

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

March 17, 2014

PERMIT TO INSTALL
302-07A

ISSUED TO
US Ecology, Inc.

LOCATED AT
6520 Georgia Street
Detroit, Michigan

IN THE COUNTY OF
Wayne

STATE REGISTRATION NUMBER
M4008

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:

January 7, 2014

DATE PERMIT TO INSTALL APPROVED:

March 17, 2014

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
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
CO ₂ e	Carbon Dioxide Equivalent	°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
GHGs	Greenhouse Gases	kW	Kilowatt
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	Malfuction Abatement Plan	NO _x	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate Matter
MSDS	Material Safety Data Sheet	PM10	PM with aerodynamic diameter ≤10 microns
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	PM with aerodynamic diameter ≤ 2.5 microns
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	psia	Pounds per square inch absolute
PTI	Permit to Install	psig	Pounds per square inch gauge
RACT	Reasonably Available Control Technology	scf	Standard cubic feet
ROP	Renewable Operating Permit	sec	Seconds
SC	Special Condition	SO ₂	Sulfur Dioxide
SCR	Selective Catalytic Reduction	THC	Total Hydrocarbons
SRN	State Registration Number	tpy	Tons per year
TAC	Toxic Air Contaminant	µg	Microgram
TEQ	Toxicity Equivalence Quotient	VOC	Volatile Organic Compound
VE	Visible Emissions	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 48909-7760, 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 and 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 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
EUSTABILIZE	Liquid waste stabilization process. Process consists of (3) 30,000 gallon processing pits in a single building controlled by (2) dust collectors.	----
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: EUSTABILIZE

DESCRIPTION: Liquid waste stabilization process. Process consists of (3) 30,000 gallon processing pits in a single building controlled by (2) dust collectors.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT:

Two dust collectors

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	0.002 grains/dry standard cubic foot	Test protocol*	EUSTABILIZE	GC 13 SC III.3, IV.1	R 336.1331
2. PM	0.69 pph	Test protocol*	EUSTABILIZE	GC 13 SC III.3, IV.1	R 336.1225 R 336.1331
3. VOC ^A	14.6 tpy	12-month rolling time period as determined at the end of each calendar month	EUSTABILIZE	SC VI.2, VI.3, VI.4, VI.5	R 336.1702(a)
4. Naphtha	3.5 pph ¹	Test protocol*	EUSTABILIZE	GC 13 SC VI.2, VI.4	R 336.1225

* Test protocol shall specify averaging time.

^A "VOC" means "volatile organic compound" as defined in Rule 122 (R 336.1122). This includes semi-volatile organic compounds^B (SVOC), as that term is used in this Permit to Install.

^B For this Permit to Install, semi-volatile organic compounds (SVOC) means any VOC, as defined in R 336.1122, with a vapor pressure at standard conditions of less than 0.075 millimeter of mercury.

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Total VOC content, excluding SVOC, of waste received for treatment	5.0 percent	Each shipment of non-hazardous waste received for treatment	EUSTABILIZE	SC VI.2	R 336.1225, R 336.1702(a)
2. Total hazardous waste constituents content of hazardous waste received for treatment	500 ppmw	Each shipment of hazardous waste received for treatment	EUSTABILIZE	SC VI.2	R 336.1225, R 336.1702(a)
3. Total amount of waste treated	600 tons per day ¹	Calendar day	EUSTABILIZE	SC VI.3	R 336.1225
4. Total amount of waste treated	156,000 tons per year ¹	12-month rolling time period ^C	EUSTABILIZE	SC VI.3	R 336.1225

^C 12-month rolling time period as determined at the end of each calendar month

5. The permittee shall limit the total VOC and SVOC in material processed annually in EUSTABILIZE in compliance with the equation below, based on a 12-month rolling time period as determined at the end of each calendar month.

$$\frac{(\sum_i Mi \times WVi) \times Eri}{14.6 \text{ tons per year}} + \frac{(\sum_j Mj \times WSj) \times Erj}{14.6 \text{ tons per year}} \leq 1.00$$

The terms Mi, WVi, Eri, Mj, WSj, and Erj have the meanings given in Appendix A.
(R 336.1205(3))

6. The permittee shall not treat in EUSTABILIZE any waste shipment containing a component listed below if the shipment's content of that component exceeds the concentration listed below.¹ **(R 336.1225)**

	Component (Chemical Name)	Chemical Abstracts Service Registry Number	Maximum Concentration Allowed in Waste to be Treated (ppmw)
a.	N-Nitroso-N-methylurea	684-93-5	0.01
b.	bis(Chloromethyl)ether	542-88-1	0.1
c.	Hydrazine	302-01-2	1
d.	Furan	110-00-9	1
e.	N-Nitrosodimethylamine	62-75-9	5
f.	Tetranitromethane	509-14-8	5
g.	2-Nitropropane	79-46-9	10
h.	N-Nitrosodiethanolamine	1116-54-7	15
i.	tris(2,3-Dibromopropyl)phosphate	126-72-7	25
j.	Dibromochloropropane	96-12-8	25
k.	Methyl hydrazine	60-34-4	100
l.	Ethylene oxide	75-21-8	100
m.	Acrylonitrile	107-13-1	125
n.	Ethylene dibromide	106-93-4	125
o.	Benzidine	92-87-5	200
p.	Vinyl chloride	75-01-4	250
q.	Acetyl chloride	75-36-5	300
r.	Acrolein	107-02-8	300
s.	N-Nitroso-di-n-propylamine	621-64-7	300
t.	Methyl mercaptan	74-93-1	400

7. The permittee shall not treat hazardous waste in EUSTABILIZE unless such treatment has been approved by the Michigan Department of Environmental Quality under Part 111 of the National Resources and Environmental Protection Act, as amended. **(R 336.1201(3), R 336.1207(1)(a))**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EUSTABILIZE unless the approved fugitive dust control plan for all plant roadways, the plant yard, all material storage piles, and all material handling operations has been implemented and is maintained. **(R 336.1372, Act 451 324.5524)**
2. The permittee shall keep no more than one bay door to the EUSTABILIZE building open during normal operation, except during unloading, at which time up to two bay doors may be open. Normal operation is defined in Appendix B. **(R 336.1225, R 336.1331)**

3. The permittee shall maintain negative pressure in the EUSTABILIZE building during normal operation. This includes, but is not limited to, complying with SC III.2 and maintaining the treatment building's proper structural integrity. Negative pressure shall be verified using the procedure outlined in Appendix B. **(R 336.1225, R 336.1331)**
4. The permittee shall not operate EUSTABILIZE unless an approved preventative maintenance plan and malfunction abatement plan for the fabric filter control system are implemented and maintained. 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 to the AQD District Supervisor. The revised plan shall include procedures for maintaining and operating in a satisfactory manner, EUSTABILIZE, add-on air pollution control devices, or monitoring equipment during malfunction events, and a program for corrective action for such events. **(R 336.1910, R 336.1911)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EUSTABILIZE unless the two fabric filters (baghouses) are installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes, but is not limited to, following the plan required in SC III.4. **(R 336.1225, R 336.1301, R 336.1331, R 336.1910)**

V. TESTING/SAMPLING

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

1. Periodic verification of the negative static pressure in the waste treatment building by testing, at owner's expense, in accordance with Department requirements, is required. The negative static pressure in the waste treatment building shall be determined by using smoke tubes, or an alternative method as approved by the AQD, and by visual observation of the air movement and direction. Alternative testing procedures and associated operational parameters must have prior approval by the AQD District Supervisor. The permittee shall conduct the verification tests at least once every year. Any request for a change in the testing frequency must be submitted to the AQD District Supervisor for review and approval. **(R 336.1225, R 336.1331, R 336.2001, R 336.2003)**

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 and records in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(3), R 336.1225, R 336.1702(a))**
2. The permittee shall keep, in a satisfactory manner, calendar month summaries of the VOC and SVOC analyses for liquid waste received for treatment in EUSTABILIZE. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1702(a))**
3. The permittee shall keep, in a satisfactory manner, calendar day, monthly, and 12-month rolling time period records of the total amount of waste treated in EUSTABILIZE. The permittee shall keep all records on file at the facility and make them available to the Department upon request.¹ **(R 336.1225)**
4. The permittee shall keep, in a satisfactory manner, daily and cumulative monthly total records of the type (by waste code) and amount of waste treated in EUSTABILIZE. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1205(3))**
5. The permittee shall calculate the VOC emission rate from EUSTABILIZE monthly, for the preceding 12-month rolling time period, using the method detailed in Appendix A or an alternate format that has been approved by the AQD District Supervisor. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1702(a))**

6. The permittee shall keep, in a satisfactory manner, negative pressure determination records for the EUSTABILIZE building, as required by SC III.3, SC V.1, and Appendix B. The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1225, R 336.1331)**
7. The permittee shall perform the calculation in the expression in SC II.5 for waste received for treatment in EUSTABILIZE monthly, for the preceding 12-month rolling time period. The permittee shall keep records of the results of the calculation on file at the facility and make them available to the Department upon request. **(R 336.1205, R 336.1702, R 336.2802, 40 CFR 52.21)**
8. To demonstrate compliance with SC II.6, the permittee shall keep, in a satisfactory manner, records of the composition of each waste shipment received for treatment in EUSTABILIZE. The permittee shall keep these records on file at the facility and make them available to the Department upon request.¹ **(R 336.1225)**

VII. REPORTING

NA

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 Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVSTACK1	35	32	R 336.1225, 40 CFR 52.21(c)&(d)
2. SVSTACK2	35	32	R 336.1225, 40 CFR 52.21(c)&(d)

IX. OTHER REQUIREMENTS

NA

Footnotes:

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

APPENDIX A
Procedure to Determine VOC Emissions from EUSTABILIZE

The permittee shall use the following calculations in conjunction with monitoring, testing or recordkeeping data to determine compliance with the VOC emission limit in SC I.4.

The following formula shall be used to calculate and monitor the VOC emissions from EUSTABILIZE:

$$VOCe = \left[\sum_i (M_i \times WVi) \right] \times Eri \times (1 - Ae) + \left[\sum_j (M_j \times WSj) \right] \times Erj \times (1 - Ae)$$

Where:

VOCe = Cumulative VOC emissions from the unit during the period

i = Each iteration of **VOC**-containing waste stream treated during the time period

M_i = Mass (weight) of waste stream i processed (volume times density)

WVi = Weight fraction of **VOC** present in waste stream i processed

Eri = Emission factor for VOC released from waste during treatment process, based on site specific data and testing, as approved by the AQD District Supervisor.

For VOC components, Er = 0.30 (30% by weight).

j = Each iteration of **SVOC**-containing waste stream treated during the time period

M_j = Mass (weight) of waste stream j processed (volume times density)

WSj = Weight fraction of **SVOC** present in waste stream j processed

Erj = Emission factor for VOC released from waste during treatment process, based on site specific data and testing, as approved by the AQD District Supervisor.

For SVOC components, Er = 3.60 × 10⁻⁶ (3.60 × 10⁻⁴% by weight).

Ae = Control efficiency = 0 for EUSTABILIZE (no control)

The permittee shall use the VOC emission factor, VOC capture efficiency and the control device control efficiency cited above. The permittee may request, in writing, to use alternate VOC emission factors to calculate VOC emissions upon approval by the AQD District Supervisor. Any request shall include supporting documentation, including test results, demonstrating the validity of the proposed alternate VOC emission factors.

APPENDIX B
Protocol for Determining Building Negative Pressure

The permittee shall demonstrate that the stabilization building meets the criteria of a permanent total enclosure using US EPA's "Procedure T" described in 40 CFR Section 52.741 or other applicable method approved by the AQD District Supervisor. These criteria are listed as follows:

1. Any natural draft opening (NDO) shall be at least four (4) equivalent diameters from each VOC emitting point.
2. The total area of all NDOs shall not exceed five (5) percent of the surface area of the enclosure's four walls, floor, and ceiling.
3. The average facial velocity (FV) of air through all NDOs shall be at least 3,600 m/hr (200 fpm). The direction of air through all NDOs shall be into the building.
4. All access doors and windows whose areas are not included in the area calculation described in item 2 and are not included in the calculation in item 3 shall be closed during normal operation of the process.
5. All VOC emissions must be captured and contained for discharge through the facility exhaust stacks.

The permittee shall perform an annual smoke test to confirm the Procedure T calculation each year, as required by SC V.1. In addition, if any changes are made that affect the original Procedure T calculation for Permit to Install No. 302-07A (such as adding a new door, changing location of process equipment, etc.), then the permittee shall perform a new Procedure T calculation.

Furthermore, the permittee shall implement a standard operating procedure which includes the following:

- a) The main system fans shall be maintained according to vendor's recommendations.
- b) The treatment building shall be maintained at negative pressure during normal operation.^A
- c) The main system fans shall continue to run for two hours after waste treatment (i.e. mixing of waste with treatment reagents) activities have stopped.

^A Normal operation is defined as any period that:

- (i) Material in the treatment pits is uncovered,
- (ii) Material in the treatment pits has been covered for less than two hours,
- (iii) The waste and stabilizing agents are being mixed or have been mixed in the previous two hours, and
- (iv) Any period when waste has been charged into or discharged from a pit in the previous two hours.