

**MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY  
AIR QUALITY DIVISION**

November 6, 2023

**PERMIT TO INSTALL**  
127-23

**ISSUED TO**  
Global Remediation Technologies, Inc.

**LOCATED AT**  
3446 East US-223  
Adrian, Michigan 49221

**IN THE COUNTY OF**  
Lenawee

**STATE REGISTRATION NUMBER**  
P1349

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environment, Great Lakes, and Energy. 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: <b>September 28, 2023</b>	
DATE PERMIT TO INSTALL APPROVED: <b>November 6, 2023</b>	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

**PERMIT TO INSTALL**

**Table of Contents**

COMMON ACRONYMS .....2  
POLLUTANT / MEASUREMENT ABBREVIATIONS.....3  
GENERAL CONDITIONS .....4  
EMISSION UNIT SPECIAL CONDITIONS.....6  
    EMISSION UNIT SUMMARY TABLE .....6  
    EUSVE.....7  
    EUGWTS ..... 10  
FGFACILITY CONDITIONS..... 12  
APPENDIX 1 ..... 14  
APPENDIX 2 ..... 15

## COMMON ACRONYMS

AQD	Air Quality Division
BACT	Best Available Control Technology
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
COMS	Continuous Opacity Monitoring System
Department/department/EGLE	Michigan Department of Environment, Great Lakes, and Energy
EU	Emission Unit
FG	Flexible Group
GACS	Gallons of Applied Coating Solids
GC	General Condition
GHGs	Greenhouse Gases
HVLP	High Volume Low Pressure*
ID	Identification
IRSL	Initial Risk Screening Level
ITSL	Initial Threshold Screening Level
LAER	Lowest Achievable Emission Rate
MACT	Maximum Achievable Control Technology
MAERS	Michigan Air Emissions Reporting System
MAP	Malfunction Abatement Plan
MSDS	Material Safety Data Sheet
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
PS	Performance Specification
PSD	Prevention of Significant Deterioration
PTE	Permanent Total Enclosure
PTI	Permit to Install
RACT	Reasonable Available Control Technology
ROP	Renewable Operating Permit
SC	Special Condition
SCR	Selective Catalytic Reduction
SNCR	Selective Non-Catalytic Reduction
SRN	State Registration Number
TBD	To Be Determined
TEQ	Toxicity Equivalence Quotient
USEPA/EPA	United States Environmental Protection Agency
VE	Visible Emissions

\*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

### POLLUTANT / MEASUREMENT ABBREVIATIONS

acfm	Actual cubic feet per minute
BTU	British Thermal Unit
°C	Degrees Celsius
CO	Carbon Monoxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
dscf	Dry standard cubic foot
dscm	Dry standard cubic meter
°F	Degrees Fahrenheit
gr	Grains
HAP	Hazardous Air Pollutant
Hg	Mercury
hr	Hour
HP	Horsepower
H <sub>2</sub> S	Hydrogen Sulfide
kW	Kilowatt
lb	Pound
m	Meter
mg	Milligram
mm	Millimeter
MM	Million
MW	Megawatts
NMOC	Non-Methane Organic Compounds
NO <sub>x</sub>	Oxides of Nitrogen
ng	Nanogram
PM	Particulate Matter
PM10	Particulate Matter equal to or less than 10 microns in diameter
PM2.5	Particulate Matter equal to or less than 2.5 microns in diameter
pph	Pounds per hour
ppm	Parts per million
ppmv	Parts per million by volume
ppmw	Parts per million by weight
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
scf	Standard cubic feet
sec	Seconds
SO <sub>2</sub>	Sulfur Dioxide
TAC	Toxic Air Contaminant
Temp	Temperature
THC	Total Hydrocarbons
tpy	Tons per year
µg	Microgram
µm	Micrometer or Micron
VOC	Volatile Organic Compounds
yr	Year

## 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 Environment, Great Lakes, and Energy, 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 Rule 210 (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 Rule 219 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 Rule 219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environment, Great Lakes, and Energy. **(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 condition 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 Rule 301, 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 Rule 303 (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 Rule 370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001. **(R 336.2001)**

### EMISSION UNIT SPECIAL CONDITIONS

#### EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

<b>Emission Unit ID</b>	<b>Emission Unit Description (Including Process Equipment &amp; Control Device(s))</b>	<b>Flexible Group ID</b>
EUSVE	25 soil vapor extraction wells, air sparging, vacuum blower(s) and an air flow distribution system equipped with a 3 in 1 multimode oxidation system control device prior to discharge.	NA
EUGWTS	Air stripping tower(s), pump(s), five recovery wells, and a groundwater flow distribution system equipped with a knockout tank, booster blower, then a catalytic oxidizer control device prior to discharge.	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 336.1291.

## **EUSVE EMISSION UNIT CONDITIONS**

### **DESCRIPTION**

25 soil vapor extraction wells, air sparging, vacuum blower(s) and an air flow distribution system equipped with a 3 in 1 multimode oxidation system control device prior to discharge.

**Flexible Group ID:** NA.

### **POLLUTION CONTROL EQUIPMENT**

The control device includes a multimode oxidation system that is capable of three modes, flame mode, thermal mode, and catalytic mode.

#### **I. EMISSION LIMIT(S)**

NA

#### **II. MATERIAL LIMIT(S)**

NA

#### **III. PROCESS/OPERATIONAL RESTRICTION(S)**

NA

#### **IV. DESIGN/EQUIPMENT PARAMETER(S)**

1. The permittee shall not operate EUSVE unless the 3 in 1 multimode oxidation system is installed, maintained, and operated in a satisfactory manner. **(R 336.1225, R 336.1702(a), R 336.1910)**
2. The permittee shall not operate EUSVE in Catalytic Mode unless the catalyst is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the multimode oxidation system while in Catalytic Mode includes a minimum VOC destruction efficiency of 98 percent (by weight), a minimum catalyst bed inlet temperature of 650 °F, and a maximum space velocity of 10800 inverse hours. **(R 336.1225, R 336.1702(a), R 336.1910)**
3. The permittee shall not operate EUSVE unless the Thermal and Flame Modes of the multimode oxidation system are operated in a satisfactory manner. Satisfactory operation of the thermal oxidizer includes a minimum VOC destruction efficiency of 98 percent (by weight) and maintaining a minimum temperature of 650 °F and a minimum retention time of 0.5 seconds. **(R 336.1225, R 336.1702(a), R 336.1910)**
4. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner, a temperature monitoring device to continuously monitor and record the inlet and outlet temperatures of the catalytic oxidizer catalyst bed while the multimode oxidation system is in Catalytic Mode. **(R 336.1225, R 336.1702(a), R 336.1901, R 336.1910)**
5. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner, a device to monitor and record the temperature of the combustion chamber of the multimode oxidation system on a continuous basis while in Thermal and Flame Mode. **(R 336.1225, R 336.1702(a), R 336.1910)**
6. The permittee shall not operate EUSVE unless a monitoring device to continuously display the mode the multimode oxidation is operating under is installed, maintained, and operated in a satisfactory manner. **(R 336.1225, R 336.1910)**

## **V. TESTING/SAMPLING**

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

NA

## **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 15<sup>th</sup> day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1225, R 336.1702(a))**
2. The permittee shall monitor and record, in a satisfactory manner, the flow rate, the total VOC concentration, the benzene concentration, and the ethylbenzene concentration of the effluent stream(s) to EUSVE. This shall be done on a monthly basis until four valid samples, which pass all quality assurance and quality control requirements, have been obtained. Thereafter, the permittee shall monitor the effluent stream(s) to EUSVE for these parameters on a quarterly basis. 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 monitor and record, in a satisfactory manner, the temperature of the combustion chamber of the multimode oxidation system on a continuous basis while the multimode oxidation system is in Thermal or Flame Mode. 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 continuously monitor and record, in a satisfactory manner, the inlet and outlet temperatures of the catalyst bed, while the multimode oxidation system is in Catalytic Mode. 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)**
5. The permittee shall keep, in a satisfactory manner, records of the change of mode in the multimode oxidation system including:
  - a) The number of mode changes to Thermal Mode
  - b) The number of mode changes to Flame Mode
  - c) The number of mode changes to Catalytic ModeThe permittee shall keep all records on file and make them available to the Department upon request. **(R 336.1225, R 336.1910)**

## **VII. REPORTING**

1. The permittee shall submit the following to the AQD District Supervisor using Appendix 1 or an approved equivalent method:
  - a) flow rate
  - b) benzene, ethylbenzene, and total VOC concentration of the effluent stream(s) to EUSVE
  - c) calculations of VOC emission rates.
  - d) the number of mode changes of the multimode oxidation system.

The information shall be submitted within 30 days following collection of the initial data, and thereafter within 30 days following the end of the month in which the data were collected. The permittee must submit any request for a change in the reporting frequency to the AQD District Supervisor for review and approval. **(R 336.1225, R 336.1702(a), R 336.1910)**

## **VIII. STACK/VENT RESTRICTION(S)**

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter / Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SVFLAMEOX	24	10	R 336.1225

**IX. OTHER REQUIREMENT(S)**

NA

**Footnotes:**

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

## **EUGWTS EMISSION UNIT CONDITIONS**

### **DESCRIPTION**

Air stripping tower(s), pump(s), five recovery wells, and a groundwater flow distribution system equipped with a knockout tank, booster blower, then a catalytic oxidizer control device prior to discharge.

**Flexible Group ID:** NA.

### **POLLUTION CONTROL EQUIPMENT**

A catalytic oxidizer.

#### **I. EMISSION LIMIT(S)**

NA

#### **II. MATERIAL LIMIT(S)**

NA

#### **III. PROCESS/OPERATIONAL RESTRICTION(S)**

NA

#### **IV. DESIGN/EQUIPMENT PARAMETER(S)**

1. The permittee shall not operate EUGWTS unless the catalytic oxidizer is installed, maintained, and operated in a satisfactory manner. **(R 336.1225, R 336.1702(a), R 336.1910)**
2. The permittee shall not operate EUGWTS unless the catalytic oxidizer is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of the catalytic oxidizer includes a minimum VOC destruction efficiency of 98 percent (by weight), a minimum catalyst bed inlet temperature of 626 °F, and a maximum space velocity of 8400 inverse hours. **(R 336.1225, R 336.1702(a), R 336.1910)**
3. The permittee shall install, calibrate, maintain, and operate in a satisfactory manner, a temperature monitoring device to continuously monitor and record the inlet and outlet temperatures of the catalytic oxidizer catalyst bed. **(R 336.1225, R 336.1702(a), R 336.1910)**

#### **V. TESTING/SAMPLING**

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

#### **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 special condition. **(R 336.1225, R 336.1702(a))**
2. The permittee shall monitor and record, in a satisfactory manner, the flow rate, the total VOC concentration, the benzene concentration, and the ethylbenzene concentration of the air stripper influent and effluent water streams. This shall be done on a monthly basis until four valid samples, which pass all quality assurance and quality control requirements, have been obtained. Thereafter, the permittee shall monitor the air stripper influent and effluent water streams for these parameters on a quarterly basis. The permittee shall

determine the total VOC concentration using the standard EGLE groundwater analytical scans for VOCs. 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, R 336.1901, R 336.1910, 40 CFR 52.21)**

3. The permittee shall continuously monitor and record, in a satisfactory manner, the inlet and outlet temperatures of the catalytic oxidizer catalyst bed. 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, records of the temperature of the inlet to and outlet of the catalyst bed of the catalytic oxidizer for EUGWTS, as required by SC IV.2 and SC VI.3. 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)**

**VII. REPORTING**

1. The permittee shall submit the following to the AQD District Supervisor using Appendix 2 or an approved equivalent method:
  - a) flow rate
  - b) benzene, ethylbenzene, and total VOC concentration of the air stripper influent and effluent water streams
  - c) calculations of VOC emission rates.

The information shall be submitted within 30 days following collection of the initial data, and thereafter within 30 days following the end of the month in which the data were collected. The permittee must submit any request for a change in the reporting frequency to the AQD District Supervisor for review and approval. **(R 336.1225, R 336.1702(a), R 336.1910)**

**VIII. STACK/VENT RESTRICTION(S)**

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

<b>Stack &amp; Vent ID</b>	<b>Maximum Exhaust Diameter / Dimensions (inches)</b>	<b>Minimum Height Above Ground (feet)</b>	<b>Underlying Applicable Requirements</b>
1. SVCATOX	6	10	R 336.1225

**IX. OTHER REQUIREMENT(S)**

NA

**Footnotes:**

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

## FGFACILITY CONDITIONS

### DESCRIPTION

The following conditions apply source-wide to all process equipment including equipment covered by other permits, grand-fathered equipment, and exempt equipment.

### POLLUTION CONTROL EQUIPMENT

NA

#### I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Monitoring / Testing Method	Underlying Applicable Requirements
1. Benzene	0.060 lb per hour	Hourly	EUSVE EUGWTS	SC VI.2	R 336.1225
2. Ethylbenzene	0.240 lb per hour	Hourly	EUSVE EUGWTS	SC VI.2	R 336.1225
3. VOC	1.2 lb per hour	Hourly	EUSVE EUGWTS	SC VI.2	R 336.1225 R 336.1702(a)

#### II. MATERIAL LIMIT(S)

NA

#### III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

#### IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

#### V. TESTING/SAMPLING

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

NA

#### 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 special condition. (R 336.1225, R 336.1702(a))
2. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period calculations of benzene, ethylbenzene, and VOC emission rates for FGFACILITY, as required by SC I.1 through SC I.3. 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

NA

**VIII. STACK/VENT RESTRICTION(S)**

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

NA

**IX. OTHER REQUIREMENT(S)**

NA

**Footnotes:**

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



