

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
NESHAP	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	Stack Identification
EUAIRSTRIPPER1	A shallow tray air stripper with air blower capacity of 2000 to 4000 nominal cfm. Air stripping is already permitted under the SRD and connected to Extraction Well Unit No. 3 ("EW3") which consists of an extraction well and pump assembly.	SVAIRSTRIPPER1
EUAIRSTRIPPER2	A dual packed-bed air stripping tower with air blower (18,000 CFM) and its own two activated carbon beds for control of vapors from this stripping tower. This air stripper is already permitted under the SRD and connected to Extraction Well Unit No. 2 ("EW2"), which consists of an extraction well and pump assembly.	SVCARBON2
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: EUAIRSTRIPPER1

DESCRIPTION: A shallow tray air stripper with air blower capacity of 2000 to 4000 nominal cfm. Air stripping is already permitted under the SRD and connected to Extraction Well Unit No. 3 ("EW3") which consists of an extraction well and pump assembly

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT:

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VOC	0.1 pph	per testing protocol	EUAIRSTRIPPER1	SC VI.1, VI.2, VI.3, and VII.1.	R 336.1225, R 336.1702(a), R 336.1901

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NA					

III. PROCESS/OPERATIONAL RESTRICTIONS

1. NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. NA

V. TESTING/SAMPLING

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

1. NA

VI. MONITORING/RECORDKEEPING

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

1. The owner/operator shall monitor and record the groundwater influent and effluent flow rates of EUAIRSTRIPPER1 on a monthly basis in a manner and with instrumentation acceptable to the Air Quality Division (AQD). **(R 336.1901)**
2. The owner/operator shall monitor and record the concentration of trichloroethylene ("TCE" – CAS No. 79-01-6), tetrachloroethene ("PERC" – CAS No. 127-18-4), and 1,1,1-trichloroethane ("1,1,1-TCA" – CAS No. 71-55-6) in the groundwater influent and effluent of EUAIRSTRIPPER1 on a monthly basis in a manner and with instrumentation acceptable to the Air Quality Division. "Valid sample" means that the sample passes all quality assurance and quality control requirements. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**
3. The owner/operator shall monitor and record the concentration of total VOCs in the groundwater influent of EUAIRSTRIPPER1 at least semiannually in a manner and with instrumentation acceptable to the AQD. Total VOC concentration shall be determined using the standard MDEQ groundwater analytical scans for VOCs. "Valid sample" means that the sample passes all quality assurance and quality control requirements.

If any VOC other than TCE, PERC, or 1,1,1-TCA is detected during this semiannual monitoring, the owner/operator shall resume monitoring for total VOCs in the groundwater influent on a monthly basis for at least four consecutive months without further detections. At that time, the owner/operator may reduce the monitoring frequency for total VOCs to once per quarter for at least four consecutive quarters without detections. After four consecutive quarters without detections, the owner/operator may return to a semiannual monitoring frequency for total VOCs. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

VII. REPORTING

1. All monitoring data specified in SC Nos. VI.1 through VI.3, including calculation of VOC emission rates (primarily TCE) due to EUAIRSTRIPPER1, shall be submitted to the District Supervisor, Air Quality Division, using Appendix A or approved equivalent method, within 30 days following collection of the initial data, and semiannually thereafter. Although there are several monthly monitoring requirements, once the initial data requirements have been met the owner/operator need only submit that data twice per year, i.e. data for six months per each semiannual report. Any request for a change in the sampling and/or reporting frequency shall be submitted to the District Supervisor, Air Quality Division, for review and approval. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

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. SVAIRSTRIPPER1	12	22.5	R 336.1225, R 336.1901, 40 CFR 52.21(c) and (d)

IX. OTHER REQUIREMENTS

1. NA

The following conditions apply to: EUAIRSTRIPPER2

DESCRIPTION: A dual packed-bed air stripping tower with air blower (18,000 CFM) and its own two activated carbon beds for control of vapors from this stripping tower. This air stripper is already permitted under the SRD and connected to Extraction Well Unit No. 2 ("EW2"), which consists of an extraction well and pump assembly.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Carbon System No. 2 consists of two 13,500-pound activated carbon units configured in-series.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VOC	0.1 pph	Per testing protocol	EUAIRSTRIPPER2	SC IV.1, V.1, VI.1, VI.2, and VI.3..	R 336.1225, R 336.1702(a), R 336.1901

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
NA					

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The owner/operator shall not operate EUAIRSTRIPPER2 unless Carbon System No. 2 is installed and operating properly. Proper operation includes the monitoring requirements included in Special Condition No. V.1. **(R 336.1224(b), R 336.1702(a))**

V. TESTING/SAMPLING

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

1. The owner/operator shall test, in a satisfactory manner, the dual-stage activated carbon system, Carbon System No. 2, for breakthrough of the first canister at least once per month. The owner/operator shall evaluate breakthrough via Tedlar bag sampling followed by laboratory analysis; by use of a hand-held instrument capable of detecting concentrations at the levels expected; or an equivalent method.

'Breakthrough' is considered a reading at the point between the first and second canisters that is 20 percent or more of the vapor-phase influent concentration into the first canister. If breakthrough is detected, the owner/operator shall not operate the system until the carbon in the first canister has been replaced and the operating order of the vessels has been reversed. The owner/operator shall repeat the initial test each time a carbon canister is replaced and shall use the resulting vapor-phase influent concentration to establish breakthrough. The owner/operator shall submit any request for a change in the testing frequency to the AQD District Supervisor for review and approval. **(R 336.1224, R 336.1225, R 336.1702, R 336.1901, R 336.1910)**

VI. MONITORING/RECORDKEEPING

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

1. The owner/operator shall monitor and record the groundwater influent and effluent flow rates of EUAIRSTRIPPER2 on a monthly basis in a manner and with instrumentation acceptable to the Air Quality Division. **(R 336.1901)**
2. The owner/operator shall monitor and record the concentration of TCE, PERC, and 1,1,1-TCA in the groundwater influent and effluent of EUAIRSTRIPPER2 on a monthly basis in a manner and with instrumentation acceptable to the Air Quality Division. "Valid sample" means that the sample passes all quality assurance and quality control requirements. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**
3. The owner/operator shall monitor and record the concentration of total VOCs in the groundwater influent of EUAIRSTRIPPER2 at least semiannually in a manner and with instrumentation acceptable to the Air Quality Division. Total VOC concentration shall be determined using the standard MDEQ groundwater analytical scans for VOCs. "Valid sample" means that the sample passes all quality assurance and quality control requirements.

If any VOC other than TCE, PERC, or 1,1,1-TCA is detected during this semiannual monitoring, the owner/operator shall resume monitoring for total VOCs in the groundwater influent on a monthly basis for at least four consecutive months without further detections. At that time, the owner/operator may reduce the monitoring frequency for total VOCs to once per quarter for at least four consecutive quarters without detections. After four consecutive quarters without detections, the owner/operator may return to a semiannual monitoring frequency for total VOCs. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

VII. REPORTING

1. All monitoring data specified in SC Nos. VI.1 through VI.3, including calculation of VOC emission rates (primarily TCE) due to EUAIRSTRIPPER2, shall be submitted to the District Supervisor, Air Quality Division, using Appendix A or approved equivalent method, within 30 days following collection of the initial data, and thereafter within 30 days following the end of the quarter in which the data were collected. Any request for a change in the sampling and/or reporting frequency shall be submitted to the District Supervisor, Air Quality Division, for review and approval. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**

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. SVCARBON2	34	27	R 336.1225, R 336.1901, 40 CFR52.21(c) and (d)

IX. OTHER REQUIREMENTS

NA

**APPENDIX A – GROUNDWATER REMEDIATION
 EMISSION CALCULATION and RECORDKEEPING**

Permittee (Source Name)		Contact Person	
Location		County	
Recordkeeping Period		Permit to Install No.	Pollutant(s)
Start Date	End Date		

Date	A Water Flow (gal/min)	B			F Control Efficiency (%)	E VOC Emissions (lbs/hr)
		C Concentration (ppm)				
1		Inlet	Outlet	In - Out		
EXAMPLE	100	210	10	200	95	0.5

Equations

D = B – C, all units in parts per million (ppm)

$$E \frac{\text{lbs}}{\text{hr}} = A \frac{\text{gal}}{\text{min}} \times 60 \frac{\text{min}}{\text{hr}} \times 8.34 \frac{\text{lbs}}{\text{gal}} \times D \times 10^{-6} \times \frac{(100 - F)}{100}$$

Signature: _____

Date: _____

Telephone Number: _____