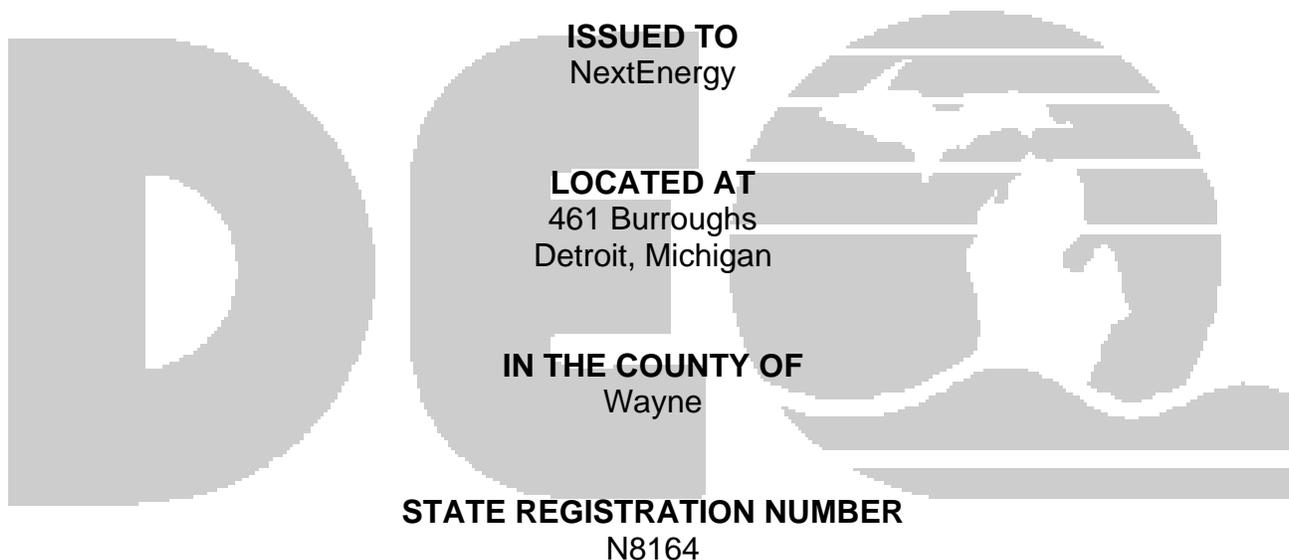


**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

March 9, 2009

**PERMIT TO INSTALL
308-08**



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: November 26, 2008	
DATE PERMIT TO INSTALL APPROVED: March 9, 2009	SIGNATURE: G. Vinson Hellwig
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL
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	ng	Nanogram
MAP	Malfunction Abatement Plan	NO _x	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality	PM	Particulate Matter
MIOSHA	Michigan Occupational Safety & Health Administration	PM10	PM less than 10 microns diameter
MSDS	Material Safety Data Sheet	PM2.5	PM less than 2.5 microns diameter
NESHA P	National Emission Standard for Hazardous Air Pollutants	pph	Pound per hour
NSPS	New Source Performance Standards	ppm	Parts per million
NSR	New Source Review	ppmv	Parts per million by volume
PS	Performance Specification	ppmw	Parts per million by weight
PSD	Prevention of Significant Deterioration	psia	Pounds per square inch absolute
PTE	Permanent Total Enclosure	psig	Pounds per square inch gauge
PTI	Permit to Install	scf	Standard cubic feet
RACT	Reasonably Available Control Technology	sec	Seconds
ROP	Renewable Operating Permit	SO ₂	Sulfur Dioxide
SC	Special Condition	THC	Total Hydrocarbons
SCR	Selective Catalytic Reduction	tpy	Tons per year
SRN	State Registration Number	µg	Microgram
TAC	Toxic Air Contaminant	VOC	Volatile Organic Compounds
TEQ	Toxicity Equivalence Quotient	yr	Year
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 AQD District Supervisor shall be notified, in writing, of a change in ownership or operational control of the stationary source or emission unit(s) authorized by this Permit to Install pursuant to R 336.1219. The notification shall include all of the information required by R 336.1219(1)(a) and (b). In addition, a new owner or operator must submit a written statement pursuant to R 336.1219(1)(c), agreeing to and accepting the terms and conditions of this Permit to Install, and shall notify the AQD District Supervisor of any change in the contact person for this Permit to Install. **(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)	Flexible Group ID
EUMEWEPS	Mobile Encampment Waste to Electric Power System – Process consists of shredding, compressing, and pelletizing of encampment waste in an ISO container, a down draft gasifier system in an ISO container, and a Tactical Quiet Generator to be fueled by producer gas from the pelletized waste supplemented with diesel fuel.	N/A
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: EUMEWEPS

DESCRIPTION: Mobile Encampment Waste to Electric Power System

Flexible Group ID: N/A

POLLUTION CONTROL EQUIPMENT: Bag filters

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. CO	10 pph	According to method	EUMEWEPS	SC V.1	R 336.1205
2. NO _x	10 pph	According to method	EUMEWEPS	SC V.1	R 336.1205
3. PM	10 pph	According to method	EUMEWEPS	SC V.1	R 336.1205
4. SO ₂	10 pph	According to method	EUMEWEPS	SC V.1	R 336.1205
5. VOC	10 pph	According to method	EUMEWEPS	SC V.1	R 336.1205

II. MATERIAL LIMITS

1. The permittee shall use only diesel fuel and the waste material mix, as specified in Appendix A, in EUMEWEPS. **(R 336.1205, R 336.1225, R 336.1901)**
2. The waste material mix used in EUMEWEPS shall not contain any halogenated organic compounds. **(R 336.1205, R 336.1225, R 336.1901)**
3. The waste material mix usage for EUMEWEPS shall not exceed 85.0 pounds per hour. **(R 336.1205, R 336.1225, R 336.1901)**
4. The diesel fuel usage for EUMEWEPS shall not exceed 5.0 gallons per hour. **(R 336.1205, R 336.1225, R 336.1901)**

5. The permittee shall not use more than 22,440 pounds of waste material mix in EUMEWEPS per year. **(R 336.1205, R 336.1225, R 336.1702, R 336.1901)**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EUMEWEPS for more than 300 hours. **(R 336.1205, R 336.1225, R 336.1901)**
2. The permittee shall capture all waste char materials and shall store them in closed containers. The permittee shall dispose of all waste char materials in an acceptable manner in compliance with all applicable state rules and federal regulations. **(R 336.1205, R 336.1225, R 336.1370, R 336.1901)**
3. Prior to operation of EUMEWEPS, the permittee shall submit to the AQD District Supervisor, an approvable operation and maintenance plan. The plan shall contain all the following:
 - a) Operation and maintenance criteria for EUMEWEPS, add-on control device(s), and for the process and control device(s) monitoring equipment as well as a standardized checklist to document the operation and maintenance of the equipment;
 - b) The work practice standards for the add-on control device(s) and monitoring equipment;
 - c) Procedures to be followed to ensure that equipment or process malfunctions due to poor maintenance or other preventable conditions do not occur; and
 - d) A systematic procedure for identifying process equipment, add-on control device(s) and monitoring equipment malfunctions and for implementing corrective actions to address such malfunctions. **(R 336.1224, R 336.1225, R 336.1901, R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate any EUMEWEPS shredding and/or pelletizing activities at the facility unless those portions of EUMEWEPS are enclosed in the ISO container. **(R 336.1205, R 336.1225, R 336.1331, R 336.1901)**
2. The permittee shall not operate EUMEWEPS unless the producer gas bag filters are installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1225, R 336.1331, R 336.1901, R 336.1910)**

V. TESTING/SAMPLING

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

1. The permittee shall verify and quantify emission rates of CO, NO_x, PM, SO₂, total VOC, metals (arsenic, beryllium, cadmium, nickel, titanium, and zinc), and H₂SO₄ from EUMEWEPS, by testing at owner's expense, in accordance with Department requirements, in order to continue operation. Within 60 days of permit issuance, the permittee shall submit to the AQD a complete test plan. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within one calendar year of permit issuance. **(R 336.1205(3), R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

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

1. The permittee shall keep the following records for each calendar day that EUMEWEPS is operated:
 - a) Identification, type and the amounts (in gallons or pounds) of all fuels consumed.

b) Total hours of operation.

The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205, R 336.1224, R 336.1225)**

2. The permittee shall maintain a current listing from the manufacturer of the chemical composition of each waste material used in the waste material mix, including the weight percent of each component. The data may consist of Material Safety Data Sheets, manufacturer's formulation data, or both as deemed acceptable by the AQD District Supervisor. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1205, R 336.1225)**

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 EUMEWEPS. **(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 Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVMWEPS	12	10	R 336.1225, R 336.1901

IX. OTHER REQUIREMENTS

1. This permit shall be terminated on and after September 30, 2009. To continue operation of EUMEWEPS at this site after this date, the permittee must apply for and receive a new PTI. The permit application for permanent operation must include the results of stack testing done under SC V.1. **(Act 451 324.5503(c))**
2. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and EEEE, as they apply to EUMEWEPS. **(40 CFR Part 60 Subparts A & EEEE)**

Appendix A – Waste Material Mix

Table 1 – Composition of feedstock for testing at NEC

<i>Material</i>	<i>Wt%</i>	<i>Source / Supplier(s)</i>	<i>Comment</i>
<i>Cardboard</i>	<i>61.8</i>	<i>FIR</i>	<i>Baled (segregated at FIR)</i>
<i>Plastic Ware</i>	<i>6.5</i>	<i>Wornick</i>	<i>52% wheat starch and 47% polypropylene</i>
<i>Polypropylene</i>	<i>12.3</i>	<i>Rexam or Wornick</i>	<i>Plastic steam table trays</i>
<i>Polyethylene</i>	<i>4.2</i>	<i>Wornick</i>	<i>Bags for utensils, plates and trash bags</i>
<i>Moisture</i>	<i>12.7</i>	<i>NextEnergy as req.</i>	<i>Found in cardboard</i>
<i>Waste Food</i>	<i>2.5</i>	<i>Local store</i>	<i>Food</i>