIT TO INSTALL

187-05

ISSUED TO

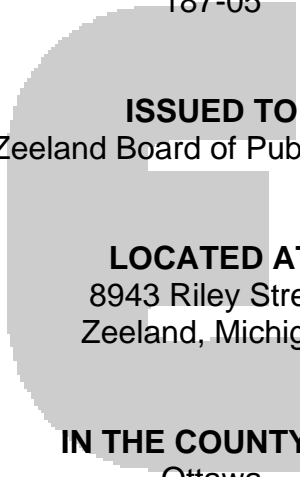
Zeeland Board of Public Works

LOCATED AT

8943 Riley Street
Zeeland, Michigan

IN THE COUNTY OF

Ottawa



STATE REGISTRATION NUMBER

N7506

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: September 13, 2005	
DATE PERMIT TO INSTALL APPROVED: September 28, 2005	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
ANSI	American National Standards Institute	°C	Degrees Celsius
BACT	Best Available Control Technology	CO	Carbon Monoxide
CAA	Clean Air Act	dscf	Dry standard cubic foot
CEM	Continuous Emission Monitoring	dscm	Dry standard cubic meter
CFR	Code of Federal Regulations	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H ₂ S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	NO _x	Oxides of Nitrogen
MAP	Malfunction Abatement Plan	PM	Particulate Matter
MDEQ	Michigan Department of Environmental Quality	PM-10	Particulate Matter less than 10 microns diameter
MIOSHA	Michigan Occupational Safety & Health Administration	pph	Pound per hour
MSDS	Material Safety Data Sheet	ppm	Parts per million
NESHAP	National Emission Standard for Hazardous Air Pollutants	ppmv	Parts per million by volume
NSPS	New Source Performance Standards	ppmw	Parts per million by weight
NSR	New Source Review	psia	Pounds per square inch absolute
PS	Performance Specification	psig	Pounds per square inch gauge
PSD	Prevention of Significant Deterioration	scf	Standard cubic feet
PTE	Permanent Total Enclosure	sec	Seconds
PTI	Permit to Install	SO ₂	Sulfur Dioxide
RACT	Reasonable Available Control Technology	THC	Total Hydrocarbons
ROP	Renewable Operating Permit	tpy	Tons per year
SC	Special Condition Number	µg	Microgram
SCR	Selective Catalytic Reduction	VOC	Volatile Organic Compounds
SRN	State Registration Number	yr	Year
TAC	Toxic Air Contaminant		
VE	Visible Emissions		

* 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. **[R336.1201(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, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **[R336.1201(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 R336.1210, 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. **[R336.1201(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. **[R336.1201(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 R336.1219 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 R336.1219. The written request shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **[R336.1219]**
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. **[R336.1901]**
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). **[R336.1912]**
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 R336.1301, 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 R336.1303. **[R336.1301]**
 - 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 R336.1370(2). **[R336.1370]**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R336.2001 and R336.2003, under any of the conditions listed in R336.2001. **[R336.2001]**

SPECIAL CONDITIONS

Emission Unit Identification

Emission Unit ID	Emission Unit Description	Stack Identification
EUENGINE1	2,889 bhp natural gas fired lean burn engine generator with catalytic converter	SVENGINE1
EUENGINE2	2,889 bhp natural gas fired lean burn engine generator with catalytic converter	SVENGINE2
EUENGINE3	2,889 bhp natural gas fired lean burn engine generator with catalytic converter	SVENGINE3
EUENGINE4	2,889 bhp natural gas fired lean burn engine generator with catalytic converter	SVENGINE4
EUENGINE5	2,889 bhp natural gas fired lean burn engine generator with catalytic converter	SVENGINE5
Changes to the equipment described in this table are subject to the requirements of R336.1201, except as allowed by R336.1278 to R336.1290.		

Flexible Group Identification

Flexible Group ID	Emission Units Included in Flexible Group	Stack Identification
FGENGINES	EUENGINE1, EUENGINE2, EUENGINE3, EUENGINE4, EUENGINE5	NA

The following conditions apply to: FGENGINES

Emission Limits

	Pollutant	Equipment	Limit	Time Period	Testing/ Monitoring Method	Applicable Requirement
1.1a	CO	FGENGINES	34.0 tpy	12-month rolling time period as determined at the end of each calendar month	SC 1.11 and Appendix A	R336.1205(3)
1.1b	CO	Each engine included in FGENGINES	2.72 lb/hr	Test protocol*	SC 1.6	R336.1205(3), R336.1910
*Test protocol will specify averaging time period						

Material Usage Limits

- 1.2 The permittee shall only burn natural gas in FGENGINES. [R336.1205(3), R336.1225, R336.1702(a)]
- 1.3 The natural gas usage for FGENGINES shall not exceed 104.0 million cubic feet per engine per 12-month rolling time period as determined at the end of each calendar month. [R336.1205(3), R336.1225, R336.1702(a)]

Process/Operational Limits

- 1.4 No later than 60 days after trial operation of FGENGINES, the permittee shall submit to the AQD District Supervisor, for review and approval, a malfunction abatement/preventative maintenance plan for FGENGINES. After approval of the malfunction abatement/preventative maintenance plan by the AQD District Supervisor, the permittee shall not operate FGENGINES unless the malfunction abatement/preventative maintenance plan, or an alternate plan approved by the AQD District Supervisor, is implemented and maintained. The plan shall incorporate procedures recommended by the equipment manufacturer as well as incorporating standard industry practices. The plan shall include procedures for maintaining and operating in a satisfactory manner FGENGINES, add-on air pollution control device, or monitoring equipment during malfunction events, and a program for corrective action for such events. If the malfunction abatement plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan is initially developed, the owner or operator shall revise the malfunction abatement plan within 45 days after such an event occurs and submit the revised plan for approval to the AQD District Supervisor. Should the AQD determine the malfunction abatement/preventative maintenance plan to be inadequate, the District Supervisor may request modification of the plan to address those inadequacies. **[R336.1205(3), R336.1225, R336.1702(a), R336.1911]**

Equipment

- 1.5 The permittee shall not operate FGENGINES unless each catalytic converter is installed, maintained and operated in a satisfactory manner. Satisfactory operation of the catalytic converter includes maintaining a minimum catalyst bed inlet temperature of 750 °F when generating electricity. **[R336.1205(3), R336.1225, R336.1702(a), R336.1910]**

Testing

- 1.6 Verification of CO emission rates from one engine included in FGENGINES, by testing at owner's expense, in accordance with Department requirements, will be required upon request by the AQD District Supervisor. No less than 60 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. **[R336.1205(3), R336.1910, R336.2001, R336.2003, R336.2004]**

Monitoring

- 1.7 The permittee shall monitor, in a satisfactory manner, the natural gas usage from each engine included in FGENGINES on a continuous basis. **[R336.1205(3), R336.1205(3), R336.1225, R336.1702(a)]**
- 1.8 The permittee shall install, calibrate, maintain and operate in a satisfactory manner a temperature monitoring device to continuously monitor the inlet (turbocharger) and outlet temperatures of each catalytic converter catalyst bed while it is operating on the associated engine in FGENGINES. **[R336.1205(3), R336.1225, R336.1702(a), R336.1910]**

Recordkeeping/Reporting/Notification

- 1.9 All required calculations shall be completed in a format acceptable to the AQD District Supervisor and made available by the 15th day of the calendar month, for the previous calendar month, unless otherwise specified in any recordkeeping, reporting or notification special condition. **[R336.1205]**
- 1.10 The permittee shall keep, in a satisfactory manner, monthly hours of engine run time, monthly hours of electrical generation and monthly fuel use records for each engine included in FGENGINES, as required by SC 1.3 and SC 1.7. All records shall be kept on file for a period of at least five years and made available to the Department upon request. **[R336.1205(3)]**
- 1.11 The permittee shall keep, in a satisfactory manner, monthly and previous 12-month CO emission calculation records for FGENGINES, as required by SC 1.1 and Appendix A. All records shall be kept on file for a period of at least five years and made available to the Department upon request. **[R336.1205(3)]**

1.12 The permittee shall keep, in a satisfactory manner, operating temperature records for each catalytic converter as required by SC 1.5 and SC 1.8. The permittee shall keep all records and calculations on file at the facility for a period of at least five years and make them available to the Department upon request. **[R336.1205(3), R336.1225, R336.1702(a), R336.1910]**

Stack/Vent Restrictions

	Stack & Vent ID	Maximum Diameter (inches)	Minimum Height Above Ground Level (feet)	Applicable Requirement
1.13a	SVENGINE1	14	34	R336.1225
1.13b	SVENGINE2	14	34	R336.1225
1.13c	SVENGINE3	14	34	R336.1225
1.13d	SVENGINE4	14	34	R336.1225
1.13e	SVENGINE5	14	34	R336.1225
The exhaust gases shall be discharged unobstructed vertically upwards to the ambient air.				

APPENDIX A
Procedures for Calculating CO Emissions

Compliance with the CO emission limits will be demonstrated by keeping track of the fuel usage for FGEngines and multiplying that fuel usage by an equipment specific emission factor. The emission factors are typically expressed as a mass weight of pollutant per unit of fuel.

The permittee shall only use emission factors from equipment vendor guarantees or from source specific testing (stack testing), whichever is worst-case, for FGEngines. If other emission source values are used, the permittee shall obtain the approval of the district supervisor before using the emission factors to calculate emissions.

The permittee shall document the source and date of origin of the emission factors used in the calculations.