SECTION E

ENVIRONMENTAL MONITORING PROGRAMS
R 299.9611

ENVIRONMENTAL MONITORING PROGRAM
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FIGURES

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APPENDICES

Appendices E-1 and E-4 listed below and referenced in this section are found in the Appendices Tab of this application. Appendices E-2 and E-3 are provided on the Hydrogeological Data CD included with this application

This application Attachment addresses requirements for an environmental monitoring program for hazardous waste management units and the hazardous waste management facility for the EQ Detroit (EQD) facility. The attachment includes either a monitoring program description or a demonstration for a waiver from the monitoring requirements in accordance with R299.9611(3)(a) and (b) and R299.9611(4) as indicated below:

E-1 General Information

EQD occupies 15.6 acres of land. Approximately 65 percent of the property is covered by buildings or concrete. The remaining area is approximately 15 percent gravel lot used to store empty trailers, unused equipment, and trucks waiting for approval to offload waste which is considered to still be in transit, and 20 percent green space.

Surface materials at EQD consist of sand and fill, which extends to a depth of 4 to 5 feet. Local geology consists of unconsolidated glacially derived silty clays that may extend to more than 100 feet in depth. There may be sand and/or silt units possessing varying permeabilities interspersed with the clay. The regional topography is fairly level, with a relief of approximately 5 feet over the site. The site elevation is approximately 630 feet above mean sea level (MSL), and the site slopes gently towards the northwest.

There are no lakes, streams, or wetlands on the property. Surface water runoff either flows to the containment area, the City of Detroit Sewer system or off-site. See **Sheet A-0 Topographic Map.** The collection system topography is fairly level, with a relief of approximately 5 feet over the site. Any contaminated stormwater is treated prior to discharge to the Great Lakes Water Authority (GLWA).

Environmental investigations conducted at the site did not detect the presence of groundwater or soil contamination. Depth to shallow groundwater in this area is approximately 40 feet below grade and may flow in a south-southwest direction. There are no known groundwater users located within one mile of the EQD facility. Drinking water in this area is supplied by the City of Detroit, and there are no potable water wells located on the property.

Normal maximum temperatures are 80°F in July, and normal minimum temperatures are 20° in January. Normal annual precipitation is approximately 28 inches. Winds are predominately from the west. It is anticipated that an air emission would travel eastward, although the actual path of migration would vary with prevailing winds. The yearly average wind speed is approximately 10 miles per hour.

E-2 Air Monitoring Program

(R 299.9611(2)(c) and (4))

The Ambient Air Monitoring Program for the EQD facility was designed to meet the requirements of Michigan Act 451 R 299.9611.

E-2a Subparts AA and BB

(R 299.9504(12-13), R 299.9630, R 299.9631, 40 CFR 270.24 and 270.25)

The requirements of Subpart AA applies to TSDFs with process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations. EQD does not maintain any of these operations. Subpart BB is applicable to TSDFs with equipment that contains or contacts hazardous wastes with organic concentrations of at least 10 percent by weight. EQD does not have equipment which contains or contacts hazardous wastes with organic concentrations of at least 10 percent by weight. Therefore, Subparts AA and BB are not applicable to the EQD facility. Also note, the facility is not a significant source of Criteria Pollutants.

E-2b Subpart CC

(40 CFR 270.16(k))

EQD does not operate a subpart CC waste treatment system at the facility. The facility currently accepts subpart CC waste for shipment to appropriate permitted facilities.

E-2c Ambient Air Monitoring Program

In accordance with the Michigan Environment Great Lakes and Energy (EGLE) Materials Management Division (MMD) Part 111, ambient air monitoring will be conducted as a requirement of this permit.

The ambient air quality will be monitored at three stations based upon the location of the facility (heavy industrial area) and the prevailing wind directions. The historical wind conditions and monitoring site locations are provided in Sheet R-3.

The ambient air monitoring program described will be used to evaluate the air quality associated with EQD on a periodic basis.

E-2c(i) Sampling Procedures

Ambient air samples will be obtained according to the location, frequency, parameters and analytical requirements as specified in Table E-1, Environmental Analytical Sample Collection Specifications, and Table E-2, Sample Collection Chart.

Samplers will be calibrated and maintained according to the operating instructions provided by the manufacturer.

Field records will cover all field observations, required equipment and sampling information; including, but are not limited to, the following:

- Sampling location and apparatus;
- Date of maintenance, and what maintenance was done;
- All sampler calibration data, including the date, the time, the name of the person doing the calibration, and the results.

Meteorological data are gathered from a meteorological measurement station located at EQD. The wind speed and direction are collected using a wind monitor sensitive to ±0.3 m/s changes in wind speed (range of 0-100 m/s) and ±3^{o} changes in wind direction. Temperature (to 0.1^{o}C +0.15^{o}C), relative humidity (to 0.1% ±2%), and barometric pressure (to 0.1 in Hg +0.08 in Hg) are also measured at the Detroit site meteorological measurement station. The following meteorological data will be collected:

- Mean Horizontal Velocity (mean and standard deviation)
- Mean Wind Direction (mean and standard deviation)
- Temperature (high and low)
- Relative Humidity

The data will be used to assign “upwind” and “downwind” sampling stations relative to the Detroit site operations.

Table E-1: Environmental Analytical Sample Collection Specifications

Parameter	Analytical Method	Container	Sample Volume	Sample Duration
Organic Compounds*	EPA Method 17	Mass Flow Controlled Sampler Sorbent Tubes	7.2 L	24 hrs
Total Suspended Particulate and Selected Metals**	EPA Method IO-2.1	Hi-Vol TSP Glass Fiber Filters	1600 m3	24 hrs

Table E-2: Sample Collection Chart

Identifier	Northwest	Southeast	Southwest
Site Info	NW	SE	SW
Frequency	Once every twelve (12) days in concurrence with the North American National Air Surveillance Program schedule (NAPS). In the event a sample(s) cannot be collected or laboratory issues arise, a new sample will be collected during one of the alternate NAPS dates.		
Field Parameters	Wind Speed, Wind Direction, Temperature, Relative Humidity, Flow Rate, Sampler Run Time		
Analysis Parameter	TSP, Metals and VOCs		
Specific Compounds	See Table E-3 and E-4		
Data Evaluation / Response	**Refer to Figure R-3 for site locations** **Ambient Air Performance Criteria:** Demonstrate compliance with National Ambient Air Quality Standards (NAAQS) for TSP/PM-10. Note: If TSP results meet the PM-10 limits, EQD will be in compliance since PM-10 is a subset of TSP. **Evaluations:** All sample analysis, field sampling data and laboratory quality assurance control data will be reviewed monthly.		

E-2c(ii) Total Suspended Particulate (TSP) and Airborne Metals Monitoring

All stations will collect a 24-hour duration sample (midnight to midnight) once every twelve (12) days in concurrence with the North American National Air Surveillance Program schedule (NAPS), with a nominal flow rate of 50 cfm $\pm$ 10 cfm.

The samples will be collected using a high-volume air sampler) and will be operated according to the Inorganic Compendium Method, IO-2.1. The TSP samplers is outfitted with a 7-day mechanical timer and a voltage variation controller to adjust the sampling flow rate.

The TSP filters will consist of glass fiber or quartz filters. The TSP filters will be conditioned and pre and post weighed.

The TSP sampling also adheres to the requirements of 40 CFR Part 50, Appendix G for the determination of lead. As a result, TSP filters will undergo further analysis for metals noted in **Table E-3.**

Metal concentrations will be determined from the samples collected in a reference method high volume TSP sampler. The sampling for multi-metals will adhere to the requirements of 40 CFR Part 50, Appendix G for the determination of lead. All sections referenced by Part 50, Appendix G will likewise be followed. The analysis will be performed using the EPA Reference Methods for lead and the other metals listed in **Table E-3**. Quality Control and Quality Assurance requirements specified in the method will be incorporated in the sampling protocol. Samples will be collected once every 12 days for a twenty-four (24) hour period with a nominal flow rate of 50 cfm $\pm$ 10 cfm.

TABLE E-3: Ambient Air Monitoring Parameters: TSP & Metals

Parameter	CAS No.	Detection Limit (µg)
Total Suspended Particulate Matter (TSP)	N/A	100
Lead	7439-92-1	5
Cadmium	7440-43-9	5
Chromium	7440-47-3	7
Zinc	7440-66-6	10

Calibration Procedures

The Mass Flow Controller (MFC) sampler calibration procedure presented in this section relates known flow rates to the pressure in the exit orifice plenum. The known flow rates are determined by an orifice transfer standard. The exit orifice plenum is the area within the motor housing (below the motor unit) that contains the air flow just before it is exhausted to the atmosphere through the exit orifice.

For this MFC calibration procedure, the following conditions are assumed:

- The high-volume TSP sampler is equipped with a mass flow controller to control its sample flow rate.
- The sampler flow rate is measured by measuring the exit orifice plenum pressure, using a water or oil manometer
- The pressure drop across the orifice is measured by an associated water or oil manometer.

Calibration Equipment

- Orifice transfer standard with calibration.
- An associated water or oil manometer, [Note: Digital manometers may also be used in place of water or oil manometers, especially in cold/frigate climates. Ensure the battery in the manometer is new before use.]
- A water or oil manometer for measurement of the sampler exit orifice plenum pressure. This manometer should be associated with the sampler.
- Weather data including temperature and barometric pressure will be recorded.

Annual Calibration

- Disconnect the motor from the flow controller and plug it directly into a stable line voltage source (i.e., the sampler's on-off timer, if so equipped, or other source of the line voltage).
- Install the orifice transfer standard and its adapter faceplate on the sampler. Check all gaskets.
- Select the first calibration flow rate and install the resistance plate or adjust the variable orifice valve. At least four flow rates are required to define the calibration relationship.
- Perform a leak check.
- Inspect the connecting tubing of both manometers for crimps or cracks.
- Connect the orifice transfer standard manometer to the orifice transfer standard. Connect the sampler's exit orifice manometer to the exit orifice plenum port. Ensure that one side of each manometer is open to atmospheric pressure. Make sure that the tubing fits snugly on the pressure ports and on the manometer.
- Read and record the following parameters on the field data sheet.
    - Date, location, and operator's signature
    - Sampler S/N and model.
    - Ambient Pa, mm Hg.
    - Ambient temperature.
    - Orifice S/N and calibration relationship.

E-2c(iii) Volatile Organic Compound Sampling

The Volatile Organic Compound (VOC) samples will be collected on specialized adsorbent tube media as per the Toxic Organic Compendium Method, TO-17 for solid sorbent tubes. The samples will be taken every 12 days intervals as per the NAPS schedule. This method involves drawing air through multiple layers of adsorbent material including carbon molecular sieve material. The samples will be collected over a 24-hour period at a nominal flow rate of approximately 5 ml/min, as per US EPA TO-17**.** The sample flow rate will be controlled using an electronic mass flow controller. A

constant flow sampling pump is operated at approximately 0.05 to 0.10 liters/min. The samplers will include a stainless-steel sinter 2 um filter on the inlet. Sorbent tubes will be analyzed for parameters identified in **Table E-4**.

TABLE E-4: Ambient Air Monitoring Parameters: Organic Compounds

Compound	CAS	Detection Limit (ng)
1,1,2,2 Tetrachloroethane	79-34-5	5
1,1,2 Trichloroethane	76-13-1	5
Benzene	71-43-2	5
Carbon Tetrachloride	56-23-5	5
Chloroform	67-66-3	5
Ethylbenzene	100-41-4	5
Xylene	1330-20-7	15
Methylene Chloride	75-09-2	10
Tetrachloroethene	127-18-4	5
Toluene	108-88-3	5
Trichloroethene	79-01-6	5
1,1 Dichloroethane	75-34-3	5

Flow Rate Setting, Sample and Rechecks

Setting Flow Rates

- Set the flow rates of the pump.
- The sampling train includes, from front to back, an in-line particulate filter (optional), a sampling tube, and a flow controller/pump combination.
- Place the mass flow monitor in line after the tube. Turn the pump on and wait for one minute. Establish the approximate sampling flow rate using a dummy tube of identical construction and packing as the sampling tube to be used. Record on Field Data Sheet

- Place the sampling tubes to be used on the sampling train and make final adjustments to the flow controller as quickly as possible to avoid significant errors in the sample volume.
- Adjust the flow rate and record on Field Data Sheet.

Sample and Recheck Flow Rates

- Sample over the selected sampling period (i.e., 24-hour). Recheck all the sampling flow rates prior to removing the sample tube and record on Field Data Sheet.
- Make notes of all relevant monitoring parameters including locations, tube identification numbers, pump flow rates, dates, times, sampled volumes, ambient conditions etc. on Field Data Sheet.

E-2c(iv) Detection Limits

If any parameter that is analyzed by the laboratory and determined to be non-detectable, the value of the method detection limit will be used with the sample volume to determine an equivalent concentration for the non-detect compound. If over a quarter there has been no values above the detection limits in any of the samples collected, EQD may use MDL/2 to calculate an equivalent sampling concentration or conservatively use the MDL.

E-2c(v) Reporting

An ambient air monitoring data quarterly report will be submitted 60 days following the last day of each quarter will be reported to EGLE. The facility will keep copies of all ambient air data on-site as part of the Operating Record for a period of 3 years.

EQD will revaluate the frequency and the organic compound list using data obtained during the previous three years for historical trends. A request may be made to the Chief of the MMD to modify the monitoring plan if one year of sampling events show non-detectable levels of a specific parameter.

The quarterly reports will include the following:

1. Sampling location.
2. Sample Date.
3. Parameter.
4. Data Qualifiers Analytical laboratory reports and associated quality assurance (QA), quality control (QC) information.
5. Sampler start and stop flow rate
6. Sampler run time.
7. Laboratory analytical data.

8. Chain of custody documentation.
9. Each individual sample results in µg/m^3 over a 24-hour basis
10. Evaluate compliance with National Ambient Air Quality Standards (NAAQS) for TSP/PM-10. Note: If TSP results meet the PM-10 limits, EQD will be in compliance since PM-10 is a subset of TSP. Quarterly results outlining the Mean and Maximum concentration for each monitored constituent in µg/m^3 over a 24-hour basis
11. Percentage of Valid samples collected each quarter and comparison to 75% valid sample collection per quarter.
12. Summary of meteorological conditions during each sampling event and a discussion as to whether each sample was upwind or downwind (or combination depending on stability of weather conditions) of the facility during the collection period.

E-2c(vi) Quality Assurance Program

Field Blanks

TSP and VOC sorbent tube field blanks shall be collected and analyzed for each site monthly. Field blanks are the same as laboratory blanks except that they are transported to and from the monitoring site, are uncapped and immediately resealed at the monitoring site, but do not actually have air pumped through them. The number of required field blanks shall be at least 10% of the scheduled field samples.

Duplicate Samples

Side-by-side field duplicates (co-located sampling) will be done at one of the sites (Southeast) for VOCs and TSP to evaluate precision of the samplers.

To assess precision, co-located samplers will be operated at one (1) of the sampling locations. The two samplers will be within 2 and 4 meters of each other. In addition, the calibration, sampling, and analytical procedures will be the same for both samplers. One sampler will be used to report the sample measurements and the other will be designated as the duplicate sampler. Results will be submitted in the quarterly reports.

Sampling Apparatus Quality Assurance

Samplers will be calibrated at least annually and maintained according to the operating instructions provided by the manufacturer. Samplers will have a quarterly one-point flow rate check within the normal operating range of the sampler. The

percent difference between the actual and measured values will be within ±10 percent. If the apparatus is found to be outside of this range it will be recalibrated. At least annually, safe sampling volumes will be validated by field test methods for tube breakthrough provided by TO-17.

Chain-of-Custody Procedures

Chain of Custody refers to the record of individuals and external conditions of sample handling through the time of laboratory analysis. The chain of custody form accompanies the samples to the laboratory. When the samples are surrendered at the laboratory, each chain of custody record must be signed by the person transporting the samples as well as a representative of the receiving laboratory. Sample labels, which include the sample name and test date, will be affixed to sample containers/media and matched to the chain of custody form. At a minimum the form includes:

- Sample name;
- Sample date
- Name of person who relinquishes and received possession of the sample
- Analytical requirements

Analytical Quality Assurance

Samples will be appropriately stored as specified in the analytical methods provided in this plan. All analytical methods will have blanks, spikes, surrogates, and duplicates as required by the analytical methods.

Equipment Decontamination Procedures

Ambient air quality monitoring stations will be inspected and cleaned of loose debris, or any foreign object prior to initiating any sampling. All sample media will be handled with gloves.

E-3 Soil Monitoring Program

R 299.9611(2)(d)

All active portions of the EQD facility are paved with asphalt or concrete thereby eliminating the potential pathway for migration to site soils. Therefore, the 2003 Part 111 permit waived the requirement for soil monitoring requirements and EQD will not implement a soil monitoring plan.

E-4 Groundwater Monitoring Program

(R 299.9611(2)(b), R 299.9612 and 40 CFR 270.14(c)5)

The Michigan EGLE by issuance of the 2003 Operating License to the Part 111 permit without groundwater monitoring requirements waived the requirements for a groundwater monitoring program. The Operating license and the EGLE acceptance

of the 2003 operating license conditions are found in **Appendix E-4**. The information provided below was included in the 2003 permit application. The Hydrogeological Evaluation (Appendix E-2 and E-3) discussed below is provided on a CD included with this Permit Application.

E-4a Hydrogeological Investigation Summary

A preliminary assessment of the hydrogeological and geochemical conditions at the site has been addressed in a report titled "Hydrogeologic Evaluation" prepared by GZA GeoEnvironmental, Inc, February 1991. Subsequent activities included the performance of groundwater sampling and analysis; the results are documented in reports titled: Groundwater Evaluation: A copy of the latest round of groundwater sampling and analysis report (March 1999) is included as **Appendix E-2**, along with the above mentioned GZA report.

E-4a(i) Site Geology

Although neither the surficial nor the bedrock geology of the EQD site have been mapped in detail, the site has been included on a general surficial geology map made by Farrand[1] and on the bedrock maps prepared by Mozola[2] and Western Michigan University[3]. The findings made during a previous (GZA) explorations study phase agreed with these reported conditions. The following provides a description of the geologic setting underlying the site based on conditions encountered during recent subsurface explorations and on the literature reviewed:

Near-Surface Fills	The near surface soils at the site consist mainly of disturbed sand fill with intermittent clay layers and urban rubble, to include demolition debris. These fill soils range in thickness from 7 to 9 feet. Perched groundwater was only encountered in the fill soils and is considered to be localized and limited in extent.
Clays	Silty clay material was found below the near-surface fills. The material contained variable amounts of sand and gravel and was continuous to a depth of about 32 to 36 feet. The silty clay strata ranged in consistency from medium stiff to hard and is typically referred to as lacustrine clay. According to previous studies made by GZA GeoEnvironmental, Inc., test borings were advanced through the clays to a depth of more than 50 feet below the lowermost sand lens. Based on a literature review, it is anticipated that these or similar clayey soils continue to depths of about 150 to 200 feet below the site.

The site reportedly lies above the Dundee Limestone and Traverse Group formations which form the bedrock surface. Geologic maps indicate the bedrock surface boundary between these formations runs at or near the site.

The Traverse Group is a thick, 100-to-800-foot sequence of alternating shales, limestones, and dolomite. The shales in this group are not considered water-bearing aquifers; however, the limestone units may supply large volumes of water locally. Shales in the Traverse Group serve as excellent confining layers, having low effective porosity. The limestone units are relatively impermeable, but have local porous zones, particularly at the surface of the formation.

The Dundee Limestone formation is a fossiliferous limestone that is locally dolomitized. It ranges from about 50 to more than 350 feet thick in the eastern portion of Michigan's lower peninsula. Although the Dundee has a relatively low effective porosity, "selective" porous and permeable zones associated with fractures and bedding planes are considered water-bearing aquifers. Because of the presence of these fractures, the Dundee is limited as a confining layer.

E-4a(ii) Site Hydrology

A review of the Detroit Department of Health and U.S. Environmental Protection Agency (EPA) Underground Injection Well Control Program revealed no domestic, municipal, industrial, oil, gas, or injection wells within a one-mile radius of the site. The following Sections concentrate on the climactic conditions, surface water and groundwater flow regimes identified specifically for the EQD site.

Surface Water-Hydrology	Surface water run-off of the site area is controlled by the storm sewers owned and operated by the City of Detroit. Review of the Federal Emergency Management Agency, national Flood Insurance Program, shows that the Detroit River, located approximately 2.7 miles south of the site to be the closest potential flood risk in the surrounding area. Based on this mapping, EAD lies within a Zone C area, and is not considered subject to flooding.
Site and Regional-Hydrology	Domestic water for the entire City of Detroit and portions of the surrounding locale are supplied by the Great Lakes. Supplies of groundwater of usable quantities near the site may be found within the deep alluvial deposits or in the underlying bedrock. Although the alluvial deposits do not appear to be continuous over long distances, their contact surface with the surrounding saturated soils may be of sufficient area to generate large quantities of water locally. Groundwater from the lacustrine clays underlying the site are not considered usable as a source of water because of the inability of the clays to transmit significant amounts of water (i.e. very low permeability). Based on review of published literature and on the observations made during the subsurface exploration program, it does not appear that any local groundwater resources will be developed within the immediate site area.

Groundwater flow in the site area will be toward the Detroit River and adjacent lakes. As described by Mozzola, groundwater will occur under both water table and semi-confined to confined conditions, constituting a complex single system, rather than totally independent flow regimes.

E-4a(iii) Hydrogeological Characteristics

An analysis of hydrogeological conditions included those soil layers within 30 feet of ground surface, subsequently labeled as the “upper aquifer”, and a second subsurface previous zone at a depth of approximately 40 to 60 feet below ground surface, referred to as the “lower aquifer”. This approach is due to the complex geologic nature of the soil and bedrock conditions underlying the EQD site and the generally continuous clay soils reported and observed below a depth of about 40 to 60 feet.

The more previous sand seams in these layers will largely control groundwater movement at the site. These zones are separated by what appears to be a continuous layer of clay soil that will act to retard groundwater movement between the two zones. The following Subsections address specific hydraulic characteristics of the soil layers explored during GZA’s study. Of particular interest are the soils hydraulic conductivity, hydraulic gradient, porosity, and groundwater transport velocity.

Hydraulic Conductivity

The hydraulic conductivity (”permeability”) of a soil mass is a measure of the rate at which water (“fluid”) flows through the soil. As GZA noted in its report, a total of 15 field and 18 laboratory permeability tests were performed to establish representative values of the individual layer permeabilities. These values may be summarized as follows:

“Upper Aquifer”	10^{-7} cm/sec
“Intermediate Clay Layer”	10^{-8} cm/sec
“Lower Aquifer”	10^{-5} to 10^{-6} cm/sec
“Underlying Clay Layer”	10^{-8} cm/sec

As indicated, the permeabilities measured are considered as relatively low. Additionally, no distinction between the horizontal and vertical permeability is shown because variations, even on the order of one magnitude will not significantly affect groundwater transport velocities described in the GZA Report.

Hydraulic Gradient & Flow Direction

Based on past and recent evaluations, groundwater flow direction interpreted for both the “upper and lower aquifers” appears to be consistent with the published area data. A general easterly flow direction appears to coincide with the axis of the deep bedrock valley and thick glacial deposits reported for the immediate site vicinity.

In summary, previous groundwater studies (**Appendix E-2**) documented that the EQD site is:

- Underlain by silty clay soils to depths of more than 100 feet. The clay soils are characterized by a very low hydraulic conductivity;

- Underlain by groundwater of quality that is consistent with background levels for the geographic area;

- Not located within a mile radius of identified groundwater users or potential users;

Based on the geologic and hydrogeological conditions encountered, and the fact that no groundwater users (or potential users) are present in the surrounding areas, it appears that EQD is a favorable location for waste treatment operations.

E-4b Groundwater Monitoring Program Waiver

The hydrogeological investigation summarized above, identified groundwater in the "upper" and "lower" aquifer units at the facility. These units consist of low permeable soils with low groundwater yield. The technical basis for this determination is provided in **Appendix E-3**. Documents supporting the waiver of groundwater monitoring requirements is found in **Appendix E-4**; as a result, EQD will not institute a groundwater monitoring plan.

E-5 Other Environmental Monitoring Programs

(R 299.9611(5))

Additional environmental monitoring requirements may include sewer effluent monitoring. EQD discharges treated wastewater resulting from several of its treatment processes into the combined GLWA sanitary/sewerage system. EQD has instituted an effluent monitoring program of the treated wastewater prior to discharge into the sewer. A continuous 24-hr composite sample is collected on a flow-proportional basis from the facility's effluent stream and submitted for chemical analysis to ensure compliance with the regulatory requirements of the GLWA. Should any sudden, unplanned discharge to sewers occur, the facility will notify the GLWA in accordance with the provisions established in Environmental Safeguard and Engineering Descriptions. A copy of the EQD Wastewater Discharge Permit is found in **Appendix A-4**

A review of the Federal Emergency Management Agency, National Flood Insurance Program, shows the nearest surface water body is the Detroit River, located approximately 2.7 miles to the east of the site, to be the closest potential flood risk. Based on this mapping, EQD lies within a Zone C area and is not considered subject to flooding.

Surface water run-off at the site and surrounding areas is controlled and maintained by Great Lakes Water Authority. Therefore, EQD will not institute a surface water monitoring program.

E-6 Corrective Action

(R 299.9504(1)(c) and 508(1)(b) and 40 CFR 270.14(d)(1)(i-v) and (d)(2))

Facilities such as EQD, 1923 Frederick Street, Detroit, MI, seeking a permit are required to provide the following information for each solid waste management unit:

The location of each waste management unit at the facility is provided on the Facility Drawing **Sheet A-3**.

The designation, dimensions, and structural description of each waste management unit at the facility are discussed in **Section D**. Also, refer to **Tables D-1 and D-2** and the Site Drawings.

The 1923 Frederick Street facility has been in existence and operating as a RCRA Storage facility for approximately 27 years. The Frederick Street facility received regulatory authorization to operate as a hazardous waste facility on September 25, 1990.

No records of any releases are available, except for the discovery of a release in 1989 during removal of 2 X 10,000 gallon USTs (gasoline and diesel). All work was completed in accordance with Act 423 of 1984 as amended by Act 151, 1989. Verification samples were collected by GZA, and a Closure Report was submitted to EGLE by GZA in 1989.

In 2017 a spill of household hazardous waste gasoline leaked to gravel. However, this spill was cleaned up and determined to be less than the Reportable Quantity (RQ) as outlined in a letter to EGLE on May 24, 2017.

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1 Farrand, W.R., Quaternary Geology of Michigan. State of Michigan Department of Natural Resources, Geological Survey, 1982.

2 Mozola, Andrew J., Geology for Land and Groundwater Development in Wayne County, Michigan. State of Michigan Department of Natural Resources Geological Survey Report No. 3, 1969.

3 Western Michigan University, Hydrogeology for Underground Injection Control in Michigan. Department of Geology, 1981.

Appendix E-1: US Ecology's Third Party Quality Assurance Manual

Appendix E-2: Groundwater Evaluation Reports

Groundwater Evaluation Report 21st Century Resources, March 1999.

Hydrogeologic Evaluation, GZA GeoEnvironmental Inc., February 1991

(*Appendix E-2 is provided on a CD included with this Permit Application)

Appendix E-3:
Groundwater Not in an Aquifer Determination
(*Appendix E-3 is provided on a CD included with this Permit Application)

Appendix E-4:
Waiver of Groundwater Monitoring Requirements

DEQ

Notice of Final Decision

And

Response to Comments

Hazardous Waste Management Operating License

US Liquids of Detroit, Inc.
MID 980 991 566

December 12, 2003

Final Decision

The Michigan Department of Environmental Quality (MDEQ) issued a hazardous waste management operating license to US Liquids of Detroit, Inc. (USL), pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and its administrative rules, Michigan Administrative Code R 299.9101 *et seq.* The license was issued on December 12, 2003, and authorizes USL to continue to operate its commercial hazardous waste storage and treatment facility at 1923 Frederick Street, Detroit, Michigan. The license expires on December 12, 2008.

Background

The MDEQ announced its intent to issue the license on September 24, 2003. The draft license, Fact Sheet, and the entire administrative record were made available for public review, and interested persons were offered an opportunity to comment on the proposed decision during a public comment period from September 24, 2003, to November 14, 2003. The DEQ also conducted a public hearing regarding the proposed decision on October 30, 2003.

Public Comments

Public comments on the draft operating license were limited. The two significant comments received and the MDEQ's responses are provided below:

Comment 1: *Truck traffic associated with the facility is hard on the nearby houses and residential streets.*

Response 1: The USL facility is located in an industrial area and trucks traveling to and from the facility use major routes that impact the smallest

number of residences possible. Truck traffic is excluded from residential side streets by posted signs.

Comment 2: *The City of Detroit Water and Sewerage Department (DWSD) will continue to require USL to meet the sewer discharge limits for each individual process at the point where the wastewater exits the process; not after the individual waste streams have been combined.*

Response 2: The MDEQ understands that USL is currently complying with the discharge limits for individual processes, and USL is required under Condition V.B. of the license to comply with the limits established by the DWSD.

Changes to Draft License

The MDEQ did not make any substantive changes to the draft license before issuing it to USL. The changes are summarized below:

Condition IV.C. of the license was revised for clarification to include a summary table of the tank treatment process capacities that are detailed in Attachment 10 of the license.

Condition IV.E.8. of the license was revised to clarify the prohibition on the direct discharge of untreated hazardous waste into the sewer system. All hazardous waste that is discharged to the sewer must be managed in tanks in accordance with the license.

Drawings P-4, P-4AA, P-4D, P-4E, and P-10 in Attachment 6 of the license were replaced with revised drawings. USL revised the drawings to reflect minor changes to the proposed North Drum Storage and Staging Area modifications that are authorized in the license. The configuration of containers and the secondary containment system layout were revised. The process capacities, design standards, and operating requirements remain the same as provided in the draft license.

Available Information

The license and supporting administrative record are available for review at the MDEQ's Waste and Hazardous Materials Division office located in Constitution Hall, Atrium North, 525 West Allegan Street, Lansing, Michigan. For additional information, contact Mr. Steve Sliver at 517-373-1976 or by e-mail at slivers@michigan.gov.

FACT SHEET

PROPOSED OPERATING LICENSE

US LIQUIDS OF DETROIT, INC.
Detroit, Michigan
MID 980 991 566

September 24, 2003

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WASTE AND HAZARDOUS MATERIALS DIVISION

Introduction

The Michigan Department of Environmental Quality (MDEQ) proposes to issue a hazardous waste management operating license for the continued operation of the US Liquids of Detroit, Inc. (USL) facility based on the following:

I. The application submitted by USL is sufficiently detailed for the MDEQ to evaluate the facility and its impact on human health and the environment.

II. The facility satisfies all of the applicable technical requirements under Part 111, Hazardous Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451).

III. The issuance of the operating license will minimize the potential for this facility to present a hazard to human health or the environment during operation.

IV. USL has obtained all other environmental permits necessary for operation of the facility.

Simultaneously, the United States Environmental Protection Agency (U.S. EPA) proposes to issue USL a federal permit pursuant to the federal Resource Conservation and Recovery Act of 1976 (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA).

Prior to making the final decision, the MDEQ and the U.S. EPA are required to provide a fact sheet on the draft operating license and permit. The fact sheet must contain a brief description of the facility and activity subject to the operating license and permit, the types and quantities of hazardous wastes that will be managed, reasons why any requested variance or alternatives to minimum standards do or do not apply, and a description of the procedures for reaching a final decision, including: the beginning and end dates for public comment and the address where comments will be received; procedures for requesting a hearing and the nature of the hearing; other procedures by which the public may participate in the final decision; and the name and telephone number of the persons to contact for more information. This fact sheet contains all of the required information, plus additional information regarding the hazardous waste management program and the review of the USL project.

Table of Contents

Background

The management of hazardous waste in Michigan is regulated under Part 111, Hazardous Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), and its administrative rules, MAC R 299.9101 *et seq.* In addition, the management of hazardous waste in Michigan and nationwide is regulated under Subtitle C of the federal Solid Waste Disposal Act, as amended, 42 USC 6901 *et seq.*, which is commonly known as the Resource Conservation and Recovery Act of 1976 (RCRA). The RCRA was amended substantially by the Hazardous and Solid Waste Amendments of 1984 (HSWA).

Under the RCRA, a state may obtain authorization to administer its program in lieu of the federal program. Michigan amended its hazardous waste management administrative rules in 1985 to be equivalent to those under the RCRA. Michigan then became authorized in October 1986 to administer the portions of the federal program that were duplicated by the state program. Since that time, Michigan has continued to amend its administrative rules to stay as stringent as those rules under the RCRA.

Both the RCRA and Part 111 of Act 451 establish a permit system governing the treatment, storage, and disposal of hazardous wastes. Because Michigan is authorized, a state operating license is issued to existing facilities in lieu of a federal permit. In circumstances where Michigan does not yet have equivalent administrative rules or authorization to implement new federal requirements, a federal permit – narrow in scope - may also be required to enforce those portions of the federal program that are not covered by the state operating license.

Operating License Process

An owner or operator who is conducting an activity prior to the effective date of rules that subject it to the licensing requirements is allowed to continue that activity under "interim status" until the MDEQ makes a final determination on an operating license for the facility. Continued operation then becomes subject to the terms and conditions of an operating license. If the operating license is denied, the activity must cease.

The licensing process begins when the MDEQ calls in the operating license application. When the application is submitted, the MDEQ reviews the application to ensure that it is administratively complete. After the MDEQ determines that the application is complete, the MDEQ reviews the application for technical adequacy. The MDEQ notifies the applicant of any deficiencies and the applicant is required to submit revisions to the application to correct them. The application requirements and processing procedures are explained more fully in R 299.9508 and R 299.9510.

Before making a final decision on the operating license application, the MDEQ must prepare a fact sheet and a draft operating license or basis for denial. The MDEQ must also conduct a public hearing on the draft decision and allow an opportunity for persons to submit written comments as well. After the close of the comment period, the MDEQ must prepare a responsiveness summary to all relevant comments and render a final decision. These public participation requirements are explained more fully in R 299.9511.

US Liquids of Detroit, Inc. (USL) Facility

Description of Facility

USL operates a commercial hazardous waste storage and treatment facility. The facility accepts hazardous wastewaters, sludges, and solids from industry. The wastes are hazardous because they are corrosive (acidic or basic), ignitable (low flashpoint), reactive (limited cyanide or sulfide content), or because they contain toxic contaminants (heavy metals or chemicals). The wastewaters are treated in tanks to neutralize them and to reduce the concentrations of contaminants prior to discharge to the sewer system. Sludges, solids, and some wastewaters are solidified in tanks and then disposed offsite in landfills. The facility also manages certain nonhazardous wastes (liquid industrial wastewaters, used oils, and solid wastes).

Location

The facility is located at 1923 Frederick Street in Detroit, Michigan, Wayne County. The 12 acre site is near the intersection of Interstates 75 and 94; it is bordered on the north by Ferry Street, on the east by St. Aubin Avenue, on the south by Farnsworth Avenue, and on the west by the Grand Trunk & Western Railroad.

Regulatory Status

USL obtained interim status to continue to store and treat the toxicity characteristic wastes that became regulated under the RCRA in 1990. After Michigan adopted the toxicity characteristic wastes in 1994, USL obtained authorization under Part 111 of Act 451 to continue to store and treat those wastes and other hazardous wastes until a final determination is made on a hazardous waste management operating license for the facility.

Environmental Permits

In addition to the hazardous waste management operating license, the facility requires other environmental permits. All other required environmental permits have been obtained and include: a Solid Waste Processing Plant Operating License from the MDEQ; Air Use Installation Permits from Wayne County (now administered by the MDEQ); and a Type 3 Wastewater Discharge Permit from the City of Detroit.

Operating License Application

USL submitted its hazardous waste management operating license application on September 29, 1999. The application covers the container storage areas and tank systems for the storage and treatment of hazardous wastes; it covers all aspects of the facility location, design, and hazardous waste management operations.

MDEQ Review

The MDEQ reviewed the application and determined that it was incomplete on October 6, 1999. USL submitted revisions to the application on December 6, 1999. On December 22, 1999, the MDEQ determined that the application was administratively complete. USL revised the application further based on the MDEQ's preliminary technical comments of March 7, 2000, and the MDEQ's Technical Review Notice of Deficiency of May 29, 2002. Subsequent revisions to the application demonstrate that the facility satisfies the applicable technical requirements under Part 111 of Act 451. The MDEQ is therefore required to prepare a draft operating license for the facility.

Draft Operating License

The requirements for the content of operating licenses are contained in R 299.9516 and R 299.9521. The MDEQ has prepared a draft operating license to satisfy those requirements. The draft operating license is organized in seven parts:

I. Standard Conditions

II. General Operating Conditions

III. Container Storage Conditions

IV. Tank System Storage and Treatment Conditions

V. Environmental Monitoring Conditions

VI. Corrective Action Conditions

VII. Schedule of Compliance

In addition, the following components of the application are incorporated as attachments to the operating license:

1. Waste Analysis Plan
2. Inspection Schedule
3. Training Outline
4. Contingency Plan
5. Closure Plan
6. Engineering Plans and Specifications
7. List of Acceptable Hazardous Wastes
8. Procedures to Prevent Hazards

9. Tank Overfill Protection and Procedures
10. Treatment Methods
11. Ambient Air Monitoring Program

Authorized Capacities and Activities

The draft operating license authorizes the storage of up to 614,110 gallons of hazardous wastes in containers and 1,552,531 gallons of hazardous waste in tanks.

In addition, the draft operating license authorizes the treatment of up to 675,000 gallons per day of hazardous wastes by biological wastewater treatment processes, 300 tons per hour by chemical fixation processes, and 432,000 gallons per day by chemical wastewater treatment processes. The treatment methods include: activated sludge; stabilization and solidification; neutralization; oxidation, reduction, and precipitation; and activated carbon adsorption.

Treated wastewaters are discharged to the sewer, and stabilized and solidified wastes are disposed offsite at licensed solid waste and hazardous waste landfills.

The license also authorizes USL to bulk and consolidate hazardous wastes in tanks and containers for subsequent shipment offsite to other facilities.

Authorized Hazardous Wastes

The operating license authorizes the storage and treatment of a variety of solid and liquid wastes which are hazardous due to their corrosive, ignitable, reactive, or toxic characteristics. Wastes that are prohibited include those containing regulated concentrations of polychlorinated biphenyls, explosive wastes, and wastes that could generate toxic fumes during treatment.

Variances or Alternatives to Minimum Standards

Except for waivers of certain environmental monitoring requirements as explained in this Fact Sheet, USL did not request, and the draft operating license does not authorize, any variances or alternatives to the minimum design, construction, or operating standards under Part 111 of Act 451.

Environmental Monitoring

Under R 299.9611, an owner or operator must conduct an environmental monitoring program that is capable of detecting a release of hazardous wastes or hazardous waste constituents from the facility. These requirements can be waived based on the design and operation of the facility, its location, and the hydrogeological characteristics of the site.

In its application, USL requested a waiver of the soil monitoring requirements under R 299.9611(2)(d). As explained in the application, there are no exposed soils on the active portion of the facility, and USL is required to conduct regular

inspections and repairs of cracks and gaps in the concrete pavement that could be a potential pathway for contaminants to reach underlying soils. In accordance with R 299.9611(4), the draft operating license does not contain a soil monitoring program based on this demonstration that soil monitoring is not required.

USL also requested a waiver of the groundwater monitoring requirements under R 299.9611(2)(b). As explained in the application, given the design of the facility and hydrogeology of the site, there is no potential for migration of liquid from the facility to the uppermost aquifer during the active life of the facility and any post-closure care period that may be required. In accordance with R 299.9611(3)(b), the draft operating license does not contain a groundwater monitoring program based on this demonstration that groundwater monitoring is not required.

The draft operating license requires USL to conduct an ambient air monitoring program to detect violations of Part 55, Air Pollution Control, of Act 451.

The draft operating license also requires USL to monitor the treated effluent wastewaters in accordance with the requirements of its City of Detroit Water and Sewerage Department Wastewater Discharge Permit.

Facility-Specific Conditions

In addition to the standard or "boilerplate" conditions typical of all operating licenses, the draft operating license contains several facility-specific conditions as follows:

1. Condition II.U requires USL to develop and maintain a program to prevent vehicles and equipment from tracking out hazardous waste from the facility and to keep the affected areas clean.

2. Condition IV.F.5 prohibits USL from managing hazardous wastes in the existing 600 Series tanks. These tanks for flammable and combustible liquids have been out of service because they have not yet been upgraded to current standards. USL intends to replace them with new tanks that comply with all current technical standards under Part 111 of Act 415 and Michigan's Flammable and Combustible Liquids Rules.

3. Condition IV.I requires USL to maintain the air emissions control system for the Chemical Fixation Building to ensure that all dusts and other airborne contaminants generated during the treatment process are not released to the atmosphere.

4. Part VII establishes a schedule of compliance which requires USL to complete several routine and minor repairs and upgrades to the container storage and tank system secondary containment structures. Part VII also authorizes substantial modifications to the facility as follows:

    a. Replacing and upgrading existing tank systems.

b. Shifting capacity from tanks that have been taken out of service to container storage areas.

c. Adding secondary and tertiary wastewater treatment tanks so the facility can meet the more-stringent sewer discharge limits scheduled to take effect next year.

These modifications do not represent an alteration of the authorized processes or an increase beyond the authorized capacities for the facility; they represent requirements that USL must satisfy if it wants to retain its current authorization for those processes and capacities.

Draft Federal Permit

Several hazardous waste codes have been added to the federal RCRA regulations within the past few years. USL has applied to manage these newly-listed wastes. The MDEQ has not yet adopted these newly-listed wastes and it has not been authorized to regulate them in lieu of the U.S. EPA. Therefore, USL needs a RCRA permit to continue to manage these newly-listed wastes. The U.S. EPA has drafted a permit for consideration and issuance concurrent with the state operating license.

Public Participation

The purpose of pubic participation is to ensure that the public has knowledge of the MDEQ's and the U.S. EPA's proposed action, and that the public has an opportunity to comment on that action. In addition, the process ensures that the MDEQ and the U.S. EPA have the opportunity to benefit from any information that the public might have relative to the proposed action.

Public Comment Procedures

Comments may be submitted in writing to the contact person identified below between now and November 14, 2003. Comments may also be presented at the public hearing. The public comment and public hearing procedures are in accordance with R 299.9514 and R 299.9515.

The public hearing on the draft operating license will be held on Thursday, October 30, 2003 in Room L-500 of Cadillac Place, 3058 West Grand Boulevard, Detroit, Michigan, starting at 7:00 p.m. and continuing until all persons have had an opportunity to present their comments for the record. All persons that intend to speak at the public hearing must register by 7:30 p.m. Persons with disabilities needing accommodations for effective participation in this hearing should contact Mr. Steve Sliver at the address below, or at 517-373-1976, at least a week in advance of the hearing to request mobility, visual, hearing, or other assistance.

After the close of the public comment period, the MDEQ will decide whether to issue the operating license. The Chief of the Waste and Hazardous Materials Division will consider the written comments submitted during the public comment period and the oral testimony presented at the public hearing. Responses to all relevant comments will be included in the administrative record supporting the final decision. The final decision will be communicated to the applicant, to each person who commented during the public comment period, and to each person on the facility mailing list.

Locations of Available Information

The draft operating license, RCRA permit, and the application may be reviewed in the Sociology and Economics Department of the Detroit Public Library located at 5201 Woodward Avenue, Detroit, Michigan; at the MDEQ Detroit Office located at Cadillac Place, 3058 West Grand Boulevard, Suite 2-300, Detroit, Michigan (contact Ms. Jeanette Noechel at 313-456-4664); at the MDEQ Waste and Hazardous Materials Division Office located at Constitution Hall, Atrium North, 525 West Allegan Street, Lansing, Michigan (contact Mr. Steve Sliver at 517-373-1976); and at the U.S. EPA Region 5 Office, Waste Management Branch, 77 West Jackson Boulevard, Chicago, Illinois (contact Mr. John Gaitskill at 312-886-6795). The U.S. EPA also has information available on the Internet at http://www.epa.gov/reg5rcra/wptdiv/permits/index.htm.

Contact Persons

Comments and requests regarding the Part 111 of Act 451 draft operating license must be addressed to:

Mr. Steve Sliver
Waste and Hazardous Materials Division
Department of Environmental Quality
P.O. Box 30241
Lansing, Michigan 48909-7741

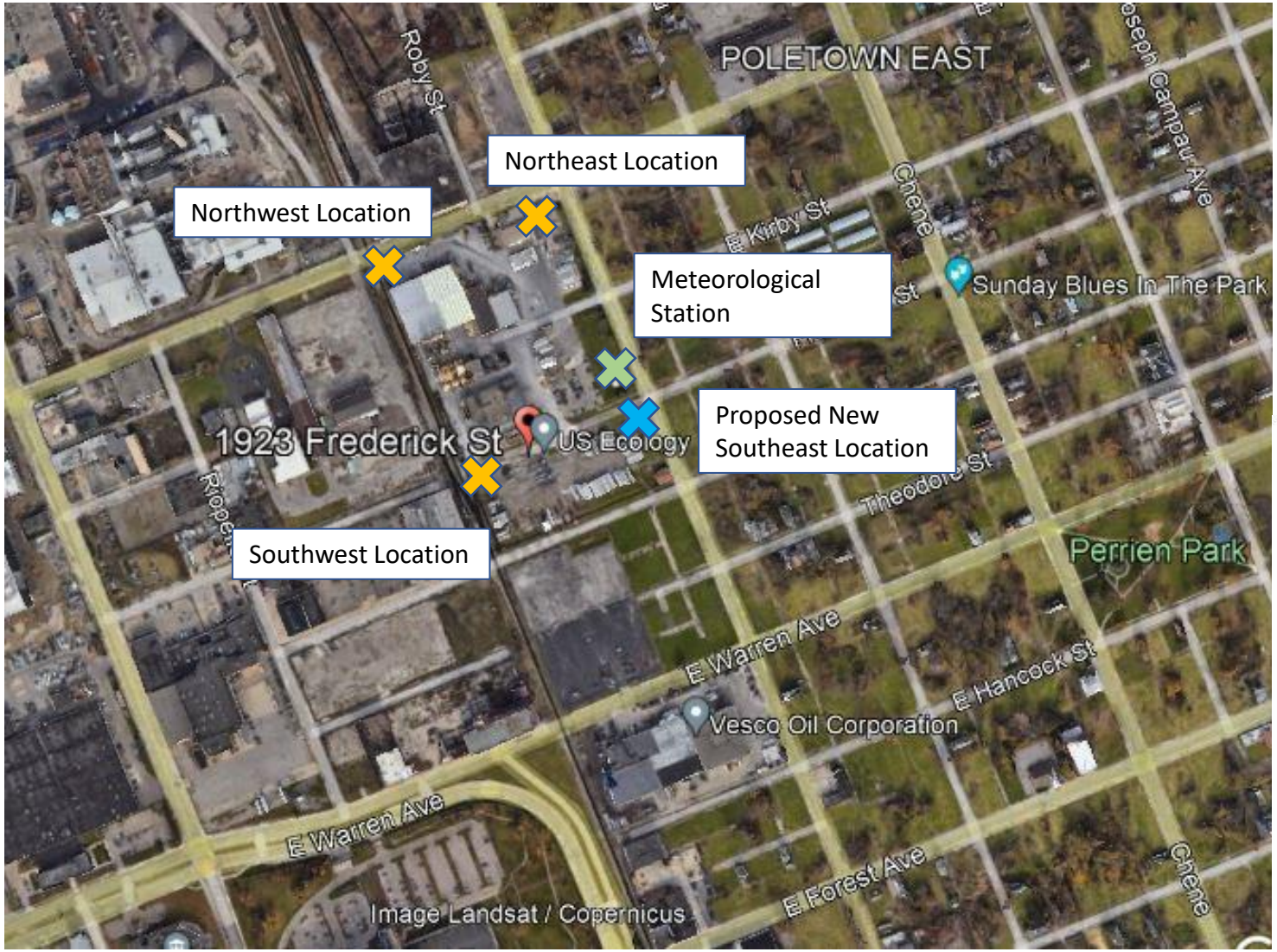
Mr. Sliver can also be contacted by telephone at 517-373-1976, and by e-mail at slivers@michigan.gov.

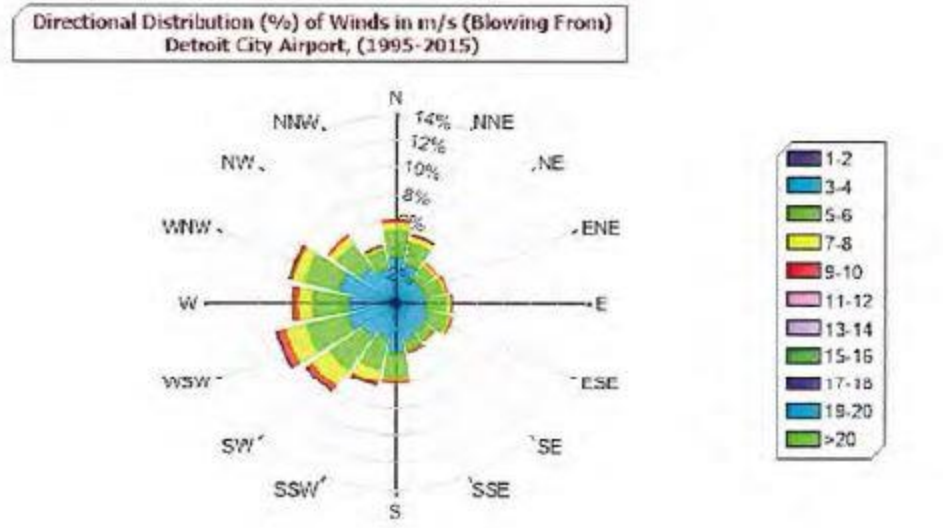
Comments and requests regarding the RCRA permit must be addressed to:

Mr. John Gaitskill DW-8J
U.S. EPA Region 5
Waste Management Branch
77 West Jackson Boulevard
Chicago, Illinois 60604

Mr. Gaitskill can also be contacted by telephone at 312-886-6795, and by e-mail at gaitskill.john@epamail.epa.gov.

Figure E-1
Current and Proposed Monitoring Station & Historical Meteorological Data





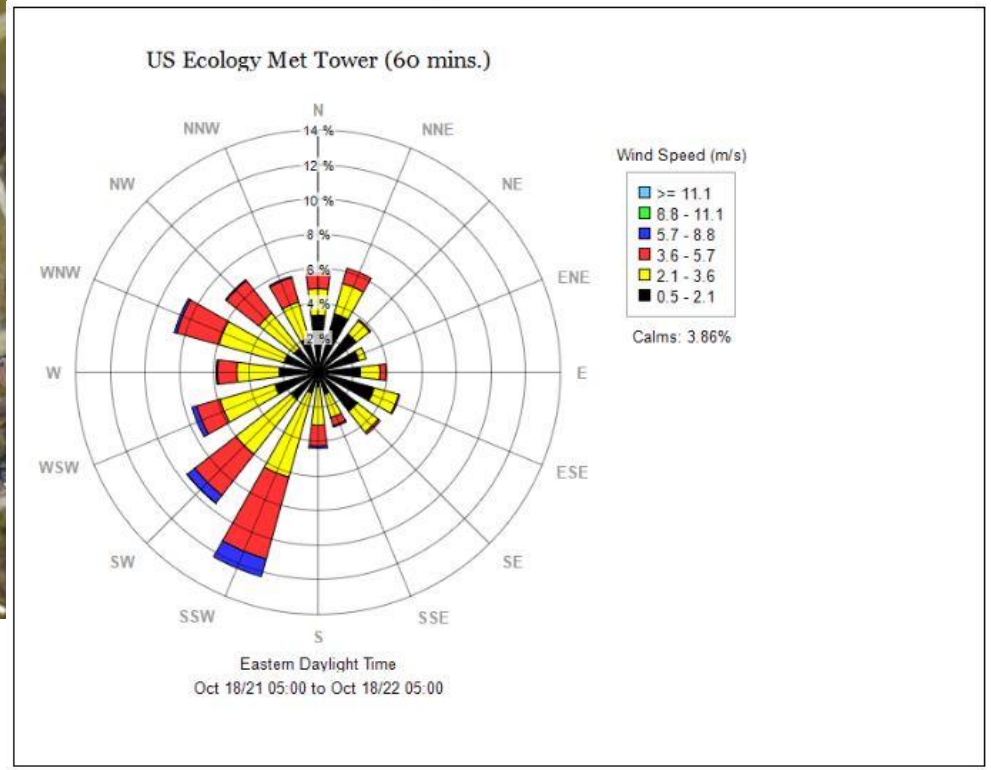


Figure E**-1:** Current and Proposed Monitoring Station & HistoricalMeteorological Data

Figure E-2
Proposed Southeast Location

Figure E-2:
Proposed
Southeast Location

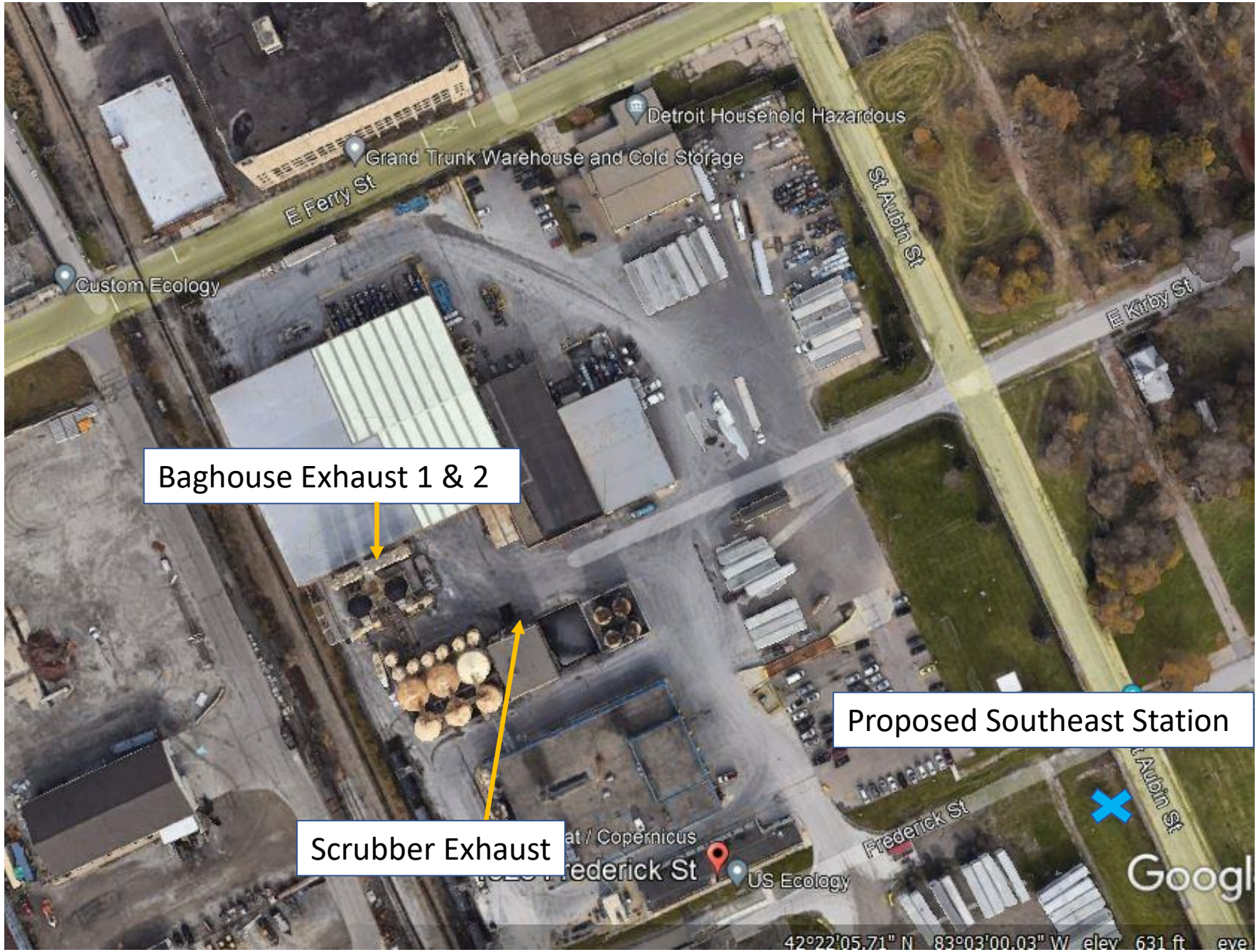


Figure E-3
Current Northeast Location

Figure E-**3:** Current Northeast Location

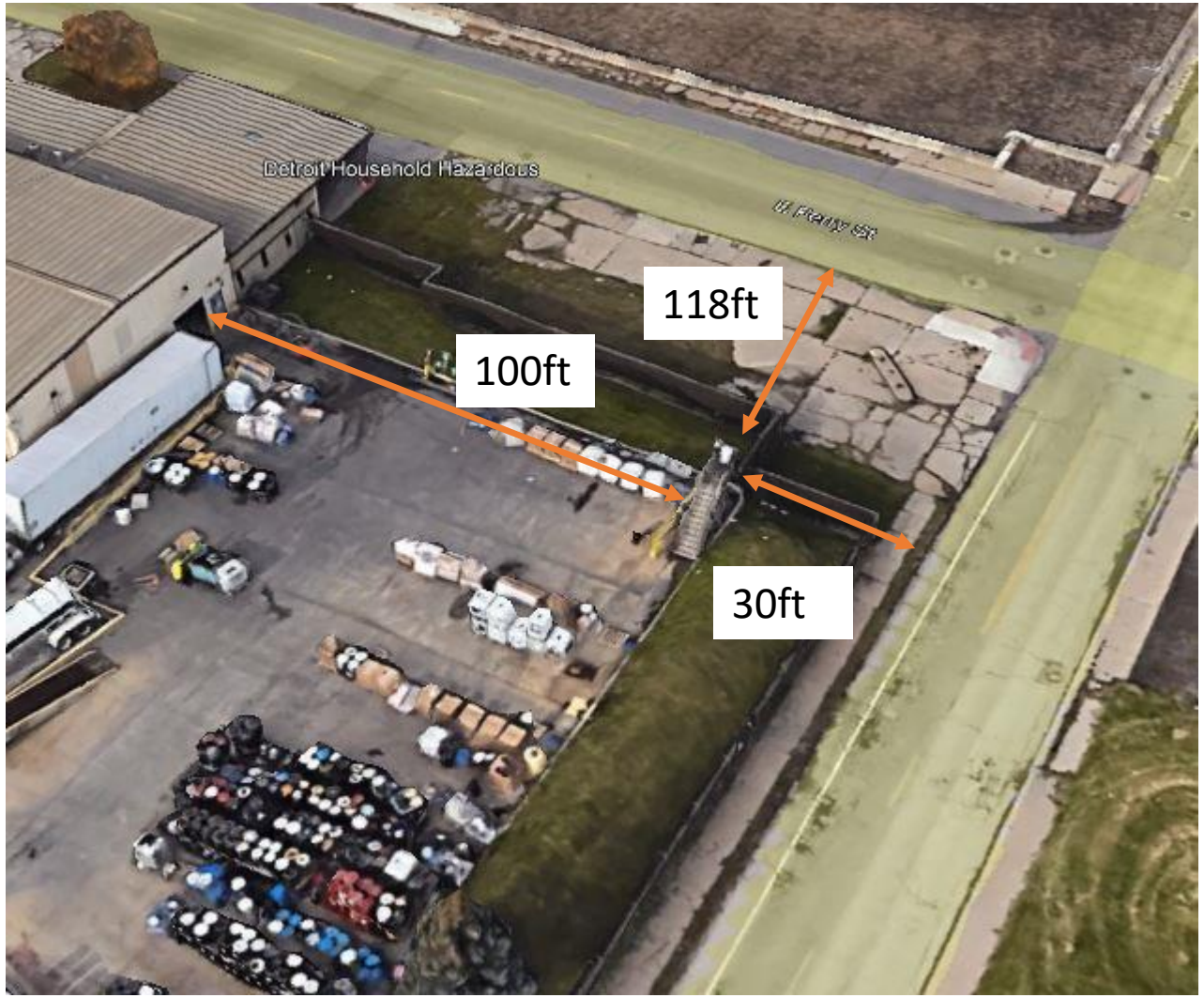


Figure E-4
Current Southwest Location

Figure E-**4:** Current Southwest Location

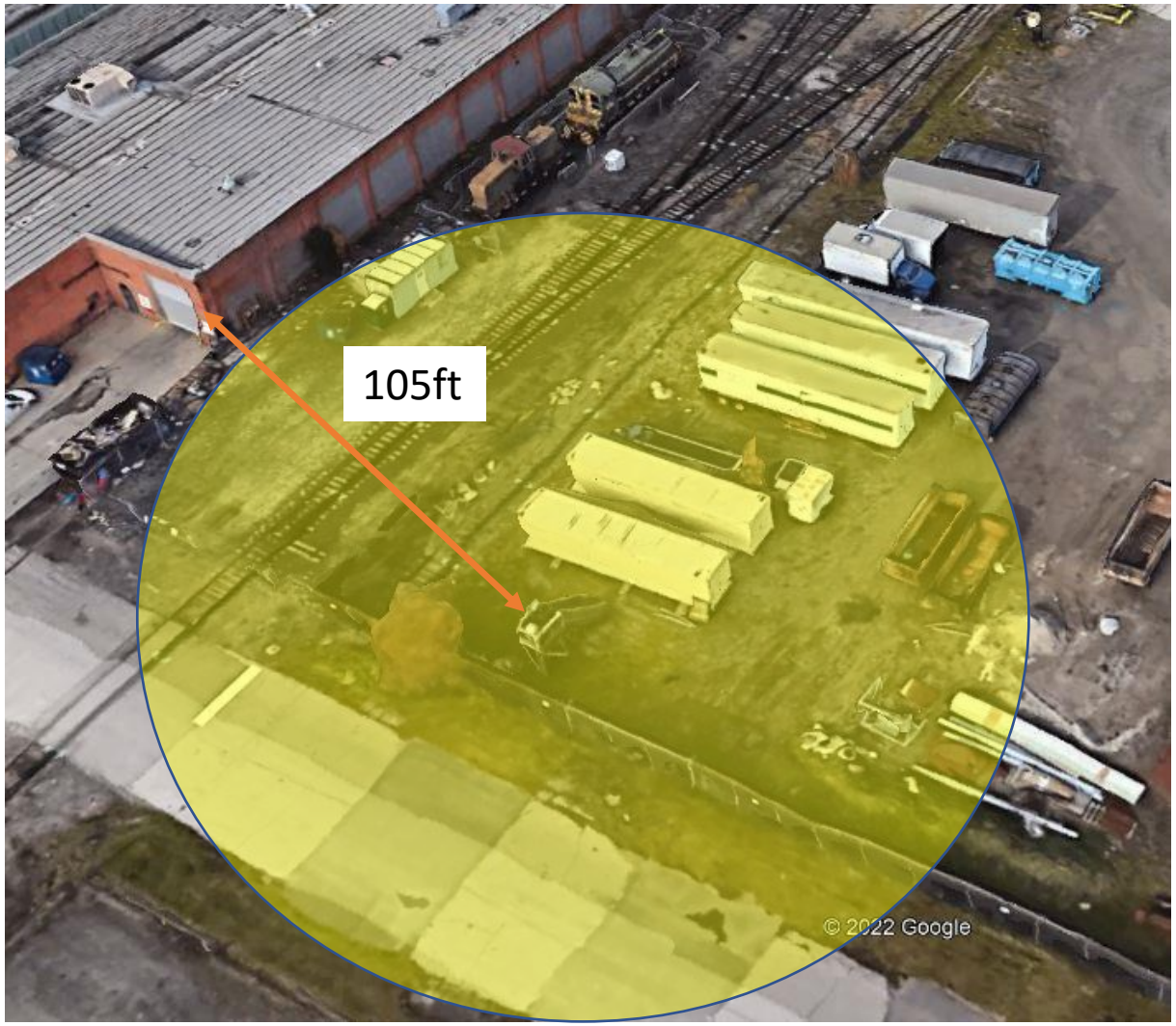


Figure E-5
Proposed Southeast Location

Figure E-**5:**
Proposed
Southeast Location