MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

August 14, 2006

PERMIT TO INSTALL
91-04A

ISSUED TO
Michigan Technological University

LOCATED AT
1400 Townsend Drive
Houghton, Michigan

IN THE COUNTY OF
Houghton

STATE REGISTRATION NUMBER
N7350

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: **August 2, 2006**	
DATE PERMIT TO INSTALL APPROVED: **August 14, 2006**	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_2S	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	Reasonably 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. **[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, 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. The written request 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 Identification

Emission Unit ID	Emission Unit Description	Stack Identification
EUBOILER1R	156 mmBtu per hour boiler fired with No. 2 fuel oil and natural gas.	SVBOILER1R
EUBOILER2	39.4 mmBtu per hour boiler fired with No. 2 fuel oil and natural gas.	SVBOILER2
EUBOILER 3	39.4 mm Btu per hour boiler fired with fuel No. 2 oil and natural gas.	SVBOILER 3
EUBOILER4	96 mm Btu per hour boiler fired with No. 2 fuel oil and natural gas.	SVBOILER4
EUGENERATOR1	Caterpillar model 3516B diesel generator set, rated at 2,250 kilowatts	SVGENERATOR1
EUGENERATOR2	Caterpillar model 3516B diesel generator set, rated at 2,250 kilowatts	SVGENERATOR2
EUGENERATOR 3	Caterpillar model 3516B diesel generator set, rated at 2,250 kilowatts	SVGENERATOR 3
EUGENERATOR4	Caterpillar model 3516B diesel generator set, rated at 2,250 kilowatts	SVGENERATOR4
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 Identification

Flexible Group ID	Emission Units Included in Flexible Group	Stack Identification
FGBOILERS	EUBOILER1R EUBOILER2 EUBOILER 3 EUBOILER4	See Emission Unit Identification Table
FGGENERATORS	EUGENERATOR1 EUGENERATOR2 EUGENERATOR 3 EUGENERATOR4	See Emission Unit Identification Table
FGFACILITY	All process equipment at the facility including equipment covered by other permits, grand-fathered equipment and exempt equipment.	N/A

The following conditions apply to: FGBOILERS

Emission Limits

	Pollutant	Equipment	Limit	Time Period	Testing/ Monitoring Method	Applicable Requirement
1.1a	CO	FGBOILERS[1]	.084 lb/mmBtu	Test Protocol	GC 13	R 336. 205(3)
1.1b	CO	FGBOILERS[2]	.036 lb/mmBtu	Test Protocol	GC 13	R 336. 205(3)
1.1c	NO_x	FGBOILERS[1]	0.28 lb/mmBtu	Test Protocol	GC 13	R 336. 205(3)
1.1d	NO_x	FGBOILERS[2]	0.174 lb/mmBtu	Test Protocol	GC 13	R 336. 205(3)
1.1e	SO_2	FGBOILERS[2]	0.57 lb/mmBtu	Test Protocol	GC 13	R 336. 205(3)
	[1] This limit is applicable when burning natural gas. [2] This limit is applicable when burning distillate oil.					

Material Usage Limits

1.2 The natural gas usage for FGBOILERS shall not exceed 390 million cubic feet per rolling 12-month rolling time period. Compliance with this limit shall be demonstrated by following the procedures specified in Appendix A of this permit. **[R 336.1205(3)]**

1.3 The No. 2 fuel oil usage for FGBOILERS shall not exceed 390,000 gallons per 12-month rolling time period. Compliance with this limit shall be demonstrated by following the procedures specified in Appendix A of this permit. **[R 336.1205(3)]**

Process/Operational Limits

1.4 The sulfur content of the oil combusted in FGBOILERS shall not exceed 0.5 percent by weight. Compliance with this limit shall be determined under special condition 1.6. **[R 336.1205(3)]**

1.5 Permittee shall only combust natural gas and/or No. 2 fuel oil in FGBOILERS. **[R 336.1205(3)]**

Recordkeeping/Reporting/Notification

1.6 The permittee shall maintain records of Fuel supplier certification for the No. 2 fuel oil used in FGBOILERS. The fuel supplier certification shall include: the name of the fuel supplier; a statement from the fuel supplier which states that the specifications of the oil comply with the specifications set forth in ASTM D396-98 (or the latest revision to this standard); and the sulfur content of the oil. **[R 336.1205(3)]**

Stack/Vent Restrictions

	Stack & Vent ID	Maximum Diameter (feet)	Minimum Height Above Ground Level (feet)	Applicable Requirement
1.7a	SVBOILER1R	5.0	55.5	40 CFR 52.21
1.7b	SVBOILER2	3.6	55.6	40 CFR 52.21
1.7c	SVBOILER 3	3.6	55.6	40 CFR 52.21
1.7d	SVBOILER4	4.5	58.0	40 CFR 52.21
	The exhaust gases shall be discharged unobstructed vertically upwards to the ambient air..			

The following conditions apply to: FGGENERATORS

Emission Limits

	Pollutant	Equipment	Limit	Time Period	Testing/ Monitoring Method	Applicable Requirement
2.1a	CO	FGGENERATORS[1]	0.26 lb/mmBtu	Test Protocol	GC 13	R 336. 205(3)
2.1b	CO	FGGENERATORS[2]	0.13 lb/mmBtu	Test Protocol	GC 13	R 336. 205(3)
2.1c	NO_x	FGGENERATORS[1]	2.7 lb/mmBtu	Test Protocol	GC 13	R 336. 205(3)
2.1d	NO_x	FGGENERATORS[2]	3.1 lb/mmBtu	Test Protocol	GC 13	R 336. 205(3)
	[1] This limit is applicable when burning distillate oil [2] This limit is applicable when burning biodiesel fuel					

Material Usage Limits

2.2 The No. 2 fuel oil usage for FGGENERATORS shall not exceed 329,918 gallons per 12-month rolling time period. The biodiesel fuel usage for FGGENERATORS shall not exceed 319,400 gallons per 12-month rolling time period. Compliance with this limit shall be demonstrated by following the procedures specified in Appendix A of this permit. **[R 336.1205(3)]**

Process/Operational Limits

2.3 The sulfur content of the oil combusted in FGGENERATORS shall not exceed 0.05 percent by weight. Compliance with this limit shall be determined under special condition 1.6. **[R 336.1205(3)]**

2.4 Permittee shall only combust No. 2 fuel oil and/or biodiesel fuel in FGGENERATORS. **[R 336.1205(3)]**

Recordkeeping/Reporting/Notification

2.5 The permittee shall maintain records of Fuel supplier certification for the No. 2 fuel oil and/or biodiesel fuel used in FGGENERATORS. The fuel supplier certification shall include: the name of the fuel supplier; a statement from the fuel supplier which states that the specifications of the oil comply with the specifications set forth in ASTM D396-98 for fuel oil or D 6751 for biodiesel (or the latest revision to either standard); and the sulfur content of the oil. **[R 336.1205(3)]**

Stack/Vent Restrictions

	Stack & Vent ID	Maximum Diameter (inches)	Minimum Height Above Ground Level (feet)	Applicable Requirement
2.6a	SVGENERATOR1	12	40	40 CFR 52.21
2.6b	SVGENERATOR2	12	40	40 CFR 52.21
2.6c	SVGENERATOR 3	12	40	40 CFR 52.21
2.6d	SVGENERATOR4	12	40	40 CFR 52.21
	The exhaust gases shall be discharged unobstructed vertically upwards to the ambient air.			

The following conditions apply to: FGPLANT

Emission Limits

	Pollutant	Equipment	Limit	Time Period	Testing/ Monitoring Method	Applicable Requirement
3.1a	CO	FGPLANT	24.8 tons per year	Rolling 12-month time period.	Appendix A	R 336. 205(3)
3.1b	NO_x	FGPLANT	89.1 tons per year	Rolling 12-month time period.	Rolling 12-month time period.	R 336. 205(3)
3.1c	SO_2	FGPLANT	17.9 tons per year	Rolling 12-month time period.	Rolling 12-month time period.	R 336. 205(3)

Appendix A

Procedures for demonstrating compliance with the emission limits contained in Permit 91-04A

The permittee shall demonstrate compliance with the limits of this permit by performing the recordkeeping in formats acceptable to the district supervisor. Permittee shall demonstrate compliance by recording daily fuel usages for all fuels used, and multiplication of these fuel usages by the assumed limits in special conditions 1.1 and 2.1 of this permit. All information (including fuel supplier certifications) used to show compliance with the limits of this permit shall be maintained for a period of five years.

Upon notification by the district supervisor, the permittee may be asked to verify compliance with the emission limits contained in special conditions 1.1 and 2.1 by performing stack testing. In the event that stack testing is performed, the emissions calculated shall be based upon the measured or tested values.

Following are the required specifications:

- Natural gas usage performed on a daily basis.
- No. 2 fuel oil and/or biodiesel fuel usage to FGGENERATORS shall be performed on a daily basis.
- No. 2 fuel oil usage to FGBOILERS shall be performed on a daily basis.
- Calculation of actual emissions for purposes of demonstrating compliance with the limits contained in special condition 3.1 shall be done on a monthly basis, based upon daily fuel use information aggregated for the calendar month.