

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE COMMUNICATION

May 18, 2009

TO: David Kline, Acting Superfund Section Chief, Remediation and Redevelopment Division (RRD)

FROM: Nicholas Zabrodsky, Permits Section, Air Quality Division (AQD) 

SUBJECT: **Substantive Requirements Document (SRD)** for the Air Sparge/Soil Vapor Extraction Systems at the Thomas Solvent Raymond Road Source Area of the Verona Well Field Superfund Site, 1184 N. Raymond Road, Battle Creek, MI.

Summary and Conclusion:

The Michigan Department of Environmental Quality (DEQ), Air Quality Division (AQD), has reviewed the proposed soil remediation project and is proposing the attached set of permit conditions in order to meet the air pollution control rules. Add-on control would be necessary because, based on the data submitted, the system cannot meet the air toxics rules without add-on control. The AQD recommends approval contingent upon the attached permit/SRD conditions.

Description of Source and Related Control Equipment/Technology:

Soil remediation consisting of air sparging and soil vapor extraction.

Applicable State Air Regulations:

The attached air pollution control requirements and conditions are established in accordance with and enforceable pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 USC Section 9621(e). Pursuant to Section 9621(e)(1), a permit is not required for removal or remedial actions conducted entirely on-site. Pursuant to Section 9621(e)(1), a state may enforce any federal or state standard, requirement, criteria, or limitation to which the remedial action is required to conform. The DEQ, AQD, has determined that the attached requirements are necessary in order to comply with the Natural Resources and Environmental Protection Act, Act 451 of 1994, Article II Pollution Control, Chapter 1: Point Source Pollution Control. The owner/operator must comply with the requirements attached to this memo.

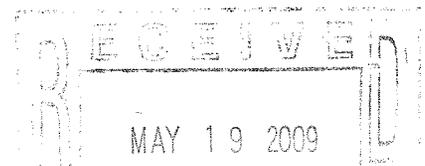
Comments/ Recommended Limits:

Please refer to the attached sheet for a list of conditions the AQD would require if this were an Air Use Permit application, and do not hesitate to contact me at 517-373-4921, if you have any questions.

NZ:pb

Attachments

cc: David O'Donnell, RRD District Supervisor
Beth Mead-O'Brien, RRD
Mary Douglas, AQD District Supervisor
Kimberley Armbruster, AQD



PERMIT TO INSTALL

Common Abbreviations / Acronyms

Common Acronyms		Pollutant/Measurement Abbreviations	
AQD	Air Quality Division	BTU	British Thermal Unit
BACT	Best Available Control Technology	°C	Degrees Celsius
CAA	Clean Air Act	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
COM	Continuous Opacity Monitoring	°F	Degrees Fahrenheit
EPA	Environmental Protection Agency	gr	Grains
EU	Emission Unit	Hg	Mercury
FG	Flexible Group	hr	Hour
GACS	Gallon of Applied Coating Solids	H ₂ S	Hydrogen Sulfide
GC	General Condition	hp	Horsepower
HAP	Hazardous Air Pollutant	lb	Pound
HVLP	High Volume Low Pressure *	m	Meter
ID	Identification	mg	Milligram
LAER	Lowest Achievable Emission Rate	mm	Millimeter
MACT	Maximum Achievable Control Technology	MM	Million
MAERS	Michigan Air Emissions Reporting System	MW	Megawatts
MAP	Malfunction Abatement Plan	ng	Nanogram
MDEQ	Michigan Department of Environmental Quality	NO _x	Oxides of Nitrogen
MSDS	Material Safety Data Sheet	PM	Particulate Matter
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM10	PM less than 10 microns diameter
NSPS	New Source Performance Standards	PM2.5	PM less than 2.5 microns diameter
NSR	New Source Review	pph	Pound per hour
PS	Performance Specification	ppm	Parts per million
PSD	Prevention of Significant Deterioration	ppmv	Parts per million by volume
PTE	Permanent Total Enclosure	ppmw	Parts per million by weight
PTI	Permit to Install	psia	Pounds per square inch absolute
RACT	Reasonably Available Control Technology	psig	Pounds per square inch gauge
ROP	Renewable Operating Permit	scf	Standard cubic feet
SC	Special Condition	sec	Seconds
SCR	Selective Catalytic Reduction	SO ₂	Sulfur Dioxide
SRN	State Registration Number	THC	Total Hydrocarbons
TAC	Toxic Air Contaminant	tpy	Tons per year
TEQ	Toxicity Equivalence Quotient	µg	Microgram
VE	Visible Emissions	VOC	Volatile Organic Compounds
		yr	Year

* 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)	Installation Date / Modification Date	Flexible Group ID
EUSOIL	Soil vapor extraction wells, air sparging, vacuum blower(s), and an air flow distribution system equipped with dual stage vapor phase carbon control located in-series.	NA	NA
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: EUSOIL

DESCRIPTION: Soil vapor extraction wells, air sparging, vacuum blower(s), and an air flow distribution system equipped with dual stage vapor phase carbon control.

POLLUTION CONTROL EQUIPMENT: Dual stage vapor phase carbon control vessels (in-series).

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VOC	1 tpy	12-month rolling time period as determined at the end of each calendar month.	EUSOIL	SC VI.4	R 336.1702(a)

II. MATERIAL LIMITS

N/A

III. PROCESS/OPERATIONAL RESTRICTIONS

N/A

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EUSOIL unless the dual stage vapor phase carbon control located in-series is installed, maintained, and operated in a satisfactory manner. (R 336.1225, R 336.1702(a), 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 test, in a satisfactory manner, the dual-stage activated carbon system for breakthrough of the first canister at least once every month by collecting influent and effluent samples and/or readings to the first carbon canister until breakthrough has been detected. Breakthrough is considered a reading at the point between the first and second canisters that is 20 percent or more than the influent concentration into the first canister. This testing shall commence as soon as the process has reached a steady state condition, but not later than 12 hours after start-up of the process. The permittee 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. Should the permittee elect to use a hand-held instrument for the initial breakthrough test, the first three monthly breakthrough test readings by the hand-held instrument shall be done in conjunction with Tedlar bag sampling or an equivalent method followed by laboratory analysis. Once breakthrough has been detected, the loading onto the first carbon canister shall be determined and the total VOC loading onto the two carbon canisters shall be calculated based on the following: the total VOC loading onto the first carbon canister at the time of breakthrough plus 80 percent of the total VOC loading onto the first carbon canister. Carbon changeouts of both carbon canisters shall occur when this calculated total loading is reached. Once the total VOC loading calculation has been determined, influent samples and/or readings of the first carbon canister shall continue monthly, effluent samples and/or readings of the first carbon canister shall cease, and effluent samples and/or readings of the second carbon canister shall continue quarterly. The permittee shall submit any request for a change in the testing frequency to the AQD District Supervisor for review and approval. **(R 336.1702(a), R 336.1910)**

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. **(R 336.1225, R 336.1702(a))**
2. The permittee shall monitor and record, in a satisfactory manner, the volumetric flow rate on a monthly basis and the total VOC concentration of the vapor effluent stream from the second carbon canister on a quarterly basis. This monitoring shall occur via Tedlar bag sampling followed by laboratory analysis, via hand-held instrumentation capable of detecting concentrations at the expected levels, or an equivalent method. The permittee shall submit any request for a change in the sampling frequency to the AQD District Supervisor for review and approval. **(R 336.1225, R 336.1702(a), R 336.1910)**
3. The permittee shall keep, in a satisfactory manner, records of each change of carbon and of each measurement of the influent concentration into the first carbon canister, as required by SC V.1. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1225, R 336.1702(a), R 336.1910)**
4. The permittee shall keep, in a satisfactory manner, calculations demonstrating compliance with the monthly and 12-month rolling time period VOC emission rates specified in SC I.1. The permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1225, R 336.1702(a))**

VII. REPORTING

N/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. SVCARBON	4	15	R 336.1225, R 336.1901

IX. OTHER REQUIREMENTS

N/A

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).