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SECTION A

OPERATING LICENSE APPLICATION AND GENERAL FACILITY INFORMATION MI ACT 451 R 299.9504 AND R 299.9508 AND 40 CFR 270.13

OPERATING LICENSE APPLICATION AND GENERAL FACILITY INFORMATION

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APPENDICES

All Appendices listed below and referenced in this section are found in the Appendices Tab of this application

- Appendix A-1: Facility Photographs
- Appendix A- 2: Hazardous Waste Permit Application EQP 5111
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- Appendix A- 4: List of All Necessary Environmental Permits
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Appendix A-14: Description of Hazardous Debris Categories and Contaminant Categories

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- All tables listed below and referenced in this section are found in the Tables Tab of this application
- Table A- 1: Processes and Design Capacity to Treat, Store or Dispose of Hazardous Waste
- Table A- 2: Hazardous Waste Types and Quantities

SECTION A OPERATING LICENSE APPLICATION

AND

GENERAL FACILITY INFORMATION

MI Act 451 R 299.9504 and R 299.9508

And

40 CFR 270.13

This section contains EQ Detroit, Inc. (EQD) Application for Hazardous Waste Treatment, Storage and Disposal Facility Operating License, Part A Hazardous Waste Permit and General Facility Information.

The information submitted in this application is in accordance with the requirements of Michigan Act 451 R 299.9504(1) and R 299.9508(1) and (3), which incorporates 40 CFR 270.13 by reference.

A-1 Introduction

R 299.9504(1) and 40 CFR 270.13(a), (c), (g) and (m)

EQD is located at 1923 Frederick Street, Detroit, Wayne County, Michigan. EQD has operated as a Treatment, Storage, and Disposal Facility under Act 451, Part 111 as amended since 2003.

The original lot was reportedly purchased by Leonard Reliable Storage from James Witherell Farm in 1908. The Detroit Foundry Supply occupied the site from 1911 to 1914, and the Whitney Hollinger Company inhabited the site from 1914 to 1925. The Detroit Cleveland Warehouse and Realty Company and Michigan Trust Company were reportedly owners from 1925 to 1929.

Phoenix Wire Works held the property for the longest period from 1927 to 1966. Then the Detroit Rendering Company conducted operations from 1966 to 1982. The Darling Company conducted rendering operations at the site from 1982 to 1984. City Management Corporation (CMC) owned and operated the EQD Detroit facility from 1984 through 1998. USA Waste purchased the facility in January of 1998 and shortly after, it was acquired by US Liquids (USL) in May of 1998. EQ Detroit took over the facility February 2, 2004, then it was purchased by US Ecology in 2014, and in May 2022 Republic Services purchased EQ Detroit, Inc.

This document has been prepared to address U.S. Environmental Protection Agency (USEPA) Administrated Permit Programs, in particular the Hazardous Waste Permit Program requirements for Resource Conservation and Recovery Act (RCRA) Part B Permit Application. EQD has compiled the following information for conformance with permit content requirements established in the Code of Federal Regulations Title 40, Part 270, Section 14 (40 CFR 270.14) and in State of Michigan Regulations promulgated in Act 451 of the Public Acts of 1994, Part 5.

In addition, this document has been prepared to document compliance with 40 CFR 264 and MI Act 451 Regulations for hazardous waste treatment and/or storage activities at EQD.

The Waste Analysis Plan (WAP) outlines the characteristic and listed hazardous waste codes as defined by the USEPA and EGLE that are accepted at the EQD facility.

The Part A Permit Application was originally filed in September 1990, and subsequently revised October 1991, August 1996, September 1999, and May 2002 and transferred to EQD in March 2004. EQD submitted a renewal application in 2008. An update of the 2008 application was submitted in November 2017. According to Michigan Environment, Great Lakes, and Energy (EGLE), the USEPA Part A Application form is no longer required. The EGLE forms EQP 5111 and EQP 5150 have replaced the Part A Application form. EQP 5111 is in Appendix A-2 and EQP 5150 is located in Appendix A-3.

A-2 Facility Information

R 299.9504(1)(b) and 40 CFR 270.13(b), (d), and (e)

The physical address of the facility is EQ Detroit, Inc., 1923 Frederick Street, Detroit, MI 48211. EQD is in an area of Detroit which is zoned heavy-industrial and is bordered on the south by Farnsworth Street, to the east by St. Aubin Street, to the north by Ferry Street and to the west by the Grand Trunk & Western Railroad. The subject site is located near the intersection of Michigan Interstates 75 and 94 as shown on **Sheet A-01.** The nearest residential homes are located within 0.25 miles to the east. Compliance with MI Act 451 location standards is discussed in subsection **A-3** (Act 451 Location Standards).

EQD's geographic location is 42°22'027 north latitude and 083°02'053 west longitude. **Sheet A-01** provides a site location map.

EQD's U.S. EPA ID Number is MID 988 991 566. Ownership and operating personnel information is as follows:

Facility Name:	EQ Detroit, Inc. (EQD)
Facility Contact Person	John C. Barta, General Manager
Facility Phone Number	313 347 1300
Facility Location	1923 Frederick Street Detroit, MI 49211
Facility Mailing Address	EQ Detroit, Inc. 1923 Frederick Street Detroit, MI 49211
Owner and Operator Information:	
Operator:	EQ Detroit, Inc. 1923 Frederick Street Detroit, MI 49211
Owner:	EQ Detroit, Inc. 1923 Frederick Street Detroit, MI 49211

A-3 Act 451 Facility Location Standards

R 299.9504(16), R 299.9603(1), (3), and (5)

As specified in R 299.9603 of the Michigan hazardous waste regulations, EQD is required to comply with the following location standards for active portions of the facility:

- 1. Active portions of the facility may not be located in any of the following areas:
 - a. Within 61 meters of a fault which had its displacement in Holocene time;

- b. In a floodway designated by the EGLE under Michigan Act 245;
- c. In a coastal high-risk area designated under the Shorelands Act;
- d. Over a sole-source aquifer or the recharge zone of a sole-source aquifer, unless the director grants an exemption to this provision based upon a demonstration by the applicant that the treatment, storage or disposal facility will be located, designed, constructed and operated in a manner that will prevent contamination of the aquifer;
- e. Within the isolation distance from public water supplies specified in Act 399; and
- f. In a wetland.
- 2. An isolation distance of 60 meters shall be maintained between the active portion of the facility and adjacent commercial, residential, or recreational property lines.

EQD meets the standards outlined above. No residential or recreational properties are located within 60 meters of active portions of the facility. Activities at EQD are not expected to adversely impact adjacent properties based on the preventative measures that have been taken, as described in the following sections of this document.

A-4 Environmental Permits

(MI Act 451 R 299.9508(1)(f) and 40 CFR 270.13(k)

The following list describes which permits or construction approvals were received or applied for under the reference regulations:

Permit	Issuance Date	Expiration Date
EPA RCRA Hazardous Waste Management Permit (Resource Conservation Recovery Act)	12/12/2003	12/12/2008
MI Part 111 Operating License (MI 1994 PA 451, 1980)	12/12/2003	12/12/2008
MI Part 115 Operating License	09/11/2020	09/11/2025
EGLE Air Quality Division Permit to Install	02/05/2018	No Expiration
Great Lakes Water Authority (GLWA) - Wastewater Discharge Permit No. 9223-91964-IU	06/10/2019	03/01/2023

A copy of the EQD facility MI Part 115 Operating License Permit, the Part A RCRA Operating License, the EGLE Air Quality Division Permit to Install, and the GLWA Permit are found in **Appendix A-4**.

A-5 Certification by Executive Officer

R 299.9508(3) and 40 CFR 270.11(d)

Any person signing a document under Paragraph (a) or (b) of Section 270.11 shall make the following certification (see **Appendix A-9**).

I, certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system design to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SECTION B

GENERAL FACILITY DESCRIPTION

R 299.9504(a)(c) AND 40 CFR 270.14(b)(1)

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B-1 Facility Location

(40 CFR 270.14(11)(i))

EQ Detroit, Inc. (EQD) property is located at 1923 Frederick Street in the City of Detroit, Wayne County, Michigan. The subject site is located near the intersection of Michigan Interstates 75 and 94, and is bordered on the south by Farnsworth Street, to the east by St. Aubin Street, to the north by Ferry Street and to the west by the Grand Trunk and Western Railroad. A municipal waste incinerator is located on the northwest side about 1/2 mile from the facility, but it was shut down in 2019. A vacant cold storage building is located north of the facility. On the east and south, the facility is surrounded by vacant residential lots, urban agriculture, and abandoned residential buildings. The location of EQD is shown on the USGS Site Plan, **Sheet A-01.**

The area immediately adjacent to the facility is primarily commercial and industrial. The facility is in the City of Detroit which has a population of approximately 670,000 people. The nearest residential homes are located 0.25 miles to the east.

No environmentally sensitive areas such as wetlands, streams or ponds are located on or around the subject property. No endangered flora or fauna have been identified on the site.

Water supply and sewerage disposal for this facility is provided by the City of Detroit and the Great Lakes Water Authority (GLWA). Stormwater from the site is collected at the interceptor sewer for discharge to the City of Detroit Wastewater Treatment Plant which is now GLWA.

Current operations associated with the facility are limited to the buildings described herein, which are all located North of Frederick Street. Access to the facility is made from Kirby Street through a guarded checkpoint, which is staffed 24 hours per day. Currently all vehicles and persons entering the site pass through security located in the Security Building Building (Sheet A-03 Facility Drawing)

The facility physical address and phone number is:

EQ Detroit, Inc. 1923 Frederick Street Detroit, MI 48211 (313) 347-1300.

The facility contact person is:

John C. Barta (General Manager) (313) 347-1300 (Office)

B-2 Facility Function

EQD is a hazardous and non-hazardous waste treatment facility located in Detroit, Wayne County Michigan. The facility operates 24-hours per day, seven days per week, and employs approximately 80 personnel.

The EQD operations include receiving, storage, and treatment of hazardous wastes permitted by the EGLE under the facility operating license and the USEPA under a Resource Conservation and Recovery Act (RCRA) permit (MID 980 991 566). The routine operations and work areas include:

- Waste receiving and Quality Control (QC);
- Waste loading and unloading;
- Reagent unloading and tank storage;
- Waste storage in tanks;
- Waste treatment in tanks;
- Waste bulking and consolidation;
- Container staging/storage; and
- Shipment of wastes off-site to treatment, storage, and disposal facilities (TSDFs).

Non-hazardous wastes are managed in accordance with the Solid Waste Processing and Transfer Facility Operating License issued under Part 115 of Act 451 of 1994, the Natural Resources and Environmental Protection Act (NREPA).

B-2a Wastes Identification and Classification

The waste types acceptable for treatment and storage at the facility are defined in **Table C-4.** Chemical and Physical Properties of Waste and Debris to be Handled are found in **Section C** the Waste Analysis Plan

B-2b Description of Waste Management Units/Container Storage Areas.

EQD is a liquid and solid hazardous waste storage and treatment facility. Containerized wastes may be staged/stored on-site before and after treatment in one of the following areas:

- Container Storage Area (Drum Warehouse)
- Container Staging Area (Receiving Area)
- Chemical Fixation Building (Chem Fix)
- North Container Storage Pad
- Corrosive Container Pad
- Chemical Precipitation Container Pad (Chem Pre)
- De-pack Area
- Rail Area

Container storage areas are defined in Section D, Table D-2.

Bulk wastes are placed directly into the waste treatment tanks/vaults and mixed, with modifiers for deactivation, neutralization, chemical oxidation, and chemical reduction or

stabilization reagents, as required for the specific wastes being treated. Bulk wastes may also be transshipped as needed. Tank specifications are defined in Section D, Table D-1.

Tanks/vaults will be decontaminated if changed from the storage/treatment of listed wastes to characteristic wastes. Decontamination consists of water washing and/or dry decontaminating the tank/vault. Dry decontamination is the process of scrapping the vaults with the excavator until all residuals have been removed. The rinse waters and/or dry decontamination material is directed to a listed batch tank (containing a compatible waste). The decontamination step is noted on the Operation Log for the tank receiving the rinse waters and/or dry decontamination material.

Drainage trenches/sumps exist within each storage/treatment area to contain and control liquid runoff. Containers are handled by removing the tops or bungs and emptying the contents with a vacuum truck or pump. Containers may also be managed directly into one of the treatment tanks using a forklift.

The following are descriptions of the operations performed in these areas:

B-2b(i) Main Treatment Building

The Main Treatment Building is in the center of the site and houses the physical-chemical treatment system, also known as Chem Pre. This area contains supplies, such as drums and chemicals. There are treatment tanks, storage tanks, and raw materials tanks in this area. The Main Treatment Building accepts and processes hazardous and non-hazardous wastewater containing heavy metals.. Also located within the southwest portion of the Main Treatment Building is the Corrosive (Acid/Base) Treatment Area/Container Storage Area. EQD Laboratory Services is located along the south side of the Main Treatment Building. This area uses and stores a wide variety of lab chemicals as well as compressed nitrogen, oxygen, argon, and helium gas cylinders. A maintenance area with three service bays is located on the east side of the Main Treatment Building. This operation uses and stores lubricating greases and oils, and other various automotive fluids.

B-2b(ii) Process Building (Oily Water Treatment)

The Process Building is located north of the Main Treatment Building. This building does not process, treat, or store hazardous waste. This area accepts and processes oily wastes.

B-2b(iii) Container Staging Area (Receiving Area)

Containerized waste streams arriving for processing and destined for the EQD facility will arrive at the EQD Container Staging Area. In this area, the drums will be off-loaded, and appropriate representative samples will be collected. Those drums which are destined for EQD and meet waste acceptance criteria will be stored on the EQD Container Staging Area. Incompatible waste is segregated as per DOT and 40 CFR 264 Appendix 5 segregation criteria. The entire floor area has an impervious epoxy coating that is compatible with the types of waste handled by EQD. Drums are stored and clearly marked in numbered aisles with spacing every two feet for access and drum inspection.

Containerized waste which meets the waste acceptance criteria will be processed at EQD and the rejected containerized wastes which do not meet the waste acceptance standards will be loaded back into the transporter trucks to be returned to the generator.

Containers are stored throughout the facility in designated areas. These areas are defined in Section D. Incompatible wastes are separated as per DOT and 40 CFR 264 Appendix 5 Segregation Criteria.

B-2b(iv) Chemical Fixation Building (Chem Fix)

The Chemical Fixation facility is located north of the Main Treatment Building and Process Building. The facility operations are housed within a pre-engineered metal structure. The active portions (i.e. treatment/storage tanks/vaults, pugmill) are fully enclosed within the building. The process design capacity of treatment units is detailed in Table A-1.

EQD's Chemical Fixation Building utilizes a waste treatment technique commonly referred to as a pozzolanic stabilization. This technique relies on materials rich in stabilization and fixation agents to provide a solid stabilized mass when mixed with wastes. The most utilized materials in EQD's process are soluble silicates, lime, CKD, fly ash and Portland Cement.

B-2b(vi) Bulking and Consolidation

EQD receives waste in a variety of container sizes, for example, small glass or plastic bottles, pails, drums, totes, boxes, and cubic yard sacks. EQD may elect to consolidate these containers to more efficiently manage them for further processing or preparation for shipment to a permitted off-site treatment/disposal facility. Bulking/Consolidation may include the transfer of the smaller containers (e.g. one-gallon jugs) into larger containers, such as drums or totes. Drums may be pumped using vacuum trucks/tankers. Solid waste like cubic yard sacks may be dumped directly into roll-off/dump trailers for processing or shipment to an off-site treatment/disposal facility.

Containerized waste that are bulked and consolidated are subject to the same compatibility and waste code evaluation as wastes that are mixed into treatment tanks.

Bulking and consolidation of waste can only occur once the wastes have been properly sampled and tested for compatibility prior to mixing per the methods outline in the Waste Analysis Plan (WAP).

Sheet A-03 Facility Drawing shows the location of all buildings and waste management units.

B-3 Structural Description and Facility Preparedness

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.

Frederick Street divides the facility into north and south sections. The site structures are presented on **A-03 Facility Drawing**. The following is a description of features present on the site:

- The general management offices which are situated along the north side of Frederick Street are in one-story concrete block structure housing administrative and support personnel. Entrance doors are located along the north side of the building. No hazardous wastes or materials are stored in these offices.
- 2. The Main Treatment Building or Chem Pre is located north of the general offices and is bordered by a continuous curbed concrete roadway. The area occupies most of the two-story concrete block building with concrete flooring. Entrance doors are located on all sides of the building. The treatment area contains wastewater treatment and reactor tanks, reagent tanks, control office, plate frame filter press, sumps, pumps, and piping, some of which is overhead. The process design capacity of treatment units is detailed in Table A-1. Treatment tanks are equipped with access covers, bottom drain lines and audible, visible high-level alarms. The concrete is lined with an epoxy coating.

The Main Treatment Building also contains a corrosive treatment area which is in the southwest corner of the building. The area is designed to hold a maximum of 120 containers or 6,600 gallons of containerized waste. The waste is stored in rows running east and west approximately 4-foot-wide rows separated by 2-footwide aisles. Drums are placed into the storage area on pallets or directly onto the concrete slab using a fork-truck or other container/drum handling equipment. The area is completely covered which prevents precipitation from entering the treatment area. This area has a containment capacity of 6,709 gallons.

The Chemical Precipitation Container Storage area stores approximately 120 containers or 6,600 gallons of containerized waste. This area has a containment capacity of 19,187 gallons.

The Main Treatment Building and two associated unloading areas are curbed to facilitate secondary containment of spilled wastes. The north and west sides of the building is the primary hazardous waste unloading areas and has a curbed area where trucks are parked while unloading. The entire processing and unloading area are secondarily contained by the building walls and continuous concrete curbing.

Containment areas described above drain to the northwest sump or to the spill containment structure, where any accumulated liquids are removed for chemical and physical treatment at EQD according to their characteristics. **Section B-15** provides the volumes and details of the facility secondary containment system.

Drums and totes are stored adjacent to the treatment area within concrete curbing.

The south and east sides of the building houses in-plant offices, a maintenance area, and an analytical laboratory. The laboratory contains instrumentation designed to analyze small quantity representative samples of the materials being treated. The maintenance area is utilized for repair and servicing of on-site equipment. It is physically separated from the treatment plant by concrete block walls with metal entrance doors.

- 3. The Process Building (Oily Water Treatment) is located to the north of the Main Treatment Building. The Process Building non-hazardous waste operations are housed within a pre-engineered, metal structure that is attached to the above ground storage tank (AST) farm. The containment capacity for the tanks in this area is 243,508 gallons.
- 4. The Container Staging (Receiving Area) is located northeast of the Main Treatment Building and Process Building. The area is designed to hold 988 containers or 54,340 gallons of liquid waste. Once containers are accepted by the facility, they are generally moved to either the Container Storage Area or other storage areas throughout the facility, as appropriate. Containers are stored in a manner that will contain potential leaks/spills within the Container Staging Area. The Container Staging Area is inspected once per day. Accumulated liquids which collect in the trench containment structure are removed upon detection. The containment capacity for this area is 3,231 gallons.
- 5. The Container Storage Area (Drum Warehouse) is located north of the Main Treatment Building and Process Building and is completely enclosed. The Container Storage Area is designed to hold a maximum of 1,826 drum containers or 100,430 gallons of containerized waste. The waste is stored in rows running east and west approximately 4-foot-wide rows separated by 2-foot-wide aisles. Containers are placed into the storage area on pallets or directly onto the concrete slab using a fork-truck or other container/drum handling equipment. The area is completely covered which prevents precipitation from entering the treatment area. The storage area is sloped to blind sumps which serve as a collection point for liquids in the event of spills/leaks in the storage area. Containers are stored in a manner that will contain potential leaks/spills within the curbed area. The container storage and blind sumps are inspected daily. Accumulated liquids collected in the blind sumps will be removed with a vacuum truck. The containment capacity for this area is 19,591 gallons.
- 6. The Chemical Fixation facility is located north of the Main Treatment Building and Process Building. The facility operations are housed within a pre-engineered metal structure. The active portions (i.e. treatment/storage tanks/vaults, pugmill) are fully enclosed within the building.

Silo H-1is designed to receive hazardous dust for treatment and waste stabilization. Dusts are transported from bulk pneumatic tankers and unloaded through a dedicated line. Fugitive dusts are captured through a baghouse and discharged back into the silo.

Silos S-1 through S-4 receive the stabilizing reagents used for chemical fixation. Each silo is constructed identically with dedicated fill and discharge lines and separate baghouses. The blower is connected to the pneumatic trailer fluffing and conveying dust to the silo.

Dust is then fed from the bottom of each silo (dust may be fed from one silo or all silos simultaneously) through a variable speed vane feeder into a screw conveyer feeding the pugmill. The pugmill is a flow through device that receives dusts from the silos as well as non-hazardous liquids and sludges from tank 901 and then discharged into vaults 701 through 706. Wastes are fed and enter the pugmill on the south end. The waste is mixed by paddles mounted on counter rotating shafts running the length of the unit and is then discharged on the opposite end into a screw conveyor. The screw conveyor carries the treated waste to the treatment vaults. Feed rates are varied to obtain proper treatment ratios for different types of wastes.

Treatment vaults are steel constructed vaults, rectangular in shape, built within a concrete containment structure. The outer concrete serves as secondary containment and is sloped to a central low point. An inspection pipe located at the low point is designed to detect any free liquids accumulating in the interstitial space and may be used to remove such liquid.

Vaults 701 through 706 receive liquid and solid wastes from bulk tankers and containers. Mixing within the vaults, if required, is accomplished by use of an excavator bucket. After treatment, waste is removed from the vaults with the excavator and placed into a vessel for transport to the final disposal facility. Post treatment testing (as described in the **WAP** of this application) may be performed before or after the waste is removed but is performed before wastes are transported to the final disposal facility.

7. EQD also accepts wastes in railroad tank cars. The tank cars are positioned along the west side of the Main Treatment Building. The railroad car spur was designed and installed to provide secondary containment for possible leaks that may occur during the rail cars loading/unloading process. The soils directly under the rail tracks were excavated and the excavation lined with an 80-mil polyvinylchloride (PVC) liner, backfilled with stone ballast and a series of metal collection pans installed to capture any leakage.

The collection pans are sloped to cross drains, which slope to collection underdrain system which then drains into the lined spill containment structure. **Section B-15** provides the volumes and details of the facility's secondary containment system.

- 8. As mentioned above, the facility also has a few waste and reagent unloading areas located in the concrete roadways described at locations designed not to restrict traffic flow patterns. The unloading areas are within the engineered spill containment and collection system designed for EQD. Only trained employees are authorized to off-load any accepted waste or material at the specific identified areas.
- EQD's secondary containment systems are separated into various zones and identified in Sheets C-14 to C-27. Secondary containment is provided for vaults 701 through 706 by an outer concrete structure. The concrete is sloped to a central low point where an inspection pipe is located. The inspection pipe is designed to

detect free liquids that have accumulated in the interstitial space and will be utilized to remove any such liquids. Secondary containment for the 200 and 300 series tanks are epoxy coated concrete structures either as part of the building or standalone structures.

Liquid collected in the secondary containment is considered contaminated rain or washwater and is transferred to the Main Treatment Building for treatment prior to discharge to GLWA. Liquid is transferred by tanker truck, vacuum truck, or by direct pipeline to the wastewater treatment plant. The wastewater pre-treatment plant is operated under an Industrial Wastewater Discharge Permit (GLWA Wastewater Discharge Permit No. 923-91964-IU).

If a spill has occurred into the secondary containment, the accumulated liquid is considered identical to the waste type present in the leaking tank or spilled material. Liquid accumulated in the secondary containment structure is removed within 24 hours, or in as timely a manner as is possible to prevent harm to human health or the environment. The secondary containment structures are inspected daily, when operating, and noted on the Daily Inspection Log.

The area containment capacities are engineered to meet or exceed the regulations in 40 CFR 264.193, MI Act 245, Part 5 and MI Act 451 R 299.9615. Refer to **Section B-15** for containment system details.

B-4 Prevention Systems and Programs

In addition to, and in conjunction with the above structures, EQD operates the following systems and programs to minimize the possibility of material fires or releases.

- 1. A comprehensive waste approval and acceptance program for incoming waste shipments that ensures safe and proper handling of the approved and accepted wastes. The acceptance procedure is an important aspect of the prevention plan. Additionally, through analysis interpretation, the program minimizes the potential of excessive heat generation or tank/piping/equipment corrosion, and other harmful occurrences resulting from the mixing of incompatible compounds.
- A personnel training program has been developed to assist in safe facility operation and maintenance. This program has been designed for compliance with U.S. EPA, EGLE, and OSHA requirements for RCRA treatment facilities (29 CFR 1910.120 (p) (7); 40 CFR 264.16).
- 3. A routine inspection program has been developed for equipment, structures, areas, etc. to facilitate early detection of malfunctions, deteriorations, operator errors, and discharges which could cause or lead to a release of hazardous waste constituents to the environment. Refer to **Section O** for specific elements and details on the inspection program.
 - a. Visual inspections of the facility are performed by plant personnel and documented by operations personnel. Inspection areas, criteria and frequencies are listed on the Inspection Report Forms. The Inspection Report Forms will be retained for a period of three years from the date of

the inspections. The designated employee must verify all inspections by signature.

- b. The EQD maintenance program includes inspection and record keeping, via the Operating Records, of pumps, transfer lines, and equipment. Maintenance personnel inspect pump seals and lubricant valves on a regular basis. Lubricant is added if necessary and leaking or worn seals are replaced immediately.
- c. All tank exteriors are inspected, and results recorded in the Operating Record. As needed, access covers will be properly resealed and exteriors exhibiting corrosion are repaired, primed, and painted.
- d. EQD maintains inventory for all waste received. The reported volume of each load is recorded on the daily inventory summary of the Operating Record. The inventory tracking allows for computation of received volumes to minimize the risk of exceeding tank and treatment capacities.
- 4. The EQD treatment system employs well documented processes which facilitate safe and successful treatment of the wastes. There will be no new technologies utilized at this facility prior to appropriate testing and analysis.
- 5. Odor reduction efforts are outlined in Section F-6h.
- 6. Areas of material storage, transfer and treatment are located within secondary containment structures. This safeguard limits the potential for either non-treated or treated-waste material to be released outside of designated areas.
- 7. All material storage areas maintain required aisle space to provide unobstructed access to each tank/vault and/or container for inspection and spill/fire control.

B-5 Incineration or Thermal Treatment

EQD does not have incineration or thermal treatment

B-6 Surface Impoundments

EQD does not have surface impoundments

B-7 Waste Piles

EQD does not have waste piles

B-8 Landfills

EQD does not have landfills

B-9 Land treatment

EQD does not have land treatment

B-10 Miscellaneous Units

EQD does not have miscellaneous units

B-11 Underground Mines or Caves

EQD does not have underground mines or caves

B-12 Drip Pads

EQD does not have drip pads

B-13 Boilers and Industrial Furnaces

EQD does not have boilers or industrial furnaces. There is a steam generating unit which utilizes only natural gas and is less than 10 MMBtu/hr capacity.

B-14 Underground Tanks

EQD does not have underground storage tanks.

B-15 Containment System

EQD maintains secondary containment for all tanks utilized in the processing of hazardous and non-hazardous waste. The containment system was engineered for compliance with 40 CFR 264.193, MI Act 245 Part 5 and MI Act 451 R 299.9615.

Containment volume calculations are provided in **C-14 to C-27**. In addition, secondary containment systems for the double-walled tanks associated with the Chemical Fixation Building are depicted on **C-25**.

Section C: Waste Analysis Plan See Waste Analysis Plan

SECTION D

PLANS AND SPECIFICATIONS R 299.9504 (2) and (3) and 40 CFR 270.15 and 270.16

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Table D-1: Tank Specifications

Table D-2: Container Storage

APPENDICES

All Appendices listed below and referenced in this section are found in the Appendices Tab of this application

Appendix D-1: Tank Certification

Appendix D-2: Manufacturer's Specification

PART D-1

TREATMENT IN TANKS

40 CFR 270.14(d), 270.16, 270.24, 270.27, Part 264 Subpart J and 40 CFR Part 60, Appendix A

R 299.9615, R 299.4505 Pursuant to the Provisions of the Michigan Fire Protection Act, PA 207
FACILITY SPECIFIC INFORMATION: TANK SYSTEMS

This license application section addresses requirements for tank systems at the EQ Detroit, Inc. (EQD) Facility in Detroit, Michigan. This section includes assessments of existing tank systems, secondary containment systems and release detection; controls and practices to prevent spills and overfills; inspections; response to leaks or spills and disposition of leaking or unfit for use tank systems; closure and post closure requirements; and requirements for storing or treating ignitable, reactive, or incompatible wastes.

D-1 ASSESSMENT OF EXISTING TANK SYSTEM

(R 299.9615(1) and 40 CFR 264 Subpart J)

All tanks on the EQD facility site have secondary containment that meets the requirements of 40 CFR 264.193. **Table D-1** and **Sheets A-03 and R-05** include a description of these tanks by Permit Number.

EQ has completed a written assessment of each of these tanks and has determined that each tank system is adequately designed and has sufficient structural strength and compatibility with the waste(s) to be stored or treated, to ensure that it will not collapse, rupture, or fail. EQD has verified that all tank systems were designed, constructed operated and maintained in compliance with the requirements of R 29.4101 to R 29.4505, pursuant to the provisions of Act 207. This assessment has been reviewed and certified by an independent, qualified, registered, professional engineer. The written assessment of each tank is on file at the EQD facility. Tank certificates are found in **Appendix D-1**

D-1a Design Standards

(R 299.9615(1) and 40 CFR 264.191(b)(1))

Waste incompatible with the materials of construction of a tank/vault are not placed in tanks/vaults by EQD. Compatibility is determined as outlined in the WAP. Tank linings, where applicable are described in the Tank Specifications paragraph of this section.

All EQD's Waste Treatment Plant tanks/vaults are constructed of milled steel of the proper steel thickness verified by test results. Rectangular tanks have been designed using good engineering standards, taking into consideration height, weight, width, materials of construction, and specific gravity of waste to be placed into the tanks. Engineering drawings and specifications are included with this application. Also included is appropriate foundation and structural support information used in the construction of the tanks.

The inspection of the tanks is conducted on a daily basis to detect any damage, leaks, cracks, corrosion, or erosion of the tank construction materials. EQD does not store waste in a tank that would be incompatible with the construction material of that tank. In the event there is a waste that may enhance corrosion, or erosion, that waste will be stored in a tank lined with materials compatible with corrosive waste.

A tank numbering diagram is found on **Sheet A-02**.

D-1b Dimensions and Capacity of Each Tank

(R 299.9615(1) and 40 CFR 264.191(b)(1))

Description of Tanks/Vaults, tank dimensions, capacities, material of construction, and shell thickness are listed separately for each tank in this section on the following pages.

D-1b(ii) Description of Tank/Vault Systems and Operation

Dust Silo H-1

Silo H-1 is designed to receive hazardous dust for treatment and waste stabilization. Dusts are transported in bulk pneumatic tankers and unloaded through a dedicated line. Any fugitive dusts are captured through a baghouse. The baghouse dust goes through a screw conveyor and into a hopper. The dust is then taken from the hopper to the vaults to be used for treating waste.

Silos S-1 through S-4 receive the stabilizing reagents used for chemical fixation. Each silo is constructed identically with dedicated fill and discharge line and separate baghouses. The blower is connected to the pneumatic trailer fluffing and conveying dust to the silo.

Dust is then fed from the bottom of each silo through a variable speed vane feeder into a screw conveyor feeding the pugmill. Feed rates are varied to obtain proper treatment ratios for different types of wastes. Dust may be fed from one or all silos simultaneously.

Dust silos are equipped with multiple high-level indicators. The first are level indicator lighting on the silos themselves. Secondly when a silo level approaches ³/₄ capacity, a flashing light turns on. An audible alarm will sound when any silo has reached >95% capacity.

Treatment Vaults 701 - 706

Treatment vaults are steel constructed rectangular in shape vaults built within a concrete containment structure. The outer concrete serves as secondary containment and is sloped to a central low point. An inspection pipe located at the low point is designed to detect any free liquids accumulating in the interstitial space and may be used to remove such liquid.

Vaults 701 through 706 receive liquid and solid wastes from the pugmill, auger, bulk tankers and containers. Mixing within the vaults, if required, is accomplished by using an excavator bucket. After treatment waste is removed from the vaults with the excavator and placed into a vessel for transport to the final disposal facility. Post treatment testing as described in Method of Treatment section of the WAP may be performed before wastes are transported to the final disposal facility.

<u>Pugmill</u>

The pugmill receives dusts from silo H-1 as well as stabilization reagents from silos S-1, S-2, and S-3, S-4 and liquids and sludges from non-hazardous waste tank 901 or directly from a bulk tanker discharging into vaults 701 through 706.

The pugmill is a flow through device. Wastes are fed and enter in the pugmill on one end. The waste is mixed by paddles mounted on counter-rotating shafts running the length of the unit. Waste is discharged from the pugmill on the opposite end into a screw conveyor beneath the pugmill mixer. The screw conveyer carries the treated waste to the treatment vaults.

An operator first starts the pugmill then initiates dust feed from the silos followed immediately by liquid feed from non-hazardous waste tank 901. Variable speed adjustments for all feed are present at a control panel adjacent to the pugmill. Feed is adjusted to predetermined levels and processing of waste begins. The treatment operation is shut down in the reverse order described above.

Chemical Precipitation Tanks 201 - 208, 305 and 306

Tanks 201 through 206 are in the main treatment building. Wastes are fed into tanks 201 through 206 directly from tankers, drums, or other processing units (corrosive treatment) to remove heavy metal by chemical precipitation. Supernatant is pumped to holding tanks or pumped to other process tanks. Tank 208 is a sludge thickening/conditioning tank receiving waste from chemical precipitation or corrosive treatment. Sludge is then pumped through the plate and frame filter presses for dewatering then into the filtrate surge tank, Tank 207. Tank 305 is a cylindrical steel, fiberglass lined tank, 306 is a cylindrical fiberglass tank; these tanks are used for hazardous waste treatment.

The effluent is analyzed as necessary with respect to discharge standards. The filter cake is placed into roll-off boxes for disposal or further treatment at a licensed facility.

Corrosive Treatment Tanks 301 - 304

Tanks 301 and 302 are located in the Main Building. These are steel tanks specially lined with corrosive resistant vinyl ester fiberglass lining. Wastes are fed into tanks directly from tankers, containers, or storage tanks. Tanks 303 and 304 are cylindrical polyethylene tanks primarily used to treat and/or store concentrated wastes.

D-1b(iii) Secondary Containment Systems

EQD maintains secondary containment for all tanks utilized in the processing of hazardous and non-hazardous waste. The containment system was engineered for compliance with 40 CFR 264.193 and R299.9615.

Secondary containment is provided for vaults 701 through 706 by an outer concrete structure. The concrete is sloped to a central low point where an inspection pipe is located. The inspection pipe is designed to detect free liquids that have accumulated in the interstitial space and will be utilized to remove any such liquids.

Secondary containment for the 200 and 300 series tanks are epoxy coated and/or Xypex impregnated concrete, either as part of the building structure or separate stand-alone units.

EQD's secondary containment systems are separated into various zones as shown in drawing **Sheets C-14 through C-27**. Secondary containment systems for the double-walled tanks associated with the Chemical Fixation Building are depicted on **Sheet C-25**.

Resistant coatings and/or Xypex (or similar material) impregnated concrete of the Secondary Containment systems are noted in **Sheets C-14 through C-27.** Detailed information on the Xypex and other impervious coatings used are found in **Sheet C-14.**

Liquid collected in the secondary containment is considered contaminated rain or washwater and is transferred to the wastewater treatment plant for treatment prior to discharge to GLWA. Liquid is transferred by tanker truck, vacuum truck or by direct pipeline to the plant. The wastewater pretreatment plant is operated under a GLWA Industrial Wastewater Discharge Permit Number 923-91964-IU.

If a spill has occurred into the secondary containment the accumulated liquid is considered a hazardous waste with a waste type identical to waste present in the leaking tank or spilled material.

Liquids and pumpable solids accumulated in the secondary containment structure shall be removed within 24 hours of detection. Non-pumpable solids shall be removed every 60 days. For high precipitation conditions, where removal cannot be completed within 24 hours, removal of the spilled or leaked waste and accumulated precipitation must begin within 24 hours of detection and continue until all liquid and/or solid is removed and it shall be managed in accordance with the requirements of Part 111 of Act 451 and the rules. {R299.9521(3)(b), R299.9614(1)(a) and 40 CFR, §264.175(b)(5). Structures are inspected daily, and inspection findings noted on the Daily Inspection Log.

D-1c Descriptions of Feed systems, Safety cutoff, Bypass System and Pressure Controls

(R 299.9615(1) and 40 CFR 270.16(c))

The information provided in this section pertains to equipment associated with the transfer of waste into the tank and the venting of vapors from the tank.

D-1c(i) Feed Systems

(R 299.9615(1) and 40 CFR 270.16(c))

Tanks 201 -206, 208, 305, and 306

Overfilling control: Loading and unloading operations are constantly monitored by EQD plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Operator also maintains a written Tank Log of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the tank log is initialed by the operator to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper treatment within the treatment tank, the operator will cease mixing. Also, all tanks are constantly monitored by digital controller and alarms at 90% and 95% full.

<u> Tank 207</u>

Tank 207 is the receiving surge tank for the filter press which pumps directly in effluent holding tanks. Also, all tanks are constantly monitored by digital controller and alarms at 90% and 95% full.

Tanks 301 and 302

Overfilling control: Loading and unloading operations are constantly monitored by EQD plant personnel to ensure against overfilling and the maintenance of adequate freeboard.

The Operator also maintains a written Tank Log of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the tank log is initialed by the operator to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. If the equipment operator observes a condition which does not provide sufficient freeboard to allow proper treatment within the treatment tank, the operator will cease mixing. Also, all tanks are constantly monitored by digital controller and alarms at 90% and 95% full.

Tanks 303 and 304

Overfilling control: Loading and unloading operations are constantly monitored by EQD plant personnel to ensure against overfilling and the maintenance of adequate freeboard. The Operator also maintains a written Tank Log of all materials received to a specific treatment tank and can keep a running total of waste volumes received to each tank. Each entry on the tank log is initialed by the operator to affirm the material was properly received to the identified treatment tank and that no spill or release occurred. The operator will evaluate the freeboard space to ensure it is adequate to allow proper treatment within the treatment tank. Also, all tanks are constantly monitored by digital controller and alarms at 90% and 95% full.

Treatment Vaults 701-706

Overfilling control: Loading and unloading operations are constantly monitored by EQD plant personnel to ensure against overfilling and the maintenance of adequate freeboard. EQD personnel also maintain a written Vault Log of all materials received to a specific treatment vault and can keep a running total of waste volumes received to each vault. Each entry on the vault log is initialed by the EQD personnel to affirm the material was properly received to the identified treatment vault and that no spill or release occurred. If the equipment personnel observe a condition which does not provide sufficient freeboard to allow proper treatment within the treatment vault, the operator will cease mixing.

Dust Silo H-1

The dust storage tanks are equipped with continuous level measuring devices which allows the operator sufficient time to shut down the bulk trailer mounted blower units preventing overfilling. The dust storage tanks are equipped with Griffin Filters Jet Vent dust collectors Model SJV-36-6X for venting and pollution control.

The dust storage tanks are equipped with both continuous level measuring devices and high-high level indicator switches as a secondary overfill protection. The continuous level measuring devices display the actual level of material in the dust storage tank and audible alarms at high and high-high levels. If the high-high level indicator switches are activated, the filling valve will automatically shut preventing the overfilling of the dust storage tank.

D-1c(ii) Safety Cutoff or Bypass System

(R 299.9615(1) and 40 CFR 270.16(c)

Safety Cutoff or Bypass System for EQD Tanks is found in **Table D-1**

D-1c(iii) Pressure Controls

(R 299.9615(1) and 40 CFR 270.16(c)

Pressure Controls information for EQD Tanks is found in Table D-1

D-1d Diagram of Piping, Instrumentation and Process Flow

(R 299.9615(1) and 40 CFR 270.16(c)

Diagrams of EQD tank system piping, instrumentation and process flow with all relevant tank system components are found in **Sheets P-02 through P-05**.

SECTION D-2 TREATMENT PROCEDURES

D-2 TREATMENT PROCEDURES

(R 299.9615(1) and 40 CFR 270.16(b)(2))

EQD treats and stores hazardous and non-hazardous liquids and solids. Refer to the WAP for additional discussion. **Appendix A,** Hazardous Waste Codes, includes the list of all the hazardous waste codes that can be accepted at EQD.

D-2a Waste Treatment Technologies

D-2a(i) Chemical Fixation/Stabilization

EQD treats wastes that require treatment to comply with 40 CFR Part 268, Land Disposal Restriction (LDR) treatment standards, through chemical stabilization using a pozzolanic-type process incorporating cement kiln dust (CKD), lime and other selective reagents and through chemical oxidation using various oxidants. A treatment train (a stepwise progression of treatments using different reagents) is sometimes required to treat the different constituents of concern. These treatment steps may include neutralization, deactivation, chemical oxidation and or chemical reduction. Lime or oxidizing or reducing agents may be used to destroy or convert selected waste constituents into a physical or chemical form that is less soluble, less hazardous and/or more suitable for subsequent stabilization.

Wastes requiring neutralization, deactivation chemical oxidation and/or stabilization are treated in batch operations. Each batch may contain multiple United States Environmental Protection Agency (USEPA) hazardous waste numbers and treatment standards.

D-2a(ii) Chemical Oxidation

Hazardous waste containing organic constituents above the LDR levels are chemically oxidized at EQD. The chemical oxidation process is described below and detailed in **Attachment C-2 of the WAP**. Chemical oxidation is also discussed as one of the Best Demonstrated Available Technologies (BDAT) for managing organic contaminated waste in 40 CFR 268.42 and Appendix VI.

See Attachment C-2 **Section C4.A.2** for a detailed discussion of the EQD Chemical Oxidation treatment.

D-2a(iii) Chemical Reduction

Chemical reduction is a listed BDAT and is included as part of the oxidation step. Refer to Attachment C-2 **Section C4.A.1**.

D-2a(iv) Chemical Precipitation

The wastes that require this treatment are transported in bulk or containerized via tank trucks, rail, or other portable containers. Refer to the Attachment C-2 **C4.A.1** for a detailed discussion of chemical precipitation

D-2a(v) Corrosive Acid/Base Treatment

Refer to the Attachment C-2 **Section C4.A.4** for a detailed discussion of Corrosive Acid/Base Treatment.

D-2a(vi) Deactivation

See Attachment C-2 Section C4.A.3 for a detailed discussion of Deactivation.

D-2a(vii) Oil Treatment Process

Only non-hazardous waste is treated in the Oil Treatment Process.

D-2a(viii) 40 CFR subpart CC

EQD does not treat waste that requires subpart CC controls.

D-2b Treatability Studies

See Attachment C-2 of the WAP **Section C4.B.6** for a detailed discussion of Treatability Studies.

D-2c Mixing, Blending and Commingling of Wastes for Treatment

Refer to Attachment C-2 of the WAP **Section C4.B.5** for a detailed discussion of Mixing, Blending and Commingling of Wastes for Treatment

D-2d Procedures for Ignitable, Reactive and Incompatible Wastes

See **Section A4.B.5** of Attachment C-2 for a detailed discussion of Procedures for Ignitable, Reactive and Incompatible Wastes

D-2e Treatment Methods

Pugmill Treatment

Pugmill mixers are the treatment units used in the EQD process for liquids and high-water content waste slurries and sludges. Liquid sludges and slurried wastes are pumped from the waste storage tanks to the pugmill. Stabilization agents and oxidants are conveyed from the storage silos and storage tanks respectively and fed into the pugmill at the same point as the liquid waste(s). After mixing in the pugmills, the waste is discharged to a stacking conveyor for distribution to the waste holding tanks. Upon completion of treatment of all materials in the treatment tank, the waste is sampled and analyzed to demonstrate and document effective treatment.

The pugmill is used for the treatment of non-hazardous and hazardous waste identified in 40 CFR Part 261, Subparts C and D and included in the WAP. Standard treatment involves mixing the waste with the stabilization agents(s) in a ratio determined by the laboratory.

This is accomplished by setting the pugmill feed rates on the rotary vane feeders at the base of silos S-1, S-2 or S-3 in proportion to the liquid feed rate on the screw conveyor or pump coming from non-hazardous waste tank 901. After treatment in the pugmill

mixer, treatment residues are discharged using conveyors to Vaults 701, 702, 705 and 706.

In-Vault Treatment

Waste streams not treated in the pugmill mixer, due to physical constraints such as particle size, physical state or available space, will be treated in the treatment vaults. The mixing of waste is performed in the treatment vault using the bucket of an excavator. The treatment agents may be added to the vault from the pugmill mixer or placed directly into the vault. The excavator is used to thoroughly mix the materials into a homogeneous mass. Following stabilization, the treated waste solidifies. The effectiveness of treatment is confirmed through post-treatment analysis of the residue as described in the WAP **Section A.2.D.3**.

In-Tank Treatment

Chemical precipitation treatment tanks are used for the treatment of non-hazardous and hazardous waste identified in 40 CFR Part 261, Subparts C and D and the WAP. Standard treatment involves mixing the wastes with lime and precipitating agents to effectively separate the reacted cations/anions.

Filtrate from dewatering is transferred to a storage tank for further processing using chemical precipitation; or is discharged if the wastewater meets wastewater discharge standards.

Corrosives are segregated and treated separately in dedicated tanks, containers or vaults especially designed for corrosive wastes.

Oil bearing wastewaters are heated by steam for de-emulsification. If necessary, acid may be added to enhance the oil-water separation. Treated oil is stored in a tank prior to off-site transport. Wastewater generated through this process is transferred to a chemical precipitation tank for additional treatment.

Sludge generated during these processes is pumped to sludge conditioning tanks for processing which may include addition of conditioning reagents; or may be solidified by chemical stabilization. Subsequent treatment involves dewatering the sludge.

D-2f Waste Specific Treatment

The waste treatment processes used by EQD, described in **Section D-2e** above and in Attachment C4 of the WAP are effective for a broad range of wastes containing inorganic and organic constituents. The treatment operations may combine several wastes or shipments from various generators to facilitate operational efficiency and utilization of available processing capacity. Batch treatment of multiple wastes and/or shipments will be based on chemical compatibility, USEPA hazardous waste code numbers and treatment requirements.

A general treatment process logic for EQD regarding target constituents, typical waste codes, "treatment trains" and post-treatment parameters is provided in the WAP. Descriptions of the treatment technologies utilized for various applicable waste types and basic operating parameters and principles are present in **Section A.2.D.1** and **Table D.1** of the WAP.

D-2f(i) Characteristic Waste

Refer to WAP Section A.2.D.2(a) "Characteristic Waste" LDR

D-2f(ii)) Listed Wastes

Refer to WAP Section A.2.D.2(b) "Listed Waste" LDR

D-2f(iii) Hazardous Debris

See Section A.2.D.2(e) of the WAP "Hazardous Debris" LDR

D-2f(iv) Post Treatment Analysis

See WAP Section A.2.D.3 for a description of the Post Treatment Analysis.

D-2f(v) Treatment Residue Disposal

Refer to Section A.2.D.2 of the WAP

D-2g Existing Corrosion Protection Measures

(R 299.9615(1) and 40 CFR 264.191(b)(3))

All metal components of tank systems are located above grade or are isolated from contact with soil or groundwater, a corrosion assessment by a corrosion expert is not required to determine the corrosion potential of the soil environment surrounding the system.

D-2h Documented Age of Tank Systems

(R 299.9615(1) and 40 CFR 264.191(b)(4))

The documented age of EQD tank systems is found in Table D-1

D-2i Leak Tests, Inspections and Other Examinations

(R 299.9615(1) and 40 CFR 264.191(b)(5)(i))

EQD facility hazardous waste tanks/vaults will be inspected daily and an inspection log will be maintained. Daily inspections include inspection of aboveground portions of tanks for corrosion or release of wastes, leak detection equipment or ports and secondary containment systems. Tank/vault assessment certification is found in **Appendix D-1**.

D-1m(i) Non-enterable Underground Tanks

(R 299.9615(1) and 40 CFR 264.191(b)(5)(i))

There are no underground tanks at the EQD facility

D-1m(ii) Other than Non-enterable Underground Tanks and for Ancillary Equipment

(R 299.9615(1) and 40 CFR 264.191(b)(5)(ii))

There are no underground tanks at the EQD facility

D-2j Ancillary Equipment Assessment

(R 299.9615(1) and 40 CFR 264.191(b)(5)(ii))

All piping and ancillary equipment at EQD has secondary containment.

D-2k Leaking or Unfit-for-Use Tank Systems

(R 299.9615(1) and 40 CFR 264.191(b)(5)(ii))

EQD has no leaking or unfit for use tank systems.

D-21 Tank Labels

(R 299.9615(5))

All tanks at EQD have been labeled in accordance with the provisions of National Fire Protection Association (NFPA) Standard No. 704

PART D-3 CONTAINER STORAGE

R 299.9614, R 299.4101 TO R 299.4505 AND 40 CFR 270.14(d), 270.15, and Part 264 Subpart I

D-3 Use and Management of Containers

D-3a Description of Containers

(R 299.9614 and 40 CFR 264.171 which is ABR in 299.11103)

EQD has eight distinct areas for containerized storage with a total capacity for all eight areas of 407,050 gallons that can be stored on site. An additional 207,000 gallons of storage in allotted in Rail Capacity, with an overall total capacity of 614,050 gallons. **Table D-2** provides detail on the capacity of the storage area in gallons. The table also includes references to the applicable facility drawings for each of the storage areas.

D-3b Condition of Containers

(R 299.9614 and 40 CFR 264.171 which is ABR in R 299.11103)

Containers are visually inspected each operating day to ensure that they are in good condition and not leaking. Containers may not be placed or stored in standing water.

D-3c Compatibility of Waste with Containers

(R 299.9614 and 40 CFR 264.172 which is ABR in R 299.11103)

Before containerized waste is placed in a storage area, a determination of the compatibility of the waste with the container material of construction will be made. The evaluation is based upon vendor/engineering data, materials of construction and knowledge of the waste and its characteristics. If the data is not known or available, compatibility testing will be performed prior to storage.

D-3d Management of Containers

(R 299.9614 and 40 CFR 264.173 which is ABR in R 299.11103)

D-3d(i) Staging and Acceptance of Containerized Waste

Trucks transporting containerized waste entering the facility are checked to ensure that they have arrived at the correct facility, the manifest has been completed in a compliant manner, and that all manifests have an active approval number. The driver is directed to the staging area located within the containment structure of the North Containment Area (parking lot adjacent to Waste Acceptance).

Upon review and acceptance of all load paperwork, the driver is routed back to the drum warehouse for off-loading. Containers are off-loaded using fork-trucks or other container handling equipment. Containers are visually inspected to ensure that they are in good condition and not leaking and placed in rows within the staging area. These staging area rows are approximately 4-feet wide and separated by approximately 2-foot-wide aisle spaces. Each container is matched to the appropriate line item of the manifest to verify piece count. Each container is bar-coded with a unique inventory tracking number. This bar-code also identifies the applicable waste codes assigned to that container, date of receipt, manifest number and other EQD specific operating information. Each container

is visually checked and/or sampled per **Section C**, the Waste Analysis Plan (WAP). Each sample jar is labeled with the same unique inventory bar-code as the sampled container.

The sample and the completed operation paperwork are turned into the laboratory for review and acceptance testing. The analysis required for acceptance of the waste is performed and the waste is either deemed acceptable or rejected in accordance with the procedures and criteria specified in the WAP.

Off-specification material and rejected loads are managed following the procedures specified in Part 111. Rejected containers may be loaded back onto the waiting truck or other transportation arrangements are made. The driver is provided with the appropriate documents and allowed to leave the facility.

If wastes are acceptable, Operations assigns a treatment or storage designation. After vehicles have been unloaded, drivers are directed to the Waste Acceptance building. Drivers return the completed facility documents to the trained personnel. Manifest information is completed using the computer system. Electronic manifests are completed and returned electronically to the generator. Hard-copy manifests are signed, dated, and drivers are given the Transporter copy.

D-3d(ii) Storage of Containerized Wastes

Containers are moved from the staging area and placed in rows in one of the storage areas. The storage units are constructed of materials that are compatible with the wastes to be managed within them. Stored containerized wastes are segregated with respect to the DOT segregation requirements.

The rows are maintained with aisle space sufficient to meet the requirements of 40 CFR 264.35. Containers are placed into the storage area on pallets or directly onto the concrete slab using a fork-truck or other container/drum handling equipment.

The container storage building(s) and trench(s) and containment areas are inspected at least once per operating day. Containers are stored in a manner that will contain potential leaks/spills within the containment area. Accumulated liquids observed in the containment structure are removed within 24 hours, or in as timely a manner as is possible to prevent harm to human health and the environment. Liquids may be removed by vacuum truck or suitable pumps. Removed liquids are managed through the wastewater plant.

Containers less than 55 gallons that are attached to a pallet can be double stacked. Containers 55-gallon or greater may be double stacked.

Container Staging Area (Receiving Area)

The Container Staging Area (Receiving Area) (**Sheet C-26**) is located northeast of the Main Treatment Building. The Area is designed to hold 54,340 gallons of liquid waste in containers of varying capacity. Once containers are accepted by the facility, they are generally moved to either the Container Storage Area (Drum Warehouse), the Corrosive Container Pad (Acid Room), or other container storage buildings appropriate for the waste.

Container Storage Area (Drum Warehouse)

The Container Storage Area (Drum Warehouse) is located northeast of the Main Treatment Building and is enclosed. It is designed to hold a maximum of 100,430 gallons of containerized waste in containers of varying capacity. The waste is stored in rows running east and west approximately 4-feet-wide separated by approximately 2-foot-wide aisles. Drums are placed in the North Container Storage Pad (North Pad) on pallets or directly onto the coated concrete slab using a fork-truck or other container/drum handling equipment. The Container Storage Area is covered to minimize precipitation into the work area. Containers are stored in a manner that will contain potential leaks/spills within the curbed area. The Container Storage Area is divided into three separate areas that drain to isolated sumps. Incompatible wastes stored in the North Pad are segregated from other waste as shown on **Sheet R-06** to minimize the potential for fire, explosion or other adverse reaction.

North Container Storage Pad (North Pad)

The North Pad is located along the north side of the Chemical Fixation Building. This storage area (**Sheet C-22**) is designed to hold a maximum of 80,800 gallons of containerized waste. Container types and sizes will vary; EQD will maintain containerized storage volumes at or below the 80,800-gallon volume. Drums are placed on the North Pad on pallets or directly on the coated concrete slab using a fork-truck or other container/drum handling equipment. Portable waste containers are stored on pallets. The waste is stored in rows approximately 4-feet wide separated by approximately 2-footwide aisles. Containers are stored in a manner that will contain potential leaks/spills within the curbed area. Only compatible waste types are stored on the North Pad.

Corrosive Container Pad (Acid Room)

The Corrosive Container Pad (Acid Room) lies directly northwest of the Administrative Building, and is enclosed. The area is designed to hold a maximum of 6,600 gallons of containerized waste. The waste is stored in rows running east to west in row approximately 4-foot wide separated by approximately 2-foot aisles. Containers are stored in a manner that will contain potential leaks or spills within the curbed area as shown on **Sheet C-24**.

Generally only acid, caustic and chrome wastes are stored in containers in the Corrosive Container Pad. Although other waste may be occasionally stored in this area, no incompatible waste is stored in this area.

Containers are placed into the storage area on pallets or directly onto the concrete slab using a fork-lift or other container/drum handling equipment. The area is completely covered which prevents precipitation from entering.

Chemical Precipitation Container Pad (Chem Pre)

The Chem Pre is located in the northwest area of the Main Treatment Building as shown in **Sheet C-24** and stores 6,600 gallons of containerized waste, in containers of varying capacity. Incompatible wastes are not stored contemporaneously in this storage area.

Chemical Fixation Building (Chem Fix)

Chem Fix stores a maximum of 130,120 gallons of containerized waste; container size and volume will vary. Drums are placed into the storage area (**Sheet C-25**) on pallets or directly onto the concrete slab using a fork-lift or other container/drum handling equipment. The area is completely covered which prevents precipitation from entering.

Incompatible wastes are not stored together in this area.

DePack Area

The DePack Area is located northeast of the Chemical Fixation Building. The DePack Area can store a maximum of 160 containers, double stacked, or 8,800 gallons of waste as described in **Sheet C-27**.

Drums are placed into the storage area on pallets or directly onto the concrete slab using a fork-lift or other container/drum handling equipment. The area is completely covered which prevents precipitation from entering.

Incompatible wastes are not stored together in this area.

DePack Drum Storage Pad

The DePack Drum Storage Pad is located west of the DePack Area. It is at the South end of the Transportation & Storage (or 10-day) pad. The DePack Area can store a maximum of 352 containers, double stacked, or 19,360 gallons of waste.

Drums are placed into the storage area on pallets or directly onto the concrete slab using a fork-lift or other container/drum handling equipment.

Incompatible wastes are not stored together in this area.

Rail Area

Railcars received at the facility are located on the west side of the facility. This area can store approximately nine railcars or 207,000 gallons of waste. The largest volume that could be accepted in a railcar is 26,000 gallons.

Incompatible wastes are not stored together in this area.

D-3d(iii) Removing Waste from Containers

Removing Liquid Waste from Containers Using a Vacuum Truck or Pump

A pump or vacuum truck may be used to remove liquids from containers. The vacuum truck or pump is staged next to or within the Container storage building and the container is tipped to allow complete removal of the liquid. The bung (or the entire container lid if a bung is not present) is removed from each container in a row. The operator inserts the wand into the liquid waste and transfers the liquid to the waste tank. As each container is emptied, the operator moves to the next container of the same waste stream, or compatible waste type and continues until the specified containers have been emptied. At no time are open drums containing waste left unattended. If the operator must leave for any reason, the tops or bungs will be replaced on the containers that have not been emptied.

Removing Waste from Containers Using a Fork-Lift Truck

If a vacuum truck or pump is not used, a fork-lift truck is used to pick up the container(s) and transport them to the appropriate waste storage/treatment tank. The operator removes the bung or the entire lid or top of the container and the drum grappler inverts the drum over the sludge receiving tank or vault, decanting the contents. After the operator empties the contents of the container, the container is placed in the tank for treatment/disposal or, when possible, it is reused/recycled.

Removing Waste from Large Containers

Large containers such as roll-off boxes or dump trailers are emptied while still attached to the transport vehicle. To empty the tailgate of the roll-off boxes or dump trailer, it is opened and the unit is then raised to allow the waste to slide out into the treatment vault.

Transfer from Container to Container

EQD will accept waste that may not be treated at EQD but transferred to another permitted off-site treatment and/or disposal facility. The transfer of waste may be shipped in its original container or transferred from one container to another for ease of shipment or compliance with Department of Transportation (DOT) regulations.

D-3d(iv) Disposal of Empty Containers

Once a container has been emptied, the container will be visually inspected to ensure it is RCRA empty. Small containers such as drums, pails etc. are crushed or shredded prior to disposal.

Larger containers such as roll-offs or dump trailers are also inspected to ensure they are RCRA empty. Any remaining waste residue will be removed by scraping, rinsing, and/or power washing until the container is RCRA empty. Non-RCRA empty bulk containers (roll-off and dump trailers) whose waste residue cannot be removed by practical means can only be released when the necessary corrections to the manifest volume have been changed and noted in the appropriate section.

D-3d(v) Containerized Waste Bulking/Consolidation

EQD receives waste in a variety of container sizes, for example small glass or plastic bottles, pails, drums, totes, boxes, cubic yard sacks, or other. EQD may elect to consolidate these containers to manage these wastes more efficiently for further processing or preparation for shipment to a permitted off-site treatment/disposal facility.

Bulking/Consolidation may include the transfer of the smaller containers (e.g. one-gallon jugs) into larger containers such as drums or totes. Drums may be pumped using a vacuum truck/tanker. Solid waste like cubic yard sacks may be dumped directly into a roll-off/dump trailer for processing or shipment to an off-site treatment/disposal facility.

Bulked and consolidated containerized wastes are subject to the same compatibility and waste code evaluation as applied to wastes that are mixed into treatment tanks as defined in the WAP.

Bulking and consolidation of waste can only occur once the combining wastes have been properly sampled and tested for compatibility prior to mixing. Containers of waste that are the same or similar in nature, process or characteristics (e.g. same Approval Number) will first be composited using the sampling methodology outlined in **Section A.2.C.2(b)** of the WAP and monitored for any adverse reaction (e.g. uncontrolled splashing, foaming or others signs of violent reactions denoting incompatibility) during the composite sampling.

D-3e Inspections

(R 299.9614 and 40 CFR 264.174 which is ABR in R 299.11103)

Drums, roll-off containers, and any other containers will be inspected daily on operating days for leaks, signs of corrosion, pitting, deterioration, or bulging; as well as a check to ensure each container is securely closed. Also ensure rows are approximately 4-foot wide separated by approximately 2-foot aisles between containers to allow for a thorough inspection of each container in storage. During these inspections, each container aisle will be visually observed and inspected. The secondary containment system consisting of floor surfaces, containment berms and containment sumps which will be visually inspected for evidence of spills or leaks of hazardous waste and for structural defects (cracks, erosion, pitting, etc.)

The results of each inspection will be entered onto a form as equivalent to **Figure O-1** and any required actions will be performed. Potential types of problems that may be encountered in the container storage building are provided on the inspection form to help ensure a thorough inspection. Each entry shall include the date and time of the inspection, the name of the Inspector, ad description of the equipment or structures being inspected, a notation of the observations made, and an indication as to whether a Corrective Action Plan should be initiated. A revised or improved version of an Inspection Report form may be implemented upon proper administrative change notification to Michigan Environmental Great Lakes and Energy (EGLE) Waste Management Division. Each inspection record will be kept on file in an Inspection Log for a minimum of three years from the date of the inspection.

D-3f Containment

(R 299.9614 and 40 CFR 264.175 which is ABR in R 299.11103 and 40 CFR 270.15)

D-3f(i) Secondary Containment System Design and Operation for Containers with Free Liquids

(R299.9614 and 40 CFR 264.175(a), which is ABR in R 299.11003 and 40 CFR 270.15(a), which is ABR in R 299.9504(2))

DePack Drum Storage Pad

The LabPack Drum Storage Area is located outside and south of the Transfer & Processing (T&P) Area. This drum storage area is designed to store 19,360 gallons of containerized waste. The containment area is sloped to a blind sump. This area is impregnated with Xypex; manufacturer data is provided in **Appendix D-2**.

Rail Area

Railcars received at the facility are located on the west side of the facility. This area can store approximately nine railcars or 207,000 gallons. The largest railcar that can be accepted would be 26,000 gallons. The soils directly under the rail tracks were excavated and the excavation lined with an 80-mil polyvinylchloride (PVC) liner, backfilled with stone ballast and a series of metal collection pans installed to capture any leakage.

The collection pans are sloped to cross drains, which slope to collection under-drain system which then drain into the lined spill containment structure. The secondary containment for this area is shown in **Sheet C-20**.

Container Storage Area (Drum Warehouse)

The Container storage building is located north of the Main Treatment Building and is enclosed. The Container storage building is designed to hold a maximum 1,826 fifty-five-gallon drums or 100,430 gallons of containerized waste. The Container storage building is covered to minimize precipitation into the work area. Containers are stored in a manner that will contain potential leaks/spills within the curbed area. The Container storage building is divided into three separate areas that drain to isolated sumps as depicted in **Sheet C-26**.

Container Staging Area (Receiving Area)

The Container staging building is designed to hold 988 fifty-five-gallon drums or 54,340 gallons of containerized waste. Containers are stored in a manner that will control potential spills/leaks within the storage/staging area. Accumulated liquids collected in the trench containment structure are removed as required by the rule. The secondary containment for this area is shown in **Sheet C-26**.

Corrosive Container Pad (Acid Room)

The Corrosive Container Pad lies directly west of the administrative building and is enclosed. The area is designed to hold a maximum of 6,600 gallons of containerized waste. The area is completely covered which prevents precipitation from entering the container storage building. The Pad is sloped towards trenches which serve as a collection point for liquid in the event of spills or leaks in the storage area as shown in **Sheet C-24.** Containers are stored in a manner that will contain potential leaks/spills within the curbed area.

Chemical Precipitation Container Pad (Chem Pre)

The Chemical Precipitation Container Pad is in the Main Treatment Building and stores 6,600 gallons of containerized liquid waste. The area is completely covered which prevents precipitation from entering the storage area. Surface in this area is sloped to drains as shown in **Sheet C-24**. Containers are stored in a manner that will contain potential leaks/spills within the curbed area.

North Container Storage Pad (North Pad)

The NCSD is located north of the Chemical Fixation Building. This drum storage area is designed to store 80,800 gallons of containerized waste. The containment area is sloped to a blind sump, containment system design is shown in **Sheet C-22**.

Chemical Fixation Building (Chem Fix)

The Chemical Fixation Container Storage Building is located inside the Chemical Fixation Building and is designed to hold up to 130,120 gallons of containerized waste. The Secondary Containment System Design is shown on **Sheet C-25**.

DePack Area

The DePack Area is within a totally enclosed building at the Northeast corner of the site. The drum storage area is designed to store 8,800 gallons of containerized waste. The containment design for this area is shown on **Sheet C-27**. The DePack Area is lined with epoxy which is shown on **Sheet C-27**; manufacturer data is provided in **Appendix D-2**.

D-3f(ii) Requirement for Base or Liner

(R299.9614 and 40 CFR 264.175(b), which is ABR in R 299.11003 and 40 CFR 270.15(a)(1) which is ABR in R 299.9504(2))

DePack Drum Storage Pad

The LabPack Drum Storage Area is located outside and south of the Transfer & Processing (T&P) Area. This drum storage area is designed to store 19,360 gallons of containerized waste. The containment area is sloped to a blind sump. This area is impregnated with Xypex; manufacturer data is provided in **Appendix D-2**.

Rail Area

The railroad car spur was designed and installed to provide secondary containment for possible leaks that may occur during the rail cars loading/unloading process. The soils directly under the rail tracks were excavated and the excavation lined with an 80-mil polyvinylchloride (PVC) liner, backfilled with stone ballast and a series of metal collection pans installed to capture any leakage. **Sheet C-20** illustrates secondary containment in the Rail Container Storage Area.

Container Storage Area (Drum Warehouse)

Epoxy Coating of Secondary Containment systems for the Container storage buildings are found in **Sheet C-26**; manufacturer data for coatings is included in **Appendix D-2**.

Container Staging Area (Receiving Area)

Epoxy coating of Secondary Containment systems for the Container staging building are as noted in **Sheet C-26** and manufacturer data are provided in **Appendix D-2**.

Corrosive Container Pad (Acid Room)

The Corrosive Container Pad containment area dimensions are 56' in length x 36.6' in width and .63' high. The concrete in this area is lined with an epoxy coating, which is shown on **Sheet C-24**; manufacturer data is provided in **Appendix D-2**.

Chemical Precipitation Container Pad (Chem Pre)

The secondary containment of the Chemical Precipitation Container Pad Secondary Containment system is lined with epoxy which is shown on **Sheet C-24.** Manufacturer data for the epoxy coatings is found in **Appendix D-2.**

North Container Storage Pad (North Pad)

The NCSP concrete containment is impregnated with Xypex in the areas shown in **Sheet C-22.** Manufacturer data for Xypex is found in **Appendix D-2.**

DePack Area

The DePack Area is lined with epoxy which is shown on **Sheet C-27**; manufacturer data is provided in **Appendix D-2**.

D-3f(iii) Containment System Drainage

(R299.9614 and 40 CFR 264.175(a), which is ABR in R 299.11003 and 40 CFR 270.15(a) which is ABR in R 299.9504(2))

The Container Staging Area is constructed of lined concrete which slopes towards an area trench. Accumulated liquids collected in this area drain to the trench containment structure. The Container Storage Area is divided into three separate areas that drain to isolated sumps as depicted in **Sheet C-26**. The North Container Storage Pad drains to a blind sump which is pumped to remove accumulated liquids. All drainage in the Chemical Precipitation Container Pad is sloped to floor area drains as shown in **Sheet C-24**. Corrosive Container Pad is sloped towards trenches which serve as a collection point for liquid in the event of spills or leaks in the storage area as shown in **Sheet C-24**. Chemical Fixation Building drainage is shown in **Sheet C-25**. DePack Area drainage is through the center floor (**Sheet C-27**). Drainage for the Rail Car Container storage building is found in **Sheet C-20**.

D-3f(iv) Containment System Capacity

(R299.9614 and 40 CFR 264.175(b)(3), which is ABR in R 299.11003 and 40 CFR 270.15(a)(3) which is ABR in R 299.9504(2))

The containment capacity in the Container Staging Area is 19,591 gallons. The total capacity of the Container Storage Area containment is 3,231 gallons. The total volume of containment for the Corrosive Container Pad is 6,709 gallons. All drainage for the Chemical Precipitation Container Pad is sloped to the floor area drains; total containment volume for this storage area is 19,187 gallons. Chemical Fixation Building has a containment capacity of 35,000 gallons. The Rail Area is designed to contain 11,631 gallons. North Container Storage Pad contains 43,042 gallons, the DePack Area containment volume is 3,332 gallons, and the DePack Drum Storage Pad containment volume is 10,503 gallons.

D-3f(v) Control of Run-on

(R299.9614 and 40 CFR 264.175(b)(4), which is ABR in R 299.11003 and 40 CFR 270.15(a)(4) which is ABR in R 299.9504(2))

Run-on for most of the liquid container storage buildings is controlled by enclosure inside a building or enclosed storage structure. The storage areas which are located outside and exposed to run-off are inspected daily and pumped out as necessary.

D-3f(vi) Removal of Liquids from Containment System

(R299.9614 and 40 CFR 264.175(b)(5), which is ABR in R 299.11003 and 40 CFR 270.15(a)(5) which is ABR in R 299.9504(2))

If liquids are observed to have accumulated in any the containment areas, the accumulated liquids will be removed as soon as possible to preclude any possibility of overflow. The presence of accumulated precipitation in containment areas will be pumped out of sumps or other collection areas. Liquids may be removed by a vacuum truck or by pumping to the vertical tanks. Removed liquids are managed either through the waste treatment plant, through the on-site wastewater pre-treatment plant or off-site.

D-3g Secondary Containment System Design and Operation for Containers with No Free Liquids

(R 299.9614 and 40 CFR 264.175, which is ABR in R 299.11003 and 40 CFR 270.15(b)(1) which is ABR in R 299.9504(2))

The Chemical Fixation Building and the North Container Storage Pad can store twenty cubic yard portable containers with no free liquids. The Chemical Fixation Building can accommodate up to 37 of the twenty cubic yard containers; the North Container Storage Pad can store no more than 20 twenty cubic yard portable containers. The rail container storage building located inside on west end of the Chemical Fixation Building can accommodate up to nine Rail Cars. The Secondary Containment for these three containerized storage areas is identical to that described in Section D-3f above.

D-3g(i) Containment System Drainage

(R 299.9614 and 40 CFR 264.175, which is ABR in R 299.11003 and 40 CFR 270.15(b)(2) which is ABR in R 299.9504(2))

The Secondary Containment for Containers with No Free Liquids is described in section D-3f above.

D-3g(ii) Container Management

(R 299.9614 and 40 CFR 264.175, which is ABR in R 299.11003 and 40 CFR 270.15(b)(2) which is ABR in R 299.9504(2))

The portable containers with no Free Liquids stored within the Chemical Fixation Building and the North Container Storage Pad are placed on pallets to elevate the container above any accumulated liquid. The Chemical Fixation Building is contained within the building and would not accumulate precipitation or run-on. The containment area for the North Container Storage Pad is sloped to drain accumulated liquid away from containerized waste stored on the pad.

D-3h Special Requirements for Ignitable or Reactive Waste

(R 299.9614 and 40 CFR 264.176, which is ABR in R 299.11003 and 40 CFR 270.15(b)(2) which is ABR in R 299.9504(2))

Precautions taken in the container storage buildings to prevent accidental fire and explosion include the proper storage of containers (e.g. stacking, aisle space, and labeling and sealing of containers), the design of the containment areas with sumps to collect any spilled materials, and the posting of appropriate warning signs. In addition, fire-suppression systems have been installed in the Chemical Fixation Building, Bulking Area; Container Storage, Container Staging and the LabPack/DePack storage area. Fire-control and spill-control equipment is available in all storage areas. Enclosed storage areas are protected by an overhead sprinkler system.

A minimum of 10-12 feet is maintained in the center aisle of the Container Storage Area to allow access for a forklift without risk of damaging containers by scraping or puncturing. Buildings used to store ignitable waste are located at least 50 feet from the closest property line.

Combustible and flammable wastes received in containers will be staged and stored in an area with similar compatible materials. Containers will remain closed during storage.

Waste Acceptance personnel will identify ignitable, reactive, and incompatible waste using EQD computer files. These files contain waste-specific information, identify incompatible waste and other special precautions to be taken with respect to the storage of the waste. Waste Acceptance staff also conduct a screening analysis on each incoming waste shipment that includes analysis for ignitability, reactivity, and incompatibility with other wastes. Waste Acceptance will provide this information to the Container Storage Area operator. The Container Storage Area operator will review this information as well as the information contained in the manifest and information noted on the container to identify containers holding ignitable, reactive, or incompatible waste. Based on this information, the operator segregates the containerized wastes into designated storage areas that are separated from other storage areas by flooring sloped to segregated sumps. The following precautions are taken to protect the containerized waste from sources of ignition or reaction:

- 1. Vehicles: all vehicles will be shutoff in the event of a release of an ignitable waste in the area.
- 2. Open Flame: there is no source of open flames in the Container Storage Area.
- 3. Smoking: Smoking is not permitted in the container storage buildings. "**No Smoking**" signs are conspicuously placed in the Container Storage Area.
- 4. Cutting and Welding: Prior to cutting or welding, a Hot Work Permit must be issued by EQ Management. Such permit will specify that all ignitable waste must be removed from the area.
- 5. Hot Surfaces: There are no hot surfaces in the Container Storage Area.
- 6. Frictional Heat: there is no frictional heat generated in the container storage buildings.

- 7. Sparks (static, electrical or mechanical): There is no source of electrical or mechanical sparks in the Container Storage Area. Containers of ignitable waste will be grounded when transferring waste into a process or other tank.
- 8. Radiant Heat: There is no source of radiant heat in the Container Storage Area.

D-3i Special Requirements for Incompatible Wastes

(R 299.9614 and 40 CFR 264.175(c)(4), which is ABR in R 299.11003 and 40 CFR 270.15(b)(2) which is ABR in R 299.9504(2))

Facility management evaluates the compatibility of the waste with the storage unit materials of construction and with the wastes already stored in the storage areas. The evaluation is based upon vendor or engineering data, materials of construction and knowledge of the waste and its characteristics from the Generator Waste Profile Form. Stored containerized wastes are segregated with respect to ignitability, corrosivity, reactivity, and compatibility as described in **Table C-1**.

D-3j Closure

(R 299.9614 and 40 CFR 264.178, which is ABR in R 299.11003)

At closure, all hazardous waste and hazardous waste residues will be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues must be decontaminated or removed.

The specific closure procedure for the Container Storage/Staging Areas is found in **Section I** of this Permit Application.

D-4 Engineering Plans and Specifications

Engineering drawings as listed below are found in the Drawings Tab of this application

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A-02	Survey Property Description	
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	Building	

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C-02	Chemical Fixation Building	Silo & APC Area Foundation Plan
C-03	Chemical Fixation Building	Restroom/Mechanical Fire Room Area Foundation/Framing Plan & Detail
C-04	T&P Building	Foundation Plan
C-05	Chemical Fixation Building	Foundation Details & Sections
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C-10	Miscellaneous Pavement Details	
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C-15	Storage Containment	Site Exterior Storage Containment
C-16	Storage Containment	Building Interior Storage Containment Containment
C-17	Storage Containment	WWT Oil Processing Storage Containment
C-18	Storage Containment	WWT Unloading Pad Storage Containment
C-19	Storage Containment	-Chemical Fixation South Exterior Storage Containment
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M-15	WWT Main Treatment	Hazardous Treatment Tanks T-306
M-16	Chemical Fixation Building	Fire Protection System - Dry Sprinkler System
M-17	Chemical Fixation Building	Fire Protection System - Container Storage
M-18	Chemical Fixation Building	Fire Protection System - Container Staging
M-19	Chemical Fixation Building	Fire Protection System - Bulking
M-20	Chemical Fixation Building	Fire Protection System - Treatment Tanks
M-21	Chemical Fixation Building	Fire Protection System - Fire Equipment Room Wet System
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Section E: Environmental Monitoring Program See Environmental Monitoring Program

SECTION F

PROCEDURES TO PREVENT HAZARDS

R 299.9504, R 299.9508 and 299.9606 and 40 CFR, Part 264.30 through 264.37 and 270.14(b)

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TABLES

Table F-1: Minimizing Potential Hazards

GENERAL INFORMATION: PREPAREDNESS AND PREVENTION

The Administrative Rules for Part 111, Hazardous Waste Management, of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, R 299.9504, R 299.9508 and 299.9606 and 40 CFR, Part 264.30 through 264.37, establish requirements for preparedness for and prevention of releases of hazardous wastes or constituents at hazardous waste management facilities.

This section addresses requirements for preparedness and prevention of releases of hazardous wastes or constituents from EQ Detroit, Inc. (EQD) in Detroit, MI.

F-1 Required Equipment

(R 299.9606 and 40 CFR 264.32)

EQD Facility has been designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste constituents to air, soil or surface water which could threaten human health or the environment. For each area on-site where hazardous waste is managed, the potential hazards have been identified, then minimized or controlled as shown in **Table F-1.** The actions to be taken in case of an emergency, regardless of cause (vehicle malfunction, airplane crash, tornado, etc.) are outlined in **Section G** the Contingency Plan.

F-1a Internal Communication System

(R299.9606 and 40 CFR 262.32(a))

EQD internal communications via two-way radio, cell phone, phone system, intercom system and manual fire/emergency evacuation alarm systems can provide immediate emergency instruction to all facility personnel.

F-1b Emergency Response Communication System

(R299.9606 and 40 CFR 262.32(b))

EQD telephone system is capable of summoning emergency assistance from local police departments, fire departments, or state and local emergency response teams.

F-1c Fire, Spill and Decontamination Equipment

(R299.9606 and 40 CFR 262.32(c))

EQD emergency equipment includes spill control equipment and decontamination equipment, portable fire extinguishers, fire control equipment (including special extinguishing equipment such as foam, or dry chemicals, etc.) and basic extinguishing supplies such as sand. The location of this equipment at the EQD facility is shown on **Sheets R-01 and R-03**.

F-1d Fire Suppression Systems

EQD fire suppression systems are shown on drawing Sheets M-16 through M-25.

F-1d(i) Chemical Fixation Building (Chem Fix) Dry Sprinkler System

The Chemical Fixation Building has a dry sprinkler system designed for a 0.20 gpm/ft² density for the most hydraulically remote 3,900 square feet. The system utilizes two risers that operate independently. System activation occurs when high heat causes a sprinkler head link to fail and release the compressed air within the sprinkler system. The loss of air pressure allows water to flow into the sprinkler system. A drop in water pressure will activate a 1000 gpm fire pump to ensure adequate water pressure. The UL, LLC© (UL) listed fire alarm panel will shut down the Chemical Fixation Air Pollution Control System. The sprinkler system can also be manually activated at the riser assemblies located in the Fire Equipment Room. The sprinkler system meets applicable NFPA requirements for valve position and flow monitoring. The entire system is supervised by a UL listed fire alarm panel that can be remotely viewed from the Security office. The fire alarm panel notifies locally by audio/visual signals and remotely to a central alarm monitoring station. The fire alarm panel has battery back-up for continuous coverage during power outages.

F-1d(ii) Container Storage Area (Drum Warehouse) AFFF Sprinkler System

The North Container Storage Area has an Aqueous Film Forming Foam (AFFF) sprinkler system designed for a 0.30 gpm/sq. ft. density for the most hydraulically remote 3,000 square feet. System activation is by a linear heat sensing cable mounted on the sprinkler system piping. Upon high heat, a solenoid valve releases the foam agent into the sprinkler system to flow to the sprinklers that have been activated. A drop in water pressure will activate a 1000 gpm fire pump to ensure adequate water pressure. The sprinkler system meets all current NFPA requirements for valve position and flow monitoring. It also uses compressed air in the sprinkler system to monitor for piping or sprinkler head damage. The entire system is supervised by a UL listed fire alarm panel that can be remotely viewed from the Security office. The fire alarm panel notifies locally by audio/visual signals and remotely to a central alarm monitoring station. The fire alarm panel has battery back-up for continuous coverage during power outages.

F-1d(iii) Container Staging Area (Receiving Area) AFFF Sprinkler System

The North Container Staging Area has an AFFF sprinkler system designed for a 0.30 gpm/sq. ft. density for the most hydraulically remote 3,000 square feet. System activation is by a linear heat sensing cable mounted on the sprinkler system piping. Upon high heat, a solenoid valve releases the foam agent into the sprinkler system to flow to the sprinklers that have been activated. A drop in water pressure will activate a 1000 gpm fire pump to ensure adequate water pressure. The sprinkler system can also be manually activated at the UL listed fire alarm panel. The sprinkler system meets all current NFPA requirements for valve position and flow monitoring. It also uses compressed air in the sprinkler system to monitor for piping or sprinkler head damage. The entire system is supervised by a UL listed fire alarm panel that can be remotely viewed from the Security office. The fire alarm panel notifies locally by audio/visual signals and remotely to a

central alarm monitoring station. The fire alarm panel has battery back-up for continuous coverage during power outages.

F-1d(iv) Bulking Area AFFF Deluge System

The Bulking Area has an AFFF deluge system designed for a 0.30 gpm/ft² density. System activation is by manual activation of one of two pull stations. One pull station is located near the north end of the area and the other is located near the south end of the area. Upon activation, foam agent flows into the sprinkler system and discharges from the open sprinkler heads located on each side of the area. A drop in water pressure will activate a 1000 gpm fire pump to ensure adequate water pressure. The sprinkler system can also be manually activated at the UL listed fire alarm panel. The sprinkler system meets all current NFPA requirements for valve position and flow monitoring. The entire system is supervised by a UL listed fire alarm panel that can be remotely viewed from the Security office. The fire alarm panel notifies locally by audio/visual signals and remotely to a central alarm monitoring station. The fire alarm panel has battery back-up for continuous coverage during power outages.

F-1d(v) Chemical Fixation East Area AFFF Deluge System

The Chemical Fixation East Area has a dual deluge system designed for a 0.16 gpm/ft² density. The primary extinguishing media is water, and the secondary media is AFFF. The extinguishing media can be manually selected by opening or closing a valve. Regardless of the extinguishing media, the system activation is by multi-spectrum flame detectors mounted over the tanks. Upon activation, the extinguishing media flows into the sprinkler system and discharges from the open sprinkler heads located above the tanks. A drop in water pressure will activate a 1000 gpm fire pump to ensure adequate water pressure. The UL listed fire alarm panel will shutdown the Chemical Fixation Air Pollution Control System. The sprinkler system can also be manually activated at the UL listed fire alarm panel. The sprinkler system is supervised by a UL listed fire alarm panel that can be remotely viewed from the Security office. The fire alarm panel notifies locally by audio/visual signals and remotely to a central alarm monitoring station. The fire alarm panel has battery back-up for continuous coverage during power outages.

F-1d(vi) Chemical Fixation West Area AFFF Deluge System

The Chemical Fixation West Area has a dual deluge system designed for a 0.16 gpm/ft² density. The primary extinguishing media is water, and the secondary media is AFFF. The extinguishing media can be manually selected by opening or closing a valve. Regardless of the extinguishing media, the system activation is by multi-spectrum flame detectors mounted over the tanks. Upon activation, the extinguishing media flows into the sprinkler system and discharges from the open sprinkler heads located above the tanks. A drop in water pressure will activate a 1000 gpm fire pump to ensure adequate water pressure. The UL listed fire alarm panel will shutdown the Chemical Fixation Air Pollution Control System. The sprinkler system can also be manually activated at the UL listed fire alarm panel. The sprinkler system meets all current NFPA requirements for valve position and flow monitoring. The entire system is supervised by a UL listed fire alarm panel that can be remotely viewed from the Security office. The fire alarm panel

notifies locally by audio/visual signals and remotely to a central alarm monitoring station. The fire alarm panel has battery back-up for continuous coverage during power outages.

F-1d(vii) Fire Equipment Room Wet Sprinkler System

The Fire Equipment Room has a wet sprinkler system designed that is not hydraulically limited. System activation occurs when high heat causes a sprinkler head link to fail and release water. A drop in water pressure will activate a 1000 gpm fire pump to ensure adequate water pressure. The sprinkler system meets all current NFPA requirements for valve position and flow monitoring. The entire system is supervised by a UL listed fire alarm panel that can be remotely viewed from the Security office. The fire alarm panel notifies locally by audio/visual signals and remotely to a central alarm monitoring station. The fire alarm panel has battery back-up for continuous coverage during power outages.

F-1d(viii) T&P Wet Sprinkler System

The T&P bay and the Depack bay has a wet sprinkler system designed for a 0.60 gpm/ft² density for the most hydraulically remote 2,833 square feet. System activation occurs when high heat causes a sprinkler head link to fail and release water. The sprinkler system meets all current NFPA requirements for flow monitoring and alarming. The area also has multi-spectrum flame detectors to alarm prior to the discharge of the wet sprinkler system. The system notifies locally by audio signals and remotely to a central alarm monitoring station.

F-1d(ix) DePack Dry Chemical System

The DePack bay Pour-Up Area has an ABC-rated dry chemical fire suppression system. The system is composed of four independent systems, one of which discharges directly into the hood. System activation occurs when a link fails due to high heat and allows dry chemical to flow from the three 50 lb cylinders (25 lb cylinder for the hood). The system can also be manually activated. The system is supervised by a UL listed fire alarm panel that provides local audio/visual notification and remotely to a central alarm monitoring station.

F-1d(x) Main Plant Wet Sprinkler System

The Main Plant Building has a wet sprinkler system that is not hydraulically limited. System activation occurs when high heat causes a sprinkler head link to fail and release water. The sprinkler system meets all current NFPA requirements for flow monitoring and alarming. The system notifies locally by audio signals and remotely to a central alarm monitoring station.

F-1d(xi) Lab Hood Dry Chemical System

A selection of Lab Hoods has an ABC-rated dry chemical fire suppression system built into the hoods. System activation occurs when a link fails due to high heat and allows dry chemical to flow from the 21 lb cylinders. The system can also be manually activated. The system notifies locally by audio signals and remotely to a central alarm monitoring station.
F-1e Adequate Water Volume

(R299.9606 and 40 CFR 262.32(d))

EQD has water at adequate volume and pressure to supply water hose connection for the local fire department.

F-2 Testing and Maintenance of Equipment

(R299.9606 and 40 CFR 262.33

All the fire protection equipment, spill control equipment, decontamination equipment and the communications systems are tested and maintained as necessary to ensure its proper operation in time of emergency. Required inspection schedules are in Section O of this application.

F-3 Access to Communications or Alarm System

(R299.9606 and 40 CFR 262.34)

F-3a Multiple Employees Present

(R 299. 9606 and 40 CFR 34(a))

Whenever hazardous waste is being processed, all personnel involved in the operation have immediate access to an emergency communication device, either through visual, voice contact or radio with another employee.

While the facility is operating, employees have immediate access to a telephone or a hand-held two-way radio for summoning external emergency assistance or the Emergency Coordinator. All the facility phones allow you to dial 911 for emergency.

F-3b Single Employee Present

(R299.9606 and 40 CFR 262.34(b))

While the facility is operating, employees have immediate access to a telephone or a hand-held two-way radio for summoning external emergency assistance or the Emergency Coordinator. All the facility phones allow you to dial 911 for emergency. F-4 Required Aisle Space

(R299.9606 and 40 CFR 262.35)

Aisle space is maintained in such a way that allows unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment to any area of EQD operation in case of an emergency. Aisle space requirements are outlined in **Section D**.

F-5 Arrangements with State or Local Authorities

(R 299.9606 and 40 CFR 264.37)

F-5a Arrangements with State or Local Authorities

(R 299.9606 and 40 CFR 264.37(a)(1))

The arrangements with state or local authorities are outlined in the EQD Contingency Plan.

F-5b Refusal of State or Local Authorities to Enter into Response Agreements

(R 299.9606 and 40 CFR 264.37(b))

No state and/or local authorities have declined to enter into such arrangements; if such refusal occurs, it would be documented.

F-6 Preventative Procedures, Structures and Equipment

(R 299.9504(1)c and 40 CFR 270.14(b)(8)

The following sections describe the procedures, structures and equipment used at EQD to prevent hazards to human health and the environment.

F-6a Unloading/Loading Operations

(40 CFR 270.14(b)(8)(i))

Procedures for preventing hazards to human health and the environment in unloading operations are described in **Section J-6g(ii)**.

F-6b Procedures to Prevent Runoff

(40 CFR 270.14(b)(8)(ii))

Procedures to prevent run-off of hazardous waste handling areas to other areas of the facility or environment are found in **Section J-6g(iii)**.

F-6c Procedures to Prevent Contamination of Water Supplies

(40 CFR 270.14(b)(8)(iii))

Procedures to prevent contamination of water supplies is found in Section J-6g(iv).

F-6d Procedures to Mitigate Effects of Equipment Failure and Power Outages

(40 CFR 270.14(b)(8)(iv))

Procedures to mitigate the effects of equipment failure and power outages are found in **Section J-6g(v)**.

F-6e Procedures to Protect Personnel

(40 CFR 270.14(b)(8)(v))

Procedures to prevent undue exposure of personnel to hazardous waste are found in **Section J-6g(vi).**

F-6f Procedures to Prevent Releases to the Atmosphere

(40 CFR 270.14(b)(8)(vi))

Procedures to prevent releases to the atmosphere are found in Section J-6g((viii).

F-6g Procedures to Prevent the Accidental Ignition or Reaction of Ignitable, Reactive or Incompatible Waste

(40 CFR 270.14(b)(9))

Procedures to prevent the potential reaction between ignitable, reactive, and incompatible wastes are described in detail in **Section A2.C** of the WAP.EQD also takes the following precautions to prevent waste from igniting or reacting:

- Open flame: there is no source of open flames in the tank and container storage areas
- Smoking is not permitted in the tank and storage areas. "**No Smoking**" signs are conspicuously placed in the storage areas.
- Cutting and welding operations: All ignitable waste will be removed from the work area before cutting or welding takes place. A Hot Work Permit must be issued by management prior to any cutting or welding is conducted in waste storage areas.
- There are no hot surfaces in the tank and container storage areas.
- There is no frictional heat generated in the tank and container storage areas.
- There is no source of electrical or mechanical sparks in the container or tank storage areas. Containers with ignitable waste will be grounded when transferring waste into a tank.
- There is no source of radiant heat in the tank and container storage areas.

F-6h Procedures for Odor Mitigation

(R 299.9504(1)(c), R 299.9508(1)(b), R 299.9606(1), 40 CFR 270.14(b)(8)(vi), 40 CFR 264.31)

Procedures/practices to prevent or reduce the potential for odors to impact the community.

- Waste approvals are reviewed with consideration of odors based on the composition and reactions that may occur.
- As waste streams arrive on site, samples are collected to conduct a fingerprint of the waste and, when deemed necessary, an odor evaluation will be done by the laboratory.

SECTION G

CONTINGENCY PLAN AND EMERGENCY PROCEDURES

R 299.9607 and 40 CFR, Part 270.14(b)(7), Part 264.50 through 264.56

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- Table G-1:
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FIGURES

All Figures listed below and referenced in this section are found in the Figures Tab of this application

Figure G-1: Emergency Contact Personnel

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Figure G- 3: Evacuation Procedures

DRAWINGS

Drawing 1: A-2 EQD Site Plan

Drawing 2: R-1, R-2, R-3, and R-4 Emergency Preparedness Plan

APPENDICES

All Appendices listed below and referenced in this section are found in the Appendices Tab of this application Appendix G-1: Notification Correspondence

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G-1 Purpose of the Contingency Plan

(R299.9607, CFR 264.51 and 264.53)

The Contingency Plan outlines the course of action to be followed in the event of an incident involving hazardous waste or hazardous waste constituents that could threaten human health and/or the environment at EQ Detroit, Inc. (EQD). This Contingency Plan has been prepared in accordance with the requirements of 40 CFR Part 264, subpart D and R 299.9607. It is designed to establish the necessary planned procedures to be followed in the event of an emergency at the EQD facility in Detroit, Mi, such as a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or water.

The provisions of this plan will be carried out immediately whenever there is a fire, explosion or release of hazardous waste constituents which could threaten human health or the environment.

Copies of this Contingency Plan have been provided to emergency response agencies such as the local police and fire departments, hospitals, contractors, State and Local emergency response teams. The intent of sending each agency a copy of the Plan is to familiarize them with the facility layout, the properties of the material handled, locations of the working areas, access routes into and within the facility, possible evacuation routes from the facility, and types of injuries or illness that could result from releases of materials at the facility. Each person or the chief officer of each department, agency, or organization which received a copy of the Contingency Plan were asked to assist EQD, as necessary, during an emergency.

Each of the agencies noted above has been contacted and sent copies of the Contingency Plan and requested to provide the services described below in the event of an actual emergency. **Appendix G-1** provides copies of these requests to the mentioned agencies.

The City of Detroit Police Department has been asked to provide the following assistance during an emergency:

- a. Primary emergency authority;
- b. Immediate response;
- c. Emergency transport services;
- d. Crowd control assistance;
- e. Communications support;
- f. Security to affected area; and
- g. Evacuation of surrounding areas, if required.

The City of Detroit Fire Department has been sent a copy of this Plan and has been asked to provide the following assistance during an emergency:

- a. Primary emergency authority;
- b. Immediate response;

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- c. Primary fire-fighting services;
- d. Rescue and emergency transport services; and
- e. Communications support.

The Detroit Emergency Medical Services has been sent a copy of this Contingency Plan and has been asked to provide the following assistance during an emergency:

- a. Primary medical services; and
- b. Rescue and emergency transport services.

The Michigan Department of Environmental Quality (EGLE) has been sent a copy of this Contingency Plan and has been asked to provide the following assistance during an emergency;

- a. Technical support; and
- b. Communications support.

No state or local authorities have declined to enter such arrangements, if such refusal occurs, it will be documented.

G-2 Description of Facility Operations

EQD is a hazardous and non-hazardous waste treatment facility located in Detroit, Michigan. The facility accepts wastes which are permitted and regulated by the EGLE and the United States Environmental Protection Agency (USEPA). EQD's Operating License is EPA Identification (ID) Number (No.) MID 980 991 566.

The facility is under surveillance 24 hours per day, seven days per week and employs approximately 80 personnel. Security guards are employed 24 hours per day including weekends and holidays. EQD restricts facility access to employees, visitors, and delivery carriers. All visitors are required to register at the Security office and be accompanied by authorized personnel while on the premises. Delivery carriers are under the supervision of operating personnel while engaged in activities at the facility.

Security personnel conduct regular security checks, and the results are recorded within EQD's facility Operational Record. Security and staff will immediately notify the Emergency Coordinator/Alternate upon discovery of a fire or leak, advising of cause, location, flow, and type. Treatment plant staff are to take available operating measures consistent with the company safety policy, to mitigate the spill/leak or fire, if possible.

G-2a Waste Identification and Characterization

EQD accepts all characteristic and listed wastes pursuant to 40 CFR 261, Subparts C and D, respectively, and Part 111 of Michigan Natural Resources and Environmental Protection Act, 1994 PA 451 (Act 451) except those wastes listed below.

Per EQD's license or facility discretion, the following waste contaminants are NOT ACCEPTABLE at the facility:

 Explosive wastes (such as Department of Transportation (DOT) Class 1) for treatment nor storage,

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- D003 Reactive wastes (except cyanides and sulfides) for treatment nor storage unless the waste no longer exhibits the characteristic of reactivity,
- Toxic Substances Control Act (TSCA) Polychlorinated Biphenyl (PCB) waste for treatment nor storage,
- Ignitable wastes (D001 when flashpoint is <140F) with a flashpoint <90F may be stored but are prohibited from treatment,
- Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) and Low Level Radioactive Mixed Waste.
- Dioxin-containing waste requiring treatment for F020-F023, F026-F028, K043, and K099 may be stored and/or treated for constituents other than dioxins and furans (because dioxins and furans already meet applicable treatment standards prior to acceptance at EQD and other constituents of concern (i.e., regulated hazardous constituent) may still require treatment.), and
- Any materials deemed unacceptable by the General Manager of the facility.

The following is a brief description of wastes that will be received at the EQD facility:

G-2a (i) Listed Hazardous Wastes

EQD accepts all wastes listed in Subpart D (Lists of Hazardous Wastes) of 40 CFR 261 and wastes listed in the EGLE Act 451 R 299.9223 and R 299.9226. Hazardous wastes from both non-specific and specific sources will be accepted at the facility. Hazardous waste codes accepted at the facility are presented in **Table C-4**.

Due to the nature of EQD's operations a variety of hazardous and non-hazardous materials/chemicals and waste are used and/or treated. With respect to this, **Table G-1**, Maintenance Supply and Treatment Materials and **Table G-2**, Waste Characteristics have been assembled to provide information regarding the types of hazards posed by the various categories of materials/chemicals and wastes treated at the facility. This information is general, and as such, the expertise of technically trained personnel will be relied upon for more detailed information in routine operations or emergency situations.

EQD utilizes known maintenance, supply, and treatment chemicals. There are certain maintenance procedures at the site that involve the use of various paints, primers, and petroleum products. In addition, the laboratory utilizes limited quantities of organic solvents, alcohols, and compressed gasses during analytical testing. These materials can be considered hazardous by definition and by their nature.

G-2a (ii) Characteristic Hazardous Waste

Pursuant to 40 CFR 261, Subpart C, a solid waste is a hazardous waste if it exhibits any of the following characteristics:

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Characteristic of Ignitability (40 CFR 261.21)

Characteristic of Corrosivity (40 CFR 261.22)

Characteristic of Reactivity (40 CFR 261.23) EQD does not accept explosive wastes

Toxicity Characteristics (40 CFR 261.24)

EQD will accept the hazardous waste exhibiting the above referenced characteristics and Michigan Act 451 Rule 299.9217, 200.9218 and 299.9219.

Furthermore, appropriate sampling and testing methods as specified in Appendices I, II, and III to Part 261 of 40 CFR will be used to classify hazardous wastes.

G-2b Facility Work Areas and Routine Operations

The EQD Waste Treatment Plant operations include receiving, storage and treatment of hazardous wastes.

The specific routine operations and work areas include:

Waste receiving and Quality Control (QC);

Waste loading and unloading;

Reagent unloading and tank storage;

Waste storage in tanks;

Waste treatment in tanks;

Waste bulking and consolidation

Container staging and storage, and

Shipment of wastes off-site to permitted treatment, storage, and disposal facilities (transship).

The waste processing operations occur in the following primary structures: the Main Treatment Building (Chem Pre), the Process Building (Oily Water Treatment), the Container Staging Area (Receiving Area), and the Chemical Fixation Building (Chem Fix). **Tables D-1 and A-1** identify hazardous waste management units at the facility, their status, process, and capacities.

The following are descriptions of the operations performed in these areas:

The Main Treatment Building (Chem Pre) is in the center of the site and houses the physical-chemical treatment system. This area contains supplies, such as drums and chemicals. There are treatment tanks, storage tanks, and raw materials tanks in this area. The Main Treatment Building accepts and processes hazardous and non-hazardous wastewater containing heavy metals, pressable sludges, and oily wastes. Also located within the southwest portion of the Main Treatment Building is the Corrosive (Acid/Base) Treatment Area/Drum Storage Area. EQD Laboratory Services is located along the south side of the Main Treatment Building (Chem Pre). This area uses and stores a wide variety of lab chemicals as well as compressed nitrogen, oxygen, argon,

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and helium gas cylinders. A maintenance area with three service bays is located on the east side of the Main Treatment Building. This operation uses and stores lubricating greases and oils, and other various automotive fluids.

The Process Building located north of the Main Treatment Building, houses the oily waste processing tanks.

Containerized waste streams arriving for processing and destined for the EQD facility will arrive at the Container Staging Area (Receiving Area). In this area, containers are offloaded, and appropriate representative samples are collected. The containers can then be transferred to the North Drum Storage Area. Those containers which are destined for EQD and meet waste acceptance criteria are stored in the Container Storage Area (Drum Warehouse).

The Container Storage Area (Drum Warehouse) is in the North Central section of the facility, connected to the Chemical Fixation Building (Chem Fix) and adjacent to the Container Staging Area (Receiving Area).

The Chemical Fixation Building (Chem Fix) is located north of the Main Treatment Building (Chem Pre). The facility operations are housed within a pre-engineered metal structure. The active portions (i.e. vaults, pugmill) are fully enclosed within the building.

EQD's Chemical Fixation Building (Chem Fix) utilizes a waste treatment technique commonly referred to as a pozzolanic stabilization. This technique relies on materials rich in stabilization and fixation agents to provide a solid stabilized mass when mixed with wastes. The most utilized materials in EQD's process are soluble silicates, lime, cement kiln dust (CKD), fly ash and Portland Cement.

EQD receives waste in a variety of container sizes, such as, small glass or plastic bottles, pails, drums, totes, boxes, and cubic yard sacks. EQD may elect to consolidate these containers to manage these wastes more efficiently for further processing or in preparation for shipment to a permitted off-site treatment/disposal facility. Bulking/Consolidation may include the transfer of the smaller containers (e.g. one-gallon jugs) into larger containers, such as drums or totes. Drums may be pumped using vacuum trucks/tankers. Solid wastes in cubic yard sacks may be dumped into roll-off/dump trailers for processing or shipment to and off-site treatment/disposal facility.

Drawing A-03, EQD Facility Drawing shows the location of all buildings and waste management units.

G-3 Identification of Potential Situations

(R 299.9607, 40 CFR 264.52(a), 264.56(d))

Potential accidents are classified into three general areas:

- 1. Fire and/or explosion involving hazardous waste or hazardous waste constituents.
- 2. Accidental release of waste from hazardous waste or hazardous waste constituents.

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3. Accidental release in the form of a vapor of hazardous waste or hazardous waste constituents.

G4 Emergency Coordinators

(R299.9607, 40 CFR 264.52, 264.55)

G-4a Identification of Primary and Alternate Emergency Coordinators

(R299.9607, 40 CFR 264.52, 265.55)

If an imminent or actual emergency is discovered at the EQD facility, the Emergency Coordinator will be immediately notified. The primary Emergency Coordinator will be contacted first; if they are not available, the Alternates will be contacted (in the order listed) until one is reached. The primary Emergency Coordinator and the Alternates are listed on **Figure G-1**.

G-4b Qualifications of the Emergency Coordinators

(R299.9607, 40 CFR 264.55)

The Emergency Coordinator is thoroughly familiar with all aspects of the Contingency Plan, all operations and activities at the facility, the location and characteristics of wastes handled, the locations of all records within the facility, and the facility layout.

G-4c Authority to Commit Resources

(R299.9607, 40 CFR 264.55)

The Emergency Coordinator has the authority to commit the resources necessary to implement the Contingency Plan. The Emergency Coordinator coordinates and directs all internal response efforts and personnel.

G-5 Implementation of the Contingency Plan

(R299.9607, 40 CFR 264.51 and 264.56)

The RCRA Contingency Plan is a part of the overall effort at EQD to predict, prevent and properly respond to sudden and non-sudden incidents at the facility. The Plan satisfies RCRA requirements for responses to emergencies involving hazardous wastes.

The provisions of this Contingency Plan must be carried out immediately whenever there is an imminent or actual accident, such as fire, explosion or release of hazardous waste or hazardous waste constituents which could adversely threaten human health and/or the environment.

Minor leaks or spills in the hazardous waste container or tank storage areas would not normally trigger the implementation of the Contingency Plan but would be managed by the Emergency Coordinator or their alternate. This Section of the Contingency Plan offers the Emergency Coordinator/Alternate guidelines to evaluate the need to implement the Plan.

The Contingency Plan will be implemented in the following situations:

G-5a Fire and/or Explosion

- causes the release of uncontrolled toxic fumes,
- spreads and ignites materials at other locations on-site or results in heat-induced explosions,
- spreads to off-site areas,
- spreads contamination from the use of water or water and chemical fire suppressants external to the facility, and/or
- an imminent danger exists that an explosion could occur at the facility.

G-5a(i) Large Scale Fire Department Response Procedures

The EQD fire suppression system is designed to provide immediate water and/or foam deluge in response to heat in the plant treatment and storage areas. The alarm automatically alerts Security if the fire suppression system has been activated. The fire suppression system can also be activated manually via pull stations. See **Section F-1d** for details on the fire suppression system automatic activation and alarm system. If a fire/explosion has been determined to be too large to extinguish quickly and with minimal exposure risk to personnel or if a smaller scale fire cannot be extinguished, EQD employees shall:

Commence emergency notification (intercom).

Notify the Emergency Coordinator/Alternate via Internal Communication System (see **Subsection G-6a**).

The Emergency Coordinator/Alternate will call the appropriate response agencies, such as the Detroit Fire Department, from a cell phone, from nearest accessible phone at the facility or the office. Emergency phone numbers will be posted within each building that has telephone connections.

All personnel will secure their operations upon receiving the signal to evacuate if it can be done with minimal risk.

All personnel except those designated by the Emergency Coordinator / Alternate, shall evacuate buildings upon sounding of alarms, via nearest exit. Refer to **Drawing R-04** for evacuation routes.

Depending on the potential for explosion or release of toxic gases, off-site evacuation may be initiated in accordance with **Subsection G-6a**, Evacuation Plan.

The Emergency Coordinator shall determine the most accessible and safest route of approach to the fire. Consider flame migration potential, associated dangers, and physical limitations. Attempt to determine the nature of burning material by utilizing records of tanks and container contents.

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EQD employees shall <u>not</u> enter smoke-filled environments where fireprotective clothing and/or breathing apparatus are required. Any search and rescue operations shall be conducted by the fire department.

When the fire department arrives, the Emergency Coordinator/Alternate will delegate primary responsibility to them, stand-by to aid; and not interfere with the fire department operations.

When the fire is extinguished, remedy point source to stop flow, if possible, with minimal risk to personnel and environment.

Dike spilled material and fire run-off water with standard industrial absorbent.

Absorb spilled material or dump to emergency tank or empty containers as directed by the Emergency Coordinator. Use non-sparking shovels to apply standard industrial absorbent over affected area.

Collect contaminated material (e.g., absorbent, dry chemical, rags, etc.) in recovery drums.

Decontaminate boots, gloves, goggles, face shields, self-contained breathing apparatus and other reusable emergency response equipment. If PPE cannot be decontaminated, it must be collected and properly disposed of.

Clean, restore or replace emergency response equipment, and return it to its original location before resuming operations.

Label recovery drums in accordance with all applicable hazardous waste rules and regulations if waste is determined to be hazardous.

Observe proper hygiene procedures during personal decontamination.

G-5a (ii) Small Scale/Incipient Fire Handling Procedures

A small-scale incipient fire is a fire in its beginning stage that can be controlled with portable fire extinguishers and small hoses systems. When EQD personnel determine a small scale or incipient fire can be promptly extinguished with minimal risk to health or environment, the following procedures will be enacted:

- 1. Notify the Emergency Coordinator/Alternate and adjacent employees, either in person or by utilizing Internal Communication System as presented in **Subsection G-6a**.
- 2. Attempt to suppress the smoldering or flaming material using appropriate extinguisher. The locations of fire extinguishers are marked using high visibility signs and noted on **Drawing R-03**.
- 3. Eliminate and continue to restrict all potential sources of ignition to minimize the risk of additional fires.
- 4. Maintain an awareness of other containers of material in areas near the incident and water spray, relocate or barricade them to prevent contact with elevated temperature.

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- 5. Appropriate personal protective equipment is to be worn to clean-up the impacted area; the procedures to be followed will be those described within **Subsection G-5b (ii)**.
- 6. If unable to immediately extinguish flames, sound the closest available alarm, leave area and follow procedures shown in **Subsection G-6d**.

G-5b Spill or Material Release

- Results in release of uncontrolled toxic liquids or vapors, thus causing a fire or gas explosion hazard or health hazard.
- Results in soil and/or groundwater contamination.

This plan has been developed and organized in such a way as to afford maximum guidance during an incident of any magnitude and to minimize the risk of any of the above accident on human health and/or the environment. The Emergency Coordinator/Alternate and other personnel are trained on the contents and implementation of the components of this document and will follow prescribed procedures in the event of an actual emergency. Records of this training program are maintained by the EQD Health and Safety Manager.

Should an emergency arise, the Emergency Coordinator or his/her Alternate will be notified immediately. Subsequently, necessary facility personnel will be notified when required. Local communities and emergency response personnel, such as police and fire departments, hospitals, and governmental agencies, which are familiar with internal operations, material types and emergency response procedures at the EQD facility will be notified pursuant to existing agreements if their assistance is required (See Section G-1).

G-5b(i) Large Scale Spill Emergency Response Procedures

In the event of a spill, leak, or release of material too large to be managed by the facility personnel, and if it is perceived that the spill cannot be stopped without risk to human health and/or environment, seek assistance and proceed to address the spill as follows:

- 1. Contact the local Fire Department and other relevant emergency responders.
- 2. Determine the source of the leak or spill. Where possible, immediately identify the characteristics, exact source, amount and area affected by the release. Classify the waste by observation of labels, examination of waste storage records or manifests, and/or knowledge of waste storage practices.
- 3. Notify the Emergency Coordinator or alternate using the Internal Communication System as described in **Subsection G-6a**.
- 4. The Emergency Coordinator/Alternate will minimize and continue to restrict all activities/operations from the spill area and areas potentially impacted by the release, such as those downwind and downgrade.
- 5. The Emergency Coordinator / Alternate will determine whether any other operations at the facility are affected by the spill and order the securing of those

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operations, if necessary. The Emergency Coordinator / Alternate will monitor operations after shutdown for leaks, pressure build-up, gas generation or other problems, as appropriate.

- Evacuation Assessment: The Emergency Coordinator / Alternate will assess possible hazards to human health and the environment by considering both direct and indirect effects of released material, to determine if evacuation of facility personnel or surrounding areas will be necessary (refer to Figure G-3 and Subsection G-6d).
- Contractor Assessment: The Emergency Coordinator / Alternate will assess the size and rate of growth of the spill to determine whether the spill can be managed by facility personnel. If the spill cannot be handled, outside assistance will be summoned pursuant to existing agreements for such incidents.

G-5b (ii) Small Scale Spill General Response Procedures

In the event of a spill or a leak that has been determined to be of smaller magnitude and can safely be handled by the facility personnel, the following procedures will be observed:

- Notify the Emergency Coordinator / Alternate and adjacent employees by utilizing the Internal Communication Systems as described in Subsection G-6a.
- 2. Prior to responding, personnel will observe the "buddy system" and don appropriate boots, aprons or protective suits, gloves, face shields, goggles, and respiratory protection, as necessary. **Table G-3** is submitted as an example of the EQD Emergency Equipment List; the list may be updated as new equipment is added. The type of respirator selected (i.e., appropriate cartridge or self-contained breathing apparatus) will be determined based on the type of material involved in the incident and be authorized by the Emergency Coordinator / Alternate prior to use.
- 3. Position ABC fire extinguisher near immediate cleanup area, when necessary.
- 4. Remedy and stop the point source by closing valves or by using compression plugs, blocking, bonding, or patching materials. If possible, use large-sized containers to over-pack leaking sources.
- 5. Dike spill with standard industrial absorbent as appropriate, keeping in mind the compatibility of the absorbent with the materials spilled.
- 6. Once flow is stopped, absorb spilled material from pavement with standard industrial absorbent, or pump to an available tank designated by the Emergency Coordinator. Use a non-sparking shovel to uniformly disperse absorbent over affected area.
- 7. Collect contaminated material (e.g., absorbent, rags, etc.) for proper disposal.

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- 8. As appropriate, decontaminate all personal protective equipment (PPE) prior to re-use. If PPE cannot be decontaminated, it must be collected and properly disposed of.
- 9. Decontaminate, restore, or replace spill response equipment, and return it to its original locations before resuming operations.
- 10. Label recovery drums in accordance with all applicable hazardous waste rules and regulations.
- 11. Observe proper hygiene procedures during personal decontamination.
- 12. Investigate for leaks, pressure build-up, ruptures in piping and other equipment prior to resuming operations.

G-5b (iii) Limited Spills within Loading/Unloading Area

In response to spills discovered within waste materials loading or unloading areas, the following procedures shall commence:

- 1. Stop the source of the leak immediately if it can be done without risk to health. This may involve closing the truck or tank car valve, righting a container, etc., but only if it can be done safely and with minimal risk.
- 2. Immediately notify Emergency Coordinator/Alternate for determination of what precautions, equipment and procedures are necessary. They will prescribe appropriate PPE to be used.
- 3. Use appropriate PPE and follow procedures for small-scale response, as outlined in **Subsection G-5b (ii)**. Determine whether the spill will remain within the spill control area. Immediately ensure that containment is effective. Use compatible absorbent material to contain spill, if necessary.
- 4. Consult the Emergency Coordinator/Alternate to determine which tanks are available and compatible with spilled materials and, if necessary, transfer material to designated tanks.

G-5b (iv) Spills Due to Ruptured Tanks and Containers

Any hazardous waste and/or materials spill due to ruptures or leaks within tanks, containers or piping shall prompt EQD staff to perform the following:

- 1. Immediately notify the Emergency Coordinator/Alternate. Ruptured tanks or containers will normally release large amounts of material and should not be handled without assistance.
- 2. The Emergency Coordinator/Alternate will determine the material released, amount, and area affected by the release. Waste can be classified by observation of labels, examination of waste storage records or manifests or knowledge of waste storage practices.
- 3. The Emergency Coordinator/Alternate will determine if the release can be controlled by EQD personnel. When this determination has been made,

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responders shall follow the small-scale response procedures in **Subsection G-5b (ii**).

- 4. Eliminate and continue to restrict all activities/operations from the spill area, and areas downwind, downgrade of the spill area.
- 5. The Emergency Coordinator/Alternate will order the shutdown of any operations effected by the spill. Operators will take the necessary steps to completely secure their operations. The Emergency Coordinator/Alternate will monitor operations after securing for leaks, pressure build-up, gas generation, or other problems as appropriate.
- Evacuation Assessment: The Emergency Coordinator/Alternate will assess possible hazards to human health and the environment by considering both direct and indirect effects of released material to determine if evacuation of facility personnel or surrounding areas will be necessary. (See Subsection G-6d)
- Contractor Assessment: the Emergency Coordinator/Alternate will assess the size and rate of growth of the spill to determine whether the spill can be managed by facility personnel. If the spill cannot be handled, outside assistance will be summoned pursuant to existing agreements for such incidents.

G-6 Emergency Procedures

(R299.9607, 40CFR 264.51, 264.52 and 264.56)

Emergency procedures are the responsibility of the Emergency Coordinator/alternate. Such procedures are specifically outlined and described herein. In the event of an imminent or actual emergency, the specific procedures outlined below will be followed.

G-6a Immediate Notification Procedures for Facility Personnel and State and Local Agencies with Designated Response Roles

(R299.9607, 40 CFR 264.51264.52(a), 264.56 and 264.56)

In the event of an emergency, the Emergency Coordinator or his Alternate will be contacted immediately.

In an imminent or actual emergency, involving sudden or non-sudden release, fire, explosion or otherwise, to threaten human health and/or the environment, the Emergency Coordinator/Alternate will immediately warn facility personnel and appropriate emergency response authorities. The procedures listed below with regards to appropriate notification of the proper authorities shall be followed as soon as possible once the safety of personnel is assured.

Notification of facility personnel will be done using the following internal communications system.

1. EQD is equipped with a telephone public address and internal automatic and manual fire/emergency evacuation alarm systems that are operational 24 hrs. per

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day. The telephone system with intercom and paging capability is available at the loading/unloading area, chemical storage area, the treatment areas, the Process building, AST Farm, the laboratory and guardhouse. These telephones allow one-on-one communication and can be used to activate the paging system which can provide vocal instructions to all EQD personnel. In addition, the facility maintains rechargeable two-way radios and cell phones to assist emergency situation communications.

 The emergency alarm system is designed for internal notifications. Phone notification centers are provided at numerous locations at the facility as described above. Employees are trained and have knowledge as to the location and operation of this system.

If the Emergency Coordinator determines the facility has had an incident which could threaten human health and/or the environment, or for which EQD has knowledge that a spill has reached surface water or groundwater, he/she shall immediately notify appropriate national, State, and/or local departments, agencies and organizations with designated response roles. The following procedure will be used for notification of state and local agencies with designated response roles.

- Cell phones will serve as the primary means of communicating with the external emergency response units such as the fire departments, police department, etc. Alternatively, the internal telephones system can be used for this purpose. An emergency contact phone list is posted in each department. See Figure G-1 for a copy of this telephone list.
- 2. Notify appropriate national, State, and /or local departments, agencies, and organizations with designated response roles. Emergency contact phone numbers for National, State, and local agencies are found in **Figure G-1**.
- 3. When notifying response teams, the Emergency Coordinator should be prepared to furnish the following information:
 - a. Name, address and telephone number of the owner and the incident reporter;
 - b. Name, address, telephone number and EPA Identification Number of the facility;
 - c. Time, location and type of incident (e.g., spill, fire, release, etc.);
 - d. Name and quantity of material(s) involved and the extent of the release;
 - e. The extent of injuries, if any;
 - f. The possible hazards to human health and/or the environment outside of the facility; and
 - g. The immediate response action taken.

G6b Procedures to be used for Identification of Release

[R299.9607, 40 CFR 264.51, 264.52 and 264.56]

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In the event of an incident, the Emergency Coordinator/Alternate must immediately identify the character, exact source, amount, and extent of any released materials. This may be accomplished by observation or review of facility records or manifests, and, if necessary, by chemical analysis.

G-6c Procedures to be used to Assess Potential Hazards to Human Health and the Environment

[R299.9607, 40 CFR 264.51, and 264.56]

The Emergency Coordinator/Alternate must assess possible hazards to human health and/or the environment that may result from a release, fire, or explosion. This assessment shall consider both direct and indirect effects of the release, including the effects of any toxic, irritating, or asphyxiating gases generated. And the effects of any hazardous surface water runoff from water or chemical agents used to control fire and heat-induced explosions.

The procedure for assessing possible hazards includes:

- 1. Identification of hazardous properties of the materials involved or by-products thereof;
- 2. Determination of threat to human health and/or the environment, both on-site and off-site;
- 3. Assessment of any environmental conditions (e.g., wind speed and direction) that may contribute to the seriousness of the hazards; and
- 4. Determination of the readiness and availability of response equipment, both on-site and off-site.

G-6d Procedures to Determine if Evacuation is Necessary

[R299.9607, 40 CFR 264.51, 264.52 and 264.56]

Whenever the Emergency Coordinator/Alternate determines that evacuation of local areas may be advisable, immediate notification of appropriate local authorities must occur. The Emergency Coordinator/Alternate must be available to help appropriate officials decide whether local areas should be evacuated. The EQD Evacuation Plan is outlined below.

The objective of the Evacuation Plan is to minimize impact to employees and visitors from imminent or potential hazards associated with a spill/leak or fire. If an emergency occurs to which plant personnel cannot respond, the Emergency Coordinator/Alternate will signal Employees by way of the facility public address system to evacuate the facility, or, at a minimum, the affected area. If the evacuation of outlying areas is deemed necessary, the Emergency Coordinator/Alternate will advise the local police and fire departments, the EGLE and the National Response Center (NRC) of the potential threat to human health and/or the environment.

The Evacuation Plan implementation requires prompt and deliberate action. The plan of action described in this Section will be strictly adhered to unless, in the opinion of the on-scene Emergency Coordinator/Alternate, minor modifications during an actual

emergency would constitute a more efficient evacuation. The evacuation routes and assembly locations (rally points) as shown on **Drawing R-04** will be posted at key locations throughout the EQD facility. For additional details see **Figure G-3**.

G-6d (i) Facility Evacuation Procedures

The EQD facility public address intercom system will be used to signal partial or total facility evacuation. This message will include a warning of the nature of the incident. In the event of a total facility evacuation, the City of Detroit Police and Fire Departments will be immediately notified.

The Emergency Coordinator/Alternate will make the decision whether or not to evacuate. This decision will be based on experience and the criteria identified below:

- 1. Nature and toxicity of materials involved;
- 2. Prevailing wind direction;
- 3. Possibility of an explosion or spreading fire; and
- 4. Possibility of a release of toxic vapors, mists, or dusts.

The Emergency Coordinator/Alternate will direct the evacuation as presented below:

- 1. The Emergency Coordinator/Alternate will determine whether total facility evacuation is necessary, and direct personnel accordingly;
- 2. Vehicles will be moved, if possible, so they do not block access/exit gates;
- 3. Affected employees will immediately secure their operations, if determined safe to do so;
- 4. All employees, visitors and contractors will leave the affected areas, by routes shown on **Drawing R-04**, unless otherwise directed by the Emergency Coordinator/Alternate;
- 5. The Emergency Coordinator/Alternate will determine whether total facility evacuation is necessary, and direct personnel accordingly;
- The Emergency Coordinator/Alternate will ensure that all tank truck valves are closed and/or if tank trucks are to be removed. All container delivery/transport will cease and trucks will be removed, if possible;
- 7. Employees must not attempt to obtain personal belongings, unless authorized by Emergency Coordinator/Alternate;
- 8. During the evacuation, the Emergency Coordinator/Alternate, appointed aides, and security personnel will ensure that all unauthorized personnel are kept from entering the evacuated area;
- 9. The Emergency Coordinator/Alternate will account for all personnel to ensure that no one has been left in the evacuated area;
- 10. The Emergency Coordinator/Alternate will obtain rescue services for injured people when required; and

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11. The employees should not return to the facility until instructed to do so. The Emergency Coordinator or his/her Alternate will make the decision whether it is safe to re-enter the facility.

G-6d (ii) Vicinity Evacuation

If the Emergency Coordinator/Alternate feels that an emergency requires the evacuation of areas surrounding EQD, he/she will immediately inform the City of Detroit Police Department, the Fire Department, National Response Center (NRC) and the EGLE of such a condition. The decision to evacuate surrounding areas is ultimately determined by the above agencies and will be based on the following:

- 1. Nature and toxicity of materials involved;
- 2. Prevailing wind direction;
- 3. Possibility of an explosion or spreading fire;
- 4. Possibility of a release of toxic vapors, mists, gases or dusts; and
- 5. The migration potential outside the facility.

If the evacuation of surrounding areas is deemed necessary, the police and fire departments, along with appointed EQD personnel, will apprise all others (industrial, residential, etc.) in the subject area as to the nature of the situation and the advisability to evacuate.

In all cases of vicinity evacuation, all persons so notified will be directed as to the best roads to follow and direction to proceed. This will be determined by the City of Detroit Police Department, Fire Department, NRC and EGLE.

Whenever the Emergency Coordinator/Alternate determines that evacuation of local areas may be advisable or if EQD has knowledge that the release has reached surface or groundwater, immediate notification of appropriate local authorities must occur. The Emergency Coordinator/Alternate must be available to help appropriate officials decide whether local areas should be evacuated. In addition, the following agencies must be notified:

- 1. EGLE Pollution Emergency Alert System must immediately be notified at (800) 292-4706.
- 2. The National Response Center (NRC) using the emergency spill response number (800) 424-8802.
- 3. If release is to sewer systems and has been determined to possibly adversely affect the Great Lakes Water Authority (GLWA) operations, then notify the municipality at (313) 297-9400.

The notifications include the following steps:

- a. Name and telephone number of reporter;
- b. Name and address of facility;
- c. Time, location and type of incident (e.g. release, fire);

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- d. Name and quantity of materials(s) involved and to what extent;
- e. The extent of injuries if any; and
- f. The possible hazards to human health or the environment outside of the facility.

G-6e Procedures to be used to ensure that Fires, Explosions, and Releases Do Not Occur, Reoccur, or Spread during the Emergency

(R299.9607, 40 CFR 264.51, 264.52 and 264.56, and 264.227 and 264.200)

During an emergency, the Emergency Coordinator/Alternate must take all reasonable measures necessary to ensure that fires, explosions and releases do not occur, recur, or spread to other hazardous waste at the facility.

Actions to prevent the recurrence or spread of fires, explosions or releases may include:

- a. Halting processes and operations;
- b. Collecting and containing released wastes;
- c. Prohibiting smoking in all areas except designated smoking areas;
- d. Using non-sparking tools;
- e. Protecting the area from open flame or heat generating activities; and
- f. Monitoring all valves, pipes or equipment for leaks or ruptures.

All reasonable safety procedures will be followed prior to resuming operations.

G-6f Procedures to be used to Monitor Equipment Should Facility Operations Cease

[R299.9607, CFR 40 264.51, 264.52 and 264.56]

If the facility stops operations in response to a fire, explosion or release, the Emergency Coordinator/Alternate must monitor for leaks, pressure buildup, gas generation or ruptures in valves, pipes, or other equipment, whenever this is appropriate.

G-6g Procedures to Provide Proper Treatment, Storage, and Disposal for Any Released Materials

[R299.9607, 40 CFR 264.51 and 264.56(g)]

Immediately after an incident, the Emergency Coordinator/Alternate will make arrangements for proper storage and/or disposal of all water and contaminated materials resulting from the release, fire or explosion at the facility. All resulting wastes generated will be considered a RCRA hazardous waste and managed as a RCRA waste unless it can be demonstrated to be non-regulated.

G-6h Procedures for Cleanup and Decontamination

[R299.9607, 40 CFR 264.51 and 264.56(h)]

After an emergency event, or as required during the emergency response, all emergency equipment utilized in the affected area will be cleaned or replaced, so that they are suitable for future use. Prior to resuming operations, an inspection of all utilized safety

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equipment will be conducted. All proper authorities will be notified that the postemergency equipment maintenance has been performed and operations will resume.

G-6i Procedures for Off-site Corrective Action

In response to an emergency event that impacts an off-site location, the Emergency Coordinator/Alternate will make arrangements to ensure the location is secure by following the requirements in G-5b(i) and/or G-5a(i). Following the event, the location will be assessed for potential clean-up, as necessary, once the emergency situation has ceased. In addition, following the event, all emergency equipment utilized in the affected area will be cleaned or replaced, so that they are suitable for future use. Prior to resuming operations, an inspection of all utilized safety equipment will be conducted. All proper authorities will be notified that the post-emergency equipment maintenance has been performed and operations will resume.

G-7 Notification and Recordkeeping Requirements

[R299.9607, 40 CFR 264.51, 264.52 and 264.56(i) and (j)]

G-7a Procedures to Be Used to Notify State and Federal Officials Prior to Commencement of Operations

[R299.9607, 40 CFR 264.51, 264.52 and 264.56(g)]

Prior to resuming operations, EQD will notify the EGLE and the EPA that the facility is in compliance.

- 1. Waste which may be incompatible with the released material is stored or treated until cleanup procedures are completed.
- 2. Emergency equipment is back in operational order.

Notification must be given to the Director and all the appropriate authorities that the facility has taken the necessary steps to prevent and prepare for future incidents before operations are resumed in the affected area(s) of the facility.

G-7b Recordkeeping Requirements [R299.9607, 40 CFR 264.51, 264.52 and 264.56(j)]

G-7b (i) Operating Record

In the event of an emergency situation that requires implementation of the contingency plan; the Emergency Coordinator/Alternate will record in EQD's operating record the time, date, and a description of the event.

G-7b (ii) Written Incident Report

After an emergency, the Emergency Coordinator/Alternate will perform the following:

1. As required, an emergency event requiring implementation of the Contingency Plan will be reported in writing to the EGLE Director and EPA Regional Administrator within fifteen (5) days of the event. This report will, at a minimum, contain:

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- a. Name, address and telephone number of the owner or the incident operator;
- b. Name, address and telephone number of the facility;
- c. Date, time, and type of incident (i.e., fire, explosion);
- d. Name and quantity of materials(s) involved and to what extent;
- e. The assessment of actual or potential hazards to human health and/or the environment, where this is applicable;
- f. The extent of injuries, if any; and
- g. Estimated quantity and disposition of recovered material that resulted from the incident.

All EQD reports should be submitted to the appropriate agencies and all applicable information regarding the event that caused implementation of the Contingency Plan will be retained on file in the Operating Record by EQD. EQD will document, in the operating record, all incidents that requires implementation of the Contingency Plan.

G-8 Procedures for Reviewing and Amending the Contingency Plan [R299.9607, 40 CFR 264.54]

The Contingency Plan will be reviewed and immediately amended, if necessary, whenever:

- 1. Applicable regulations or the facility permit is revised;
- 2. A spill or release occurs and a deficiency is identified in the plan;
- 3. The plan fails in an emergency;
- 4. The list of Emergency Coordinators changes;
- 5. The facility alters its design, construction, operation, maintenance or other circumstances in a way materially increasing the potential for fires, explosions or releases of hazardous waste/or hazardous waste constituents; or
- 6. The actions/responses necessary to comply in an emergency situation change.

The EQD Contingency Plan will be reviewed every three years. If new, proven technology should be implemented and recertified, an amended plan will be submitted to the appropriate agencies. If, at the three-year review, no new technologies need to be implemented and there are no changes in release potential, a statement to that effect must be prepared, signed by the EQD General Manager and attached to the Plan.

Copies of the Contingency plan shall be maintained at all times at the EQD facility, general and plant offices and in the manned security station at the Kirby Street entrance to the facility. In addition, this Plan is made available to the following agencies: U.S. Environmental Protection Agency (USEPA); Michigan Department of Environmental Quality (EGLE); City of Great Lakes Water Authority (GLWA); the City of Detroit Fire and Police Departments; and Detroit Emergency Medical Services. **Appendix G-1** contains the specific notification correspondence forwarded to applicable agencies.

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All changes in this Plan will be sent to every person, agency, department, and organization on the Contingency Plan distribution list within 30 days of the effective date of the change.

Off-site copies will be distributed by certified mail, return receipt requested, with instructions to destroy all previous copies.

G-9 Emergency Equipment

[R299.9607, 40 CFR 264.52€]

The type and physical location of the EQD facility's emergency equipment, including fire equipment systems, spill control equipment, decontamination equipment, communications, and alarm systems, breathing apparatus and medical treatment facilities is presented in **Drawings R-01 through R-04**. The location of each piece of equipment and an understanding of its capabilities, has been provided to employees through training sessions. Listing of required emergency equipment and locations are provided in **Table G-3**.

Figure G-2 Response Actions Checklist

Contingency Plan Activation of Off-Site Release Checklist

Record Incident

Time the incident began, duration, and location of the event.

Employees/witnesses having direct involvement or direct knowledge of the incident.

Gather local meteorological data and any characteristics noted by personnel directly involved with the incident or recorded elsewhere.

Extent of injuries if any

Event Narrative

Sequence of events and time line leading up to and throughout the incident

Identify specific event locations, materials, and equipment involved in the incident.

Identify and characterize, to the extent possible, the size and scope of the event.

Identify efforts taken to reduce the extent of the release

Identify clean-up efforts

Materials or Substances Involved

Identify all of the materials/substances that may have been involved in the event.

Determine the volume, concentration, and weight of substances identified above, and determine how they may have been altered by the event.

Develop a list of constituents that may be a potential concern

EGLE Materials Management Division Notification

Within 24 hours of discovering an incident requiring implementation of the Contingency Plan provide verbal notification

Within 15 days of an incident requiring implementation of the Contingency Plan provide written notification summarizing information above

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Post Incident Sampling

Develop a sampling plan, as appropriate. The plan may take into account fallout density, air monitoring data, visual observation, or air modeling. A statistical sampling design may not be necessary for the screening evaluation. Post incident, off site sampling may not be necessary based on air monitoring data and lack of off-site migration or deposition.

Collect a sufficient number of samples to identify and characterize concentrations of substances involved in the incident. Include sampling for background concentrations.

Complete the analysis of collected samples and review by comparison to relevant screening levels. Screening levels may have to be developed for some chemicals or environmental media.

Identify and document any substances found to be present at levels that exceed screening levels.

Evaluate Data for Screening Potential Risk

Screen existing data against relevant screening levels.

Prepare risk assessment screening report if appropriate.

If less than screening levels, no further action is needed for off-site potential releases upon approval of the EGLE Material Management Division.

Figure G-3 Evacuation Procedures

If any employee encounters an emergency which they believe to present an imminent threat to human health or the environment, the individual employee is authorized to leave the area immediately and tell others to leave the area immediately.

The attached maps indicate the evacuation routes to the rally points (**Drawing R-04**). The EQD facility public address intercom system will be used to signal partial or total facility evacuation. This message will include a warning of the nature of the incident. In the event of a total facility evacuation, the City of Detroit Police and Fire Departments will be immediately notified.

Primary evacuation routes vary depending on the department's location. It is the responsibility of the department supervisors to inform employees of these evacuation routes and ensure all employees meet at the appropriate rally point in the event of an incident. Alternate evacuation routes may be used because of wind direction or the location of the incident. Supervisors will inform the Emergency Coordinator (EC) if an alternate evacuation route must be used. The EC will communicate if the conditions of the incident prohibit the alternate route

Upon learning of an evacuation notice, the following will occur:

- 1. All employees, contractors and visitors will evacuate in an orderly and safe manner to the designated rally point.
- 2. If it is safe to do so, each work area will be checked by the area supervisor or designee to ensure everyone has left the area, including contractors and visitors.
- 3. Department supervisors will conduct a head count and report any missing persons and their suspected locations, if known, to the EC.
- 4. Based on the situation, the EC will decide whether to conduct search and rescue using internal personnel or wait for assistance from outside emergency responders.

Employees should not leave their rally point until instructed to do so by the EC, or until a general all clear signal has been communicated

Table G-1

Maintenance Supply and Treatment Material Characteristics

Material Category: Flammable

Material Data:

<u>Examples</u> – Paint, primer, solvents, paint thinner, organic solvents, alcohols, and gasoline.

<u>Health Hazard</u> – Fire and explosion hazard. Eye and respiratory irritant (solvents). Inhalation of solvent vapors may cause death by paralysis of respiratory organs, can be toxic if ingested and can cause skin irritations through request contact. Refer to specific SDS.

<u>Personal Protection</u> – Wear full protective clothing including goggles.

<u>Storage</u> – Stored in steel "flammable liquids" cabinets located through the treatment facility and laboratory. Due to limited quantity of these materials, no major spill is expected.

<u>Fire Fighting</u> - For solvents and other flammables use dry chemical foam or carbon dioxide (water may be ineffective). Water should be used to keep fire-exposed containers and tanks cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop a leak. Water spray may be used to flush spills away from ignition sources.

Material Category: Combustible

Material Data:

Examples – Fluid flocculent, and diesel fuel.

<u>Health Hazard</u> – Toxic is ingested and can cause skin irritation (dermatitis) through frequent contact. Refer to specific SDS.

<u>Personal Protection</u> – Wear full protective clothing including goggles.

<u>Storage</u> – The flocculent is typically stored in 55-gallon plastic drums, inside the treatment plant. The drums are contained by concrete curbing. Diesel fuel is stored in 5-gallon or 10-gallon containers.

<u>Fire Fighting</u> - For oils, extinguish with suitable extinguisher. For other combustibles, use dry chemical foam or carbon dioxide (water may be ineffective). Water should be used to keep fire-exposed containers and tanks cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop a leak. Water spray may be used to flush spills away from ignition sources.

Table G-1 (Cont'd)

Maintenance Supply and Treatment Material Characteristics

Material Category: Corrosive

Material Data:

<u>Examples</u> – Sodium hydroxide, treatment polymer, lime slurry, cleaning compounds, sulfuric acid, phosphoric acid, ferric sulfate, ferric chloride, and aluminum chloride.

<u>Health Hazard</u> – Contact causes chemical burns to skin, eyes and mucous membranes. Maybe harmful if inhaled. Harmful if ingested. Fire may produce irritating or poisonous gasses. Refer to specific SDS.

<u>Personal Protection</u> – Avoid breathing vapors. Wear boots, protective gloves and goggles and avoid contact with material. Handle broken packages with protective equipment. Wear full protective clothing if contact is anticipated. In case of contact, flush material from skin and eyes with copious amounts of water. Remove contaminated clothing.

<u>Storage</u> – Stored in 55-gallon plastic drums inside the treatment plant. The drums are contained by concrete curbing. Protect against physical damage. Keep separate from acids, organic halogens, metals, and ignitables.

Fire Fighting – Materials are considered nonflammable.

Material Category: Compressed Gas

Material Data:

Examples – Nitrogen, oxygen, and acetylene.

<u>Health Hazard</u> – Compressed gasses are primarily non-toxic, however pressurized cylinders represent significant physical hazard if ruptured. Refer to specific SDS.

<u>Personal Protection</u> – Avoid possible impact areas affected by the sudden release of pressure of flying debris. Acetylene hazards add the requirements for fire protection and avoidance of breathing vapors. Routine operations with compressed gasses yield minimal need for personal protection.

<u>Storage</u> – Typically stored in steel cylinders. These cylinders can be transported on portable carts to all facility locations (bottles must be secured upright with a chain or other manner to ensure they do not fall over. Store away from heat and ignition sources.

<u>Fire Fighting</u> – Only acetylene is flammable. Oxygen will accelerate combustion. If cylinder is leaking, stop source or remove to open area. Keep adjacent areas cooled by water in the event of a fire and attempt to eliminate the source.

Table G-2

Waste Characteristics

Material Category: Corrosive-Acids

Material Data:

<u>Health Hazard</u> – Toxic, do not handle with bare hands. Can cause severe chemical burns. Avoid contact, may be harmful if inhaled or ingested.

<u>Personal Protection</u> – Wear full, acid resistant protective clothing, including safety goggles. Upon any contact with skin or eyes, the material should be flushed with water for at least 15 minutes. Use emergency shower and/or eye wash if necessary. Remove contaminated clothing. Seek medical attention immediately.

<u>Storage</u> – Protect against physical damage. Store in dry well ventilated areas. Store away from carbides, alkalines, chlorates, nitrates, powdered metals, and combustible materials.

<u>Fire Fighting</u> – Use large amounts of water. Cover with absorbent and/or neutralizing chemical.

Material Category: Corrosive-Alkalis

Material Data:

<u>Health Hazard</u> – Contact causes burns to skin and eyes. May be harmful if inhaled. Harmful if ingested. Fire may produce irritating or poisonous gasses.

<u>Personal Protection</u> – Avoid breathing vapors. Wear boots, protective gloves and goggles and avoid contact with material. Do not handle broken packages without protective equipment. Wear full protective clothing if contact is anticipated. In case of contact, flush material from skin or eyes with copious amounts of water. Remove contaminated clothing.

<u>Storage</u> – Protect against physical damage. Keep separate from acids, organic halogens, metals, and ignitables.

<u>Fire Fighting</u> – Material does not burn or burns with difficulty. Use fire-fighting agent appropriate for surrounding fire. Cool affected containers and tanks with water as necessary.

Table G-2 (Cont'd)

Waste Characteristics

Material Category: Oxidizers

Material Data:

<u>Health Hazard</u> – Hazards vary from compound to compound. Some oxidizers are skin irritants and others are toxic by ingestion or inhalation.

<u>Personal Protection</u> – Varies according to specific properties of the compound. Some require minimal protection, while others require full protective equipment.

<u>Storage</u> – Keep cool. Store away from combustible materials and organics. Protect against physical damage. Clean up spills immediately.

Fire Fighting – Use water. Also use water to cool combustibles in vicinity.

Material Category: Non-Halogenated Organic Solvent

Material Data:

<u>Health Hazard</u> – Eye and respiratory irritant. Inhalation of high concentration vapors may cause death by paralysis of respiratory organs. Some compounds are toxic if ingested and can cause skin irritation through frequent contact. Vapors via travel considerable distances to ignition sources.

<u>Personal Protection</u> – Wear full protective clothing, including safety goggles. Seek medical attention immediately.

<u>Storage</u> – Store in a cool, dry, well ventilated location away from any area where a fire hazard may be present.

<u>Fire Fighting</u> – Use dry chemical foam or carbon dioxide (water may be ineffective). Water should be used to keep fire-exposed containers and tanks cool. If leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop the leak. Water spray may be used to flush spill away from ignition sources.

Table G-2 (Cont'd) Waste Characteristics

Material Category: Non-Halogenated Organic Solvent (Toxic)

Material Data:

<u>Health Hazard</u> – Coordination and impaired judgement may occur at vapor exposures from 300 ppm to 1,000 ppm. Dizziness, drowsiness, loss of consciousness and even death can occur at increased levels of exposure. When involved in fire it emits highly toxic and irritating fumes.

<u>Personal Protection</u> – Wear full protective clothing, including plastic apron, safety goggles, and appropriate respiratory protection.

<u>Storage</u> – Store in a cool, dry, well ventilated location away from any area where a fire hazard may be present.

<u>Fire Fighting</u> – Use water spray to keep fire-exposed containers and tanks cool. Water may be used to flush spills away from ignition sources.

Material Category: Metal-Bearing Sludges (TC Toxic Sludges)

Material Data:

<u>Health Hazard</u> – Ingestion of large amounts can cause intestinal disorders and death. Toxicity primarily due to metal constituents. Hydroxides of heavy metals are generally insoluble.

<u>Personal Protection</u> – Wear full protective clothing, including safety goggles.

<u>Storage</u> – Store in compatible containers.

<u>Fire Fighting</u> – Essentially non-flammable, however if ignited it must be treated as a metal fire. Normal fire extinguisher, water, CO2, and foam may not be effective. Dry chemical extinguisher, powdered talc or dry sand may be required to blanket a fire.

Table G-2 (Cont'd)Waste Characteristics

Material Category: Metal-Bearing Liquids (TC Toxic Liquids)

Material Data:

<u>Health Hazard</u> – Ingestion of large amounts can cause intestinal disorders and death. Toxicity primarily due to metal constituents. Hydroxides of heavy metals are generally insoluble.

<u>Personal Protection</u> – Wear full protective clothing, including safety goggles.

Storage - Store in compatible containers.

<u>Fire Fighting</u> – Essentially non-flammable, however if ignited it must be treated as a metal fire. Normal fire extinguisher, water, CO2, and foam may not be effective. Dry chemical extinguisher, powdered talc or dry sand may be required to blanket a fire.

Material Category: Combustible Waste (such as solvents and oil)

Material Data:

<u>Health Hazard</u> – Eye and respiratory irritant (solvents). Inhalation of solvent vapors may cause death by paralysis of respiratory organs. Oils are toxic if ingested and can cause skin irritations through frequent contact.

<u>Personal Protection</u> – Wear full protective clothing, including goggles.

<u>Storage</u> – Protect against physical damage. Store in leak-proof containers or tanks. Isolate from sources of ignition. No smoking in storage area. Store only in designated flammable/combustible storage area.

<u>Fire Fighting</u> – For oils extinguish with suitable foam-type extinguisher. For solvents and other organic wastes use drum chemical foam or carbon dioxide (water may be ineffective). Water could be used to keep fire-exposed containers and tanks cool. If a leak or spill has not ignited use water spray to disperse the vapors and to protect personnel attempting to stop a leak. Water spray may be used to flush spill away from ignition sources.

Table G-2 (Cont'd) Waste Characteristics

Material Category: Pesticides (Toxic)

Material Data:

<u>Health Hazard</u> – Vapors from toxic concentrations at slightly elevated temperatures. Vapors cause headaches, nausea and irritation of eyes, nose and throat. Toxic by skin contact, ingestion or inhalation. Decomposition products are highly toxic and irritating.

<u>Personal Protection</u> – For liquids and dry powder wear full protective clothing including respiratory protection and eye protection.

<u>Storage</u> – Store in sealed containers and protect against physical damage. Store in a cool, dry, well ventilated location away from any acute fire hazard area. Outside, detached storage is preferred and separate from other storage.

<u>Fire Fighting</u> – For liquids use water spray, carbon dioxide, dry chemical, or foam. Use water to keep fire-exposed containers cool. If a leak or spill has not ignited use water spray to disperse vapors and provide personal protection. Water spray may be used to flush spills away from ignition sources.

Material Category: Non-Hazardous

Material Data:

<u>Health Hazard</u> – Generally non-toxic, but may be irritating to skin and eyes.

Personal Protection - Gloves and googles.

Storage – Keep separate from incompatible materials..

<u>Fire Fighting</u> – For liquids use carbon dioxide, or foam extinguisher. For solids, use water spray or carbon dioxide extinguisher.
Table G-3

Emergency Equipment and Location

Quantity*	Equipment	Location
7	Emergency body shower & eyewash station	See drawing R-02
1	Fire blanket with wall-mounted cabinet	See drawing R-02
10	First aid cabinets	See drawing R-02
3	Class 1/Div 1 Flashlights	Emergency Rescue Truck
12	Standard size chemical splash goggles	Security Building (2 nd floor)
93	Multipurpose fire extinguisher	See drawing R-03
4	CO ₂ extinguisher	See drawing R-03
25 pair	Chemical Resistant Gloves	Security Building (2 nd floor)
100's	Tyvek Hazmat Suits	Security Building (2 nd floor)
2 per kit		In all spill Kits
2.50		On ERT truck
depending on dept		Small supplies stocked in each department
2	Level A Hazmat Suits	Administration Building
3	5 Minute emergency escape units	Chem Fix, Depack, Chem Pre
8	30 Minute SCBA	Drum Dock, DePack, Emergency Rescue Truck
3	30 Minute SCBA Spare Tanks	Emergency Rescue Truck

The electronic version of this document is the controlled version. Each user is responsible for ensuring that any document being used is the current version.

Quantity*	Equipment	Location
8	Supplied Air Face Masks	Drum Dock, DePack, Emergency Rescue Truck
6	Shovels, metal and plastic	Main Plant
6	Polyethylene hard hats, plastic	Administration Building
8	Extra Full face Air Purifying Respirators (note that necessary individuals are assigned their own)	Security Building (2 nd floor)
100	Filter Cartridges for APR	Security Building (2 nd floor)
4	Automatic External Defibrillator	See drawing R-02
7	Spill Kits	See drawing R-01

*Please note that quantities are approximate.

Section H

PERSONNEL TRAINING PROGRAM

(R 299.9501, R 299.9605, and 40 CFR 264.16, and 270.14(b)(12))

PERSONNEL TRAINING PROGRAM

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Appendices

All Appendices listed below and referenced in this section are found in the Appendices Tab of this application

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PERSONNEL TRAINING FOR SAFE FACILITY OPERATION AND MAINTENANCE

(R 299.9501, R 299.9605, and 40 CFR 264.16, and 270.14(b)(12))

H-1 Content of Introductory and Continuing Education Training Programs

(R 299.9605 and 40 CFR 264.16(a))

EQ completes all required compliance training for associates in a timely manner. To accomplish this, a comprehensive training plan is followed which encompasses safety, compliance with environmental standards, and job-specific training such as adherence to the Waste Analysis Plan (WAP). One module found within this training plan is the training required under RCRA for persons who work at a hazardous waste facility. The requirements in 40 CFR 264.16 state that workers be given a baseline awareness of potential hazards at the facility and how to respond to an incident involving the release of waste, as referenced in the site Contingency Plan.

H-1a Outline for Introductory Training Program

(R 299.9605 and 40 CFR 264.16(a)(1) and 264.16(d)(3))

EQD introductory training program for all new employees and employees who have transferred from another EQ location includes the training outlined in the Table below:

Training	Personnel Trained	Frequency
Advanced First Aid	ERT Selected Personnel	2 years
Aerial Work Platform (Operator's License)	ERT, and Maintenance	3 years
Arc Flash Awareness	EHS, and Maintenance	Once
Audiometric Testing	Chem-fix, Chem-pre, Maintenance	1 year
Automated External Defibulator (AED)	ERT Selected Personnel	2 years
Back Safety/Safe Lifting	All	Once
Bloodborne Pathogen Training	All	1 year
Chemical Hygiene Plan	Laboratory	1 year
Cold Stress Training	All	1 year
Compressed Gas Cylinder Field Procedure	Approvals, and Drumdock	1 year
Compressed Gas Cylinder Training	Chem-pre, Drumdock, ERT, Laboratory, and Maintenance	Once
Compressed Gas Cylinder Awareness	All	Once
Confined Space Entry Trainer	Chem-pre, ERT, and Maintenance	3 years (ERT 1 year)

Personnel Training Program EPA ID No. MID 980 991 566

Training	Personnel Trained	Frequency
Confined Space Rescue	ERT	1 year
Confined Space Entry Awareness	All	Once
Contractor Safety	Managers	Once
CPR	ERT Selected Personnel	2 years
Crane Operator Training	Job Specific	Once
Crane Operator Training (Overhead - Railcar lid lifting)	Chem-fix, and Maintenance	Once
DOT Air Shipping / IATA	Job Specific	3 years
DOT HM126 General Awareness, and Function Specific	All except maintenance	3 years
DOT HM232 Hazmat In-Depth Security Plan	All	3 years
DOT Rail	Job Specific	3 years
Emergency Action Plan Procedures	All	1 year
Ergonomic Injury Prevention Training	All	Once
Ergonomic Awareness	All	Once
Escape Respirator Training	Chem-fix, Chem-pre	Once
Eyewash & Shower Training	All	Once
Fall Protection Training	Chem-pre, ERT, Maintenance, and Receiving	Once
Fall Protection Awareness	All	1 year
First Aid	ERT Selected Personnel	2 years
First Aid & Medical Services Awareness	All	Once
Fire Extinguisher Training	All	1 year
Fire Suppression Training	Chem-fix, Drumdock, ERT, and Maintenance	Once
Forklift Training	Chem-fix, Chem-pre, Drumdock, ERT, and Maintenance	Once
Forklift (Operator's License)	Chem-fix, Chem-pre, Drumdock, ERT, and Maintenance	
Forklift Awareness	All	Once
Gas Disable Switch for Oxidizer Processing	Chem-fix, ERT, and Maintenance	1 year

Personnel Training Program

EPA ID No. MID 980 991 566

Training	Personnel Trained	Frequency
Hazard Communication Training	All	1 year
Hazwoper 24 Hour	All	Once
Hazwoper 40 Hour	ERT	Once
Hazwoper 8 Hour Refresher	All	1 year
Hearing Conservation Training	Chem-fix, Chem-pre, Drumdock, ERT, and Maintenance	1 year
Hearing Conservation Awareness	All	Once
Heat Stress Training	All except office personnel	Once
Heat Stress Awareness	All	Once
High Angle Rescue	ERT	1 year
Hot Work Training	Maintenance	1 year
Hot Work Awareness	All	Once
Hydrofluoric Acid First Aid	ERT	Once
Hydrofluoric Acid	Approvals, Chem-fix, Drumdock, ERT, Laboratory, and Receiving	Once
Incident Command System	ERT, Lead Operators, Managers, and Supervisors	1 year
Job Hazard Analysis (JHA)	All	Once
Ladder & Stairway Safety	All	3 years
Ladder & Stairway Awareness	All	Once
Lockout / Tagout Training	Chem-pre, EHS, ERT, and Maintenance	1 year
Lockout / Tagout Awareness	All	Once
Machine Guarding Training	Chem-fix, Chem-pre, Laboratory, and Maintenance	3 years
Machine Guarding Awareness	All	Once
New Employee Orientation	All	Once
Oxygen Administration	ERT	Once
Personal Protective Equipment Training	All	1 year
Personal Protective Equipment Awareness	All	Once
RCRA / Contingency Plan / SPCC	All	1 year
Respirator Fit Test	All personnel issued respirator	1 year

Training	Personnel Trained	Frequency
Respiratory Protection Training	All personnel issued respirator	1 year
Respiratory Protection Awareness	All	Once
Roll-off Training	Job Specific	Once
Safe Rigging Training	Maintenance	3 years
SCBA Training	Drumdock, EHS, ERT, and Receiving	1 year
Stop Work Authority	All	Once

Each employee is also given department specific training for their job function and area by their Supervisor. The training outline followed for new EQD employees "EQ New Employee or Job Transfer / Contractor Safety Orientation Checklist" is found in **Appendix H-1**. Note that training obligations may change.

H-1b RCRA Contingency Plan and Emergency Response Procedures

All incoming employees are provided training in the EQD Contingency Plan and Emergency Response Procedures in compliance with 40 CFR 264.16. This training is designed to meet actual job tasks in accordance with RCRA regulatory requirements in 40 CFR 264.16(a)(3). Facility personnel shall successfully complete a program of classroom instruction and on-the-job training that instructs them in performing their duties in a manner that ensures the facility's compliance with the requirements of this part. The curriculum includes all the elements to fulfill both introductory and continuing training that will be given to each person filling a position related to hazardous waste management at the facility. A supervisor or manager provides new employees with instruction on job-related standard operating procedures and other on-the-job training. This program instructs the new employee in hazardous waste management procedures including Contingency Plan implementation relevant to the employee's position.

H-1c Training Curriculum

The training program is designed to ensure that facility personnel can respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment and emergency systems including:

- Procedures for using, inspecting repairing, and replacing facility emergency and monitoring equipment
- Key parameters for automatic waste feed cutoff systems
- Communications or alarm systems
- Responses to fires or explosions
- Response to groundwater contamination incidents
- Shutdown of operations

Each affected person completes the program within six months after the effective date of these regulations or six months after the date of their employment or assignment to the facility. Employees hired after the effective date of these regulations must not work in unsupervised positions until they have completed the training requirements of the RCRA Contingency Plan and Emergency Response Procedures.

H-1d Outline for Continuing Education

(R 299.9605 and 40 CFR 264.16(a)(1) and 264.16(d)(3))

Reference the Table in section H-1a for the outline of training, personnel receiving the training, and the frequency of the training.

H-2 Personnel Subject to Job Training

(R 299.9605 and 40 CFR 264.16 (a), (d))

H-2a Job Titles and Description

(R 299.9605 and 40 CFR 264.16(d)(1),(2))

Job titles and employee names filling the positions are maintained at the facility in electronic or paper form and may be regularly updated to meet the needs of the facility. As an example of the current titles for each position at the facility related to waste management see **Appendix H-2**.

Job descriptions are maintained at the facility in electronic or paper form and are regularly updated by facility personnel and human resources to reflect the needs of the facility. As an example of the current job descriptions are provided for each position listed above in Appendix H-2. **Appendix H-2** may not include all job descriptions; EQD will update and/or add job descriptions as necessary.

H-2b Description of How Training is designed to Meet Actual Job Tasks

(R 299.9605 and 40 CFR 264.16(a) and (d)(3))

A written description of the type, date and amount of both introductory training and continuing training that will be given to each person filling a given job position is found in **Appendix H-2** and a summary is provided in the Table located in H-1a. **Appendix H-2** may be changed or updated to reflect changes in RCRA, OSHA or EQD Management System training requirements.

H-3 Frequency of Required Training

(R 299.9605 and 40 CFR 264.16(b),(c))

H-3a Initial Training

(R 299.9605 and 40 CFR 264.16(b))

New employees and those employees who are reassigned to new positions are first required to review the written training program for the position they are to fill. Upon completion, the personnel are given 40-hours of on-the-job training within one month of his/her hire date. No employee hired to work at EQD will work unsupervised prior to

successful completion of the training program and all requirements specific to the job assignment.

H-3b Continuing Education

(R 299.9605 and 40 CFR 264.16(c))

All EQD facility personnel are required to meet annually for reviews and updates of initial RCRA/Emergency Response Program Training.

H-4 Training Director

(R299.9605 and 40 CFR 264.16(a)(2)

Training will be completed by qualified personnel or contractors (based on experience or education) knowledgeable in hazardous waste management procedures.

H-5 Documentation and Recordkeeping Requirements

(R 299.9605 and 40 CFR 264.16(d))

H-5a Documentation

(R 299.9605 and 40 CFR 264.16(d))

Training records are maintained at the facility in paper or electoronic form. Record retention is completed in accordance with RCRA requirements with current personnel being kept until the closure of the former personnel being kept for 3 years after their departure. The records are inclusive of the following information:

H-5a(i) Job Titles and Names of Employees Filling Each Job

(R 299.9605 and 40 CFR 264.16(d)(1))

Job Title for each position at the facility related to hazardous waste management and the name of the employee filling each job.

H-5a(ii) Written Job Description

(R 299.9605 and 40 CFR 264.16(d)(2))

A written job description for each position should be consistent in its degree of specificity with description for other similar positions in the same company location or bargaining unit, but must include the requisite skill, experience, education or other qualifications and responsibilities of employees assigned to each position. It should be noted that EQD may update and/or add job descriptions as necessary.

H-5a(iii) Written Description of Type and Amount of Training by Position

(R 299.9605 and 40 CFR 264.16(e))

A description of the type and amount of training given to each position (by department) is found Table H-1a.

- H-5a(iv) Documentation that Training Has Been Given to, and Completed by, Facility Personnel
- (R 299.9605 and 40 CFR 264.16(d)(4))

EQD maintains records that document that the RCRA Emergency Response Program training and job experience have been successfully completed by facility personnel. This includes records of initial training and continued annual reviews including certificates of completion.

H-5b Recordkeeping

(R 299.9605 and 40 CFR 264.16(e))

Employee training records on current personnel are kept until closure of the facility. Training Records on former employees are kept for at least three years from the date the employee last worked at the facility. Such records are maintained on site.

Personnel training records may accompany personnel transferred within the same company to another location.

Section I

FORM EQP 5111 ATTACHMENT TEMPLATE A11 CLOSURE AND POSTCLOSURE CARE PLANS

This document is an attachment to the Michigan Department of Environment, Great Lakes, and Energy's (EGLE) *Instructions for Completing Form EQP 5111, Operating License Application Form for Hazardous Waste Treatment, Storage, and Disposal Facilities.* See Form EQP 5111 for details on how to use this attachment.

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, (Act 451), R 299.9613 and Title 40 of the Code of Federal Regulations (CFR), Part 264, Subpart G, establishes requirements for the closure and, if necessary, postclosure care of hazardous waste management facilities. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003. This license application template addresses requirements for the proper closure for EQ Detroit, Inc. (dba US Ecology – Detroit South) in Detroit, Michigan. The information provided in this template was used to prepare the closure care cost estimate provided in Template A12, "Closure Care Cost Estimates." See Appendix A-8 for the completed Template A12. Note that this facility does not have a landfill and therefore a Postclosure Plan is not necessary.

Ensure that all samples collected for waste characterization and environmental monitoring during closure care activities are collected, transported, analyzed, stored, and disposed by trained and qualified individuals in accordance with the QA/QC Plan. The QA/QC Plan should, at a minimum, include the written procedures outlined in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, Third Edition, Chapter 1 (November 1986), and its Updates.

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A11.A CLOSURE PLAN

A11.A.1 Closure Performance Standard

[R 299.9613 and 40 CFR §264.111]

This Closure Plan is designed to ensure the facility will be closed in a manner that achieves the following:

- a. Minimizes the need for further maintenance; and
- b. Controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, postclosure escape of hazardous wastes, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition byproducts to the groundwater, surface water, or atmosphere; and, as applicable
- c. Complies with the unit-specific closure requirements for each of the following units:

✓	Use and management of containers	R 299.9614 and 40 CFR §264.178
✓	Tank systems	R 299.9615 and 40 CFR §264.197
	Surface impoundments	R 299.9616 and 40 CFR §264.228
	Waste piles	R 299.9617 and 40 CFR §264.258
	Land treatment ^a	R 299.9618 and 40 CFR §264.280
	Landfill	R 299.9619 and 40 CFR §264.310
	Incinerators	R 299.9620 and 40 CFR §264.351
	Drip pads ^b	R 299.9621 and 40 CFR §264.575
	Miscellaneous units	R 299.9623 and 40 CFR §§264.601-603
	Hazardous waste munitions and explosive storage $^{\mbox{\scriptsize b}}$	R 299.9637 and 40 CFR §264.1202
	Boilers and industrial furnaces	R 299.9808 and 40 CFR §266.102(e)(11)

^a Not included in the template

^b Not yet included in 40 CFR §264.111; therefore not considered

Unit-specific closure procedures are discussed in Section A11.A.5 of this template for each unit type indicated above.

A11.A.2 Unit-Specific Information

[R 299.9613 and 40 CFR §§264.112(b)(3) and (6)]

Hazardous Waste Management Units Information

The following tables identify each hazardous waste management unit at the EQ Detroit, Inc. facility subject to the closure requirements of this hazardous waste management facility operating license. The tables also include: each unit's maximum licensed hazardous waste inventory, a list of the waste codes managed in the unit, the anticipated date of closure (if known), and the estimated duration of closure activities once closure begins. Unit-specific methods for closure and detailed schedules are discussed in Section A.11.A.5 of this template. See Table A11.A.3 for the estimated duration of closure activities.

See waste code list in Section C, Appendix A, Hazardous Waste Codes

Table A11.A.1 Container Storage Area

Unit Designation	Maximum Inventory	Waste Codes of Hazardous Wastes Managed	Scheduled Closure Date
Rail Area	See Section D, Table D-2	See Section C, Appendix A	N/A
Container Storage Area (Drum Warehouse)	See Section D, Table D-2	See Section C, Appendix A	N/A
Container Staging Area (Receiving Area)	See Section D, Table D-2	See Section C, Appendix A	N/A
Corrosive Container Pad (Acid Room)	See Section D, Table D-2	See Section C, Appendix A	N/A
Chemical Precipitation Container Pad (Chem Pre)	See Section D, Table D-2	See Section C, Appendix A	N/A
North Container Storage Pad (North Pad)	See Section D, Table D-2	See Section C, Appendix A	N/A
Chemical Fixation Building (Chem Fix)	See Section D, Table D-2	See Section C, Appendix A	N/A
Depack Area	See Section D, Table D-2	See Section C, Appendix A	N/A
DePack Drum Storage Pad	See Section D, Table D-2	See Section C, Appendix A	N/A

Table A11.A.2 Bulk Hazardous Waste

Unit Designation	Maximum Inventory	Waste Codes of Hazardous Wastes Manageo	Scheduled Closure Date
T-201	See Section D, Table D-1	See Section C, Appendix A	N/A
T-202	See Section D, Table D-1	See Section C, Appendix A	N/A
T-203	See Section D, Table D-1	See Section C, Appendix A	N/A
T-204	See Section D, Table D-1	See Section C, Appendix A	N/A
T-205	See Section D, Table D-1	See Section C, Appendix A	N/A
T-206	See Section D, Table D-1	See Section C, Appendix A	N/A
T-208	See Section D, Table D-1	See Section C, Appendix A	N/A
T-207	See Section D, Table D-1	See Section C, Appendix A	N/A
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Unit Designation	Maximum Inventory	Waste Codes of Hazardous Wastes Managed	Scheduled Closure Date
T-301	See Section D, Table D-1	See Section C, Appendix A	N/A
T-302	See Section D, Table D-1	See Section C, Appendix A	N/A
T-303	See Section D, Table D-1	See Section C, Appendix A	N/A
T-304	See Section D, Table D-1	See Section C, Appendix A	N/A
T-305	See Section D, Table D-1	See Section C, Appendix A	N/A
T-306	See Section D, Table D-1	See Section C, Appendix A	N/A
T-701	See Section D, Table D-1	See Section C, Appendix A	N/A
T-702	See Section D, Table D-1	See Section C, Appendix A	N/A
T-703	See Section D, Table D-1	See Section C, Appendix A	N/A
T-704	See Section D, Table D-1	See Section C, Appendix A	N/A
T-705	See Section D, Table D-1	See Section C, Appendix A	N/A
T-706	See Section D, Table D-1	See Section C, Appendix A	N/A
Clarifier	See Section D, Table D-1	See Section C, Appendix A	N/A
H-1 (S-5)	See Section D, Table D-1	See Section C, Appendix A	N/A

A11.A.3 Schedule of Final Facility Closure

[R 299.9613 and 40 CFR §264.112(b)(6)]

The EQ Detroit, Inc. facility:

✓ Has not determined when the facility will close and does not anticipate completing final closure of the entire facility prior to expiration of the facility's hazardous waste operating license.

Table A11.A.3 Estimated duration of Closure

Closure Activity	
1. Removal, Treatment, and Disposal of Waste Inventory	
2. Cleaning of Tanks	
3. Cleaning of Equipment	
4. Cleaning Concrete & Asphalt Surfaces	
5. Disposal of Decontamination Agents	
6. Sampling, Analysis & Background	
Total # of days	Approximately 180

A11.A.4 Notification and Time Allowed for Closure

[R 299.9613 and 40 CFR §§264.112(d)(2) and 264.113(a) and (b)]

Final closure activities will be initiated within 90 days of receipt of the final volume of hazardous wastes and completed within 180 days of receipt of the final volume of waste. The tasks and estimated time required for closure shall follow the schedule specified in Section A11.A.3. The Director will be notified by EQ Detroit, Inc. facility 60 days before final closure begins. Final closure will be certified by both EQ Detroit, Inc. facility and an independent, qualified, registered professional engineer of the state of Michigan.

A11.A.4(a) Extensions for Closure Time

[R 299.9613 and 40 CFR §264.113(a) and (b)]

In the event that an extension for closure for the facility or any unit is necessary, the EQ Detroit, Inc. facility will request an extension in accordance with the requirements of 40 CFR §264.113(a).

A11.A.5 Unit-Specific Closure Procedures

Unit-specific closure procedures are provided for each unit identified in Section A11.A.2 of this template.

A11.A.5(a) Closure of Container Storage Areas

[R 299.9614 and 40 CFR §264.178]

This section describes the procedures for closure of the units identified in Table A11.A.1. The general closure requirement and specific closure procedures are discussed below.

A. <u>General Closure Requirement</u>

At closure, all hazardous waste and hazardous waste residues will be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be decontaminated or removed.

B. <u>Specific Closure Procedures</u>

Specific procedures for inventory management, unit inspection, decontamination, sampling and analysis, and additional waste management are discussed below.

1. Inventory and Remedial Waste Management Procedures

All hazardous wastes in the container storage areas will be treated on site or manifested and shipped by a licensed hazardous waste transporter to an approved licensed hazardous waste facility. Any hazardous wastes in the container storage areas that are treated on site will be treated in accordance with 40 CFR Part 268 and treatment residues will be transported to a proper licensed facility for landfill disposal. All soil and rinse waters generated during decontamination and any other remediation wastes generated will be characterized for disposal and managed in accordance with Parts 111, 115 and 121 of Act 451, as appropriate. If hazardous debris are generated during closure, they will be treated in accordance with 40 CFR 268.45. The representative sampling procedures used for remediation wastes and decontamination agents are addressed in A11.A.5(a)B.4.

The container staging and storage areas were designed and constructed for the purpose of storing hazardous wastes. Containers are stored in a manner that will prevent and contain potential releases within the containment area, and all containment areas were designed to contain any spills that may occur without adversely impacting the environment. The means of containing spills in containment areas include creating impervious surfaces via epoxy coatings, xypex impregnation or PVC liners, and sloping areas to blind sumps, trench containments, or to a spill containment structure via an under-drain system. With proper containment for any releases and an established spill response program, it is unlikely that the containment areas will be contaminated at the time of closure. Decontamination procedures are addressed in A11.A.5(a)B.3.

2. Unit Inspection Procedures

Notwithstanding the design and practices noted herein, at the time of closure, the container storage area, the loading docks and related containment areas, and the container bulking area shall be inspected for cracks and gaps. If any are found, and if the approved closure plan has to be amended, EQ Detroit, Inc. shall submit a written request to the EGLE for approval to modify the plan. If approved and needed, a closure plan amendment that provides for soil sampling beneath the concrete areas possibly affected by such cracks or gaps will comply with all of the applicable provisions specified in 40 CFR 264.1129(c)(3). The closure plan amendment shall include the following elements:

- A map showing the proposed sampling locations
- The depth at which samples are to be collected
- The procedures to be used to collect soil samples
- The parameters that are proposed for testing
- The procedures to be used to decontaminate any non-dedicated equipment and to document that the equipment was adequately cleaned
- A description of the method(s) to be used to evaluate the analytical data
- The proposed response activities that will be undertaken to address any contaminated areas
- A schedule for the work to be conducted
- 3. Decontamination Procedures
- List of equipment and structures to be decontaminated
 - Sumps, containment trenches and pits, under-drain systems, loading docks, containers, and secondary containment structures
- Decontamination procedures
 - Container storage areas and associated containment systems will be triple rinsed with high-pressure water and using soap and/or sodium hydroxide solution. The rinse water will be collected and placed into drums after each rinse.
 - All rinse water will be discharged to the city sewer system if it meets the discharge limits. If the rinse does not meet the restrictions, it will be shipped off-site to an approved treatment facility.
- Measures to ensure decontaminated liquids (if applicable) do not migrate to surface soils or surface waters
 - To prevent the migration of contaminants to surface soils or surface waters, the container storage areas and associated containment systems will be inspected for any deterioration that would result in release of decontamination liquids to the environment (see section A11.A.5(a)B.2). The rinse water will be collected and placed into drums after each rinse. All rinse water will be discharged to the city sewer system if it meets the discharge limits. If the rinse does not meet the restrictions, it will be shipped off-site to an approved treatment facility (see section A11.A.5(a)B.5).
- Criteria for determining whether decontamination is complete

- High pressure triple-rinsing using soap and/or sodium hydroxide solution and visual inspection shall be performed to verify that all contamination has been removed.
- Decontamination of clean-up materials and equipment
 - Final decontamination of equipment and materials will be completed using high pressure decontamination with water. The rinse water will be collected and placed into drums after each rinse. All rinse water will be discharged to the city sewer system if it meets the discharge limits. If the rinse does not meet the restrictions, it will be shipped off-site to an approved treatment facility (see section A11.A.5(a)B.5).
- 4. Sampling and Analysis Procedures

Sampling and analysis will be conducted in compliance with the following:

- DEQ Sampling Strategies & Statistics Training Materials for Part 201 Cleanup Criteria (S3TM) will be used to determine sampling distance, depth, verification of remediation, etc. See the EGLE website for a copy of this reference document.
- DEQ Application of Target Detection Limits and Designated Analytical Methods, March 2016
- Part 111, Hazardous Waste Management, of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.
- Part 201, Environmental Remediation, of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Clean-up criteria will be the Part 201 Tables dated September 28, 2012 for groundwater and the non-residential criteria for soil. For metals in soils, a site-specific background plan may be developed and submitted to EGLE for review and approval to be utilized in evaluating metal concentrations.
- In the event that soil vapor intrusion is determined to be a viable pathway for exposure to volatile chemicals, soil gas will be sampled and the results evaluated utilizing EGLE's Site Specific Non-Residential Volatilization to Indoor Air Criteria.
- Appendix I to Part 261 Representative Sampling Methods
- EPA SW-846 Test methods for Evaluating Solid Waste: Physical/Chemical Methods
- The QA/QC plan which contains the written procedures outlined in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, Third Edition, Chapter 1 (November 1986), and its Updates

Sampling Methods

Rinse Waters

Rinse water will be collected and placed in drums. A representative sample of the rinse water will then be collected in accordance with Appendix I to Part 261 – Representative Sampling Methods and analyzed for the parameters listed in the below Analysis section. The rinse water will be discharged to the city sewer system if discharge limits are met or shipped off site to an approved treatment facility if discharge limits are not met.

Soil

The purpose of the soil sampling program will be to determine any contamination that must be addressed in compliance with Part 111 and Part 201. After decontamination of container storage areas and all containment areas and systems, initial soil samples will be collected. Representative

samples will be collected in accordance with Appendix I to Part 261 – Representative Sampling Methods. Sampling will be conducted in compliance with S3TM and samples will be collected, preserved, and tested in accordance with specified sampling and analytical methods defined in SW-846 when available. Grab samples will be collected at a depth of 0" to 6" and properly preserved in accordance with laboratory specified procedures for the constituents of concern. Determination of soil sample location and the number of samples collected will be based on the following criteria:

- 1) Where cracks or gaps or otherwise mechanisms for release are identified during the unit inspection procedure outlined in A11.A.5(a)B.2.
- 2) Any other areas of suspect contamination

If analysis (as detailed in the next section) verifies that no contamination exists, then no further sampling will be required. If the initial samples show contamination, further sampling will be required to determine the extent of contamination. The following activities will be completed to identify the extent of contamination and to ensure decontamination is complete:

- Soil samples will be collected in the horizontal and vertical direction relative to the original sample boring location to determine the complete extent of soil contamination. The number of samples and scope of sampling will be determined based on initial and subsequent sampling results.
- 2) If perched groundwater is encountered during soil sample collection in the impacted area, a water sample will be collected.
- 3) The samples collected in the impacted area will be analyzed for the contaminant of concern identified in the initial sample results. Laboratory analysis of the delineation of samples will be conducted in accordance with the methods detailed in the below Analysis section.
- 4) Excavation of the soil found to be contaminated will be initiated. Excavation may be restricted if physical limitations are imposed by building foundation. Upon completion of initial excavation, the sample location will be resampled. If any samples exceed background, the excavation procedures will be repeated at 0.5 feet intervals until clean closure is documented.

Analysis

Each sample will be tested for metals, VOCs, Semi-Volatiles, pesticides, herbicides, cyanides, mercury, and PCB's. The laboratory analysis of the samples will be conducted in accordance with the DEQ Application of Target Detection Limits and Designated Analytical Methods, March 2016 and associated target detection levels to allow comparison to the cleanup criteria established pursuant to Part 201, or the appropriate guidance at the time of closure. Under R299.9613(6), more stringent clean-up criteria might be needed for closure determination if Part 201 limits are less stringent than RCRA. Any monitoring parameters not exceeding the Generic Industrial Cleanup Criteria at a particular sample location will be removed from further consideration at that location. Background samples will be collected from a minimum of four boring locations at unimpacted areas located within the boundaries of the site but beyond the limits of the permitted facility.

The estimated time to perform soil sampling and analyses is approximately 30 days or longer and is subject to time requirements of the third-party laboratories responsible for reporting results.

5. Additional Waste Management Procedures

All waste inventory, decontamination material, or remediation waste that cannot be treated on site will be characterized in accordance with R299.9203 and shipped off-site to an approved treatment facility. There are no additional waste management procedures.

A11.A.5(b) Closure of Tank Systems

[R 299.9615 and 40 CFR §264.197]

This section describes the procedures for closure of the units identified in Table A11.A.2. The general closure requirement and specific closure procedures are discussed below. The general closure requirement and specific closure procedures are discussed below.

A. <u>General Closure Requirement</u>

At closure of the tank system, the EQ Detroit, Inc. facility will remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as hazardous waste, unless 40 CFR §264.3(d) applies. If the EQ Detroit, Inc. facility demonstrates that not all contaminated soils can be practicably removed or decontaminated, then the tank system will be managed in accordance with the closure and postclosure care requirements that apply to landfills.

B. <u>Specific Closure Procedures</u>

Specific procedures for inventory management, unit inspection, decontamination, sampling and analysis, and additional waste management are discussed below.

1. Inventory and Remedial Waste Management Procedures

All hazardous waste remaining in the treatment or storage tanks will be pumped through the treatment process by plant personnel. All soil and rinse waters generated during decontamination of treatment/storage tanks, filter press, and containment structures at the time of closure and any other remediation wastes generated will be characterized for disposal and managed in accordance with Parts 111, 115 and 121 of Act 451, as appropriate. If hazardous debris are generated during closure, they will be treated in accordance with 40 CFR 268.45. The representative sampling procedures used for remediation wastes and decontamination agents are addressed in A11.A.5(b)B.4.

2. Unit Inspection Procedures

At the time of closure, the treatment/storage tanks, filter press and containment structures shall be inspected for cracks and gaps. If any are found, and if the approved closure plan has to be amended, EQ Detroit, Inc. shall submit a written request to the EGLE for approval to modify the plan. If approved and needed, the closure plan amendment that provides for soil sampling beneath the concrete areas possibly affected by such cracks or gaps will comply with all of the applicable provisions specified in 40 CFR 264.1129(c)(3). The closure plan amendment shall include the following elements:

- A map showing the proposed sampling locations
- The depth at which samples are to be collected
- The procedures to be used to collect soil samples
- The parameters that are proposed for testing
- The procedures to be used to decontaminate any non-dedicated equipment and to document that the equipment was adequately cleaned
- A description of the method(s) to be used to evaluate the analytical data
- The proposed response activities that will be undertaken to address any contaminated areas
- A schedule for the work to be conducted
- 3. Decontamination Procedures
- List of equipment and structures to be decontaminated

Treatment/storage tanks, filter press, and associated secondary containment structures.

- Decontamination procedures
 - All treatment tanks, storage tanks, filter presses, related pumps and piping, and all containment structures will be triple rinsed with either hot water or high-pressure wash.
 - All rinse water generated during tank and equipment decontamination will be collected will be shipped off-site to an approved treatment facility for proper disposal. After sludge dewatering, the filter press will be decontaminated and the rinse water will be pumped out and shipped off-site to an approved treatment facility.
- Measures to ensure decontaminated liquids (if applicable) do not migrate to surface soils or surface waters
 - To prevent the migration of contaminants to surface soils or surface waters, the treatment/storage tanks, filter press and containment structures will be inspected for any deterioration that would result in release of decontamination liquids to the environment (see section A11.A.5(a)B.2). The rinse water will be collected and placed into drums after each rinse. All rinse water will be discharged to the city sewer system if it meets the discharge limits. If the rinse does not meet the restrictions, it will be shipped off-site to an approved treatment facility (see section A11.A.5(a)B.5).
- Criteria for determining whether decontamination is complete
 - High pressure triple rinsing using soap and/or sodium hydroxide solution and visual inspection shall be performed to verify that all contamination has been removed.
- Decontamination of clean-up materials and equipment
 - Final decontamination of equipment and materials will be completed using high pressure decontamination with water. The rinse water will be collected and placed into drums after each rinse. All rinse water will be discharged to the city sewer system if it meets the discharge limits. If the rinse does not meet the restrictions, it will be shipped off-site to an approved treatment facility (see section A11.A.5(a)B.5).

4. Sampling and Analysis Procedures

Sampling and analysis will be conducted in compliance with the following:

- DEQ Sampling Strategies & Statistics Training Materials for Part 201 Cleanup Criteria (S3TM) will be used to determine sampling distance, depth, verification of remediation, etc. See the EGLE website for a copy of this reference document.
- DEQ Application of Target Detection Limits and Designated Analytical Methods, March 2016
- Part 111, Hazardous Waste Management, of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.
- Part 201, Environmental Remediation, of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Clean-up criteria will be the Part 201 Tables dated September 28, 2012 for groundwater and the non-residential criteria for soil. For metals in soils, a site-specific background plan may be developed and submitted to EGLE for review and approval to be utilized in evaluating metal concentrations.
- In the event that soil vapor intrusion is determined to be a viable pathway for exposure to volatile chemicals, soil gas will be sampled and the results evaluated utilizing EGLE's Site Specific Non-Residential Volatilization to Indoor Air Criteria.
- Appendix I to Part 261 Representative Sampling Methods
- EPA SW-846 Test methods for Evaluating Solid Waste: Physical/Chemical Methods
- The QA/QC plan which contains the written procedures outlined in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, Third Edition, Chapter 1 (November 1986), and its Updates

Sampling Methods

Once the treatment tanks, storage tanks, filter presses, and associated equipment are removed, a limited sampling program in accordance with the procedures outlined below will be initiated. Since the hazardous waste tanks and filter presses were contained within concrete containment structures, there is no exposed soil in the area. Therefore, samples will be taken at any major low spot in the floor.

Rinse Waters

Rinse water will be collected and placed in drums. A representative sample of the rinse water will then be collected in accordance with Appendix I to Part 261 – Representative Sampling Methods and analyzed for the parameters listed in the below Analysis section. The rinse water will be discharged to the city sewer system if discharge limits are met or shipped off site to an approved treatment facility if discharge limits are not met.

Soil

The purpose of the soil sampling program will be to determine any contamination that must be addressed in compliance with Part 111 and Part 201. After decontamination the treatment/storage tanks, filter press and containment structures, initial soil samples will be collected. Representative samples will be collected in accordance with Appendix I to Part 261 – Representative Sampling Methods. Sampling will be conducted in compliance with S3TM and samples will be collected, preserved, and tested in accordance with specified sampling and analytical methods defined in SW-846 when available. Grab samples will be collected at a depth of 0" to 6" and properly

preserved in accordance with laboratory specified procedures for the constituents of concern. Determination of soil sample location and the number of samples collected will be based on the following criteria:

- 1) Where cracks or gaps or otherwise mechanisms for release are identified during the unit inspection procedure outlined in A11.A.5(b)B.2.
- 2) Any other areas of suspect contamination

If analysis (as detailed in the next section) verifies that no contamination exists, then no further sampling will be required. If the initial samples show contamination, further sampling will be required to determine the extent of contamination. The following activities will be completed to identify the extent of contamination and ensure to decontamination is complete:

- Soil samples will be collected in the horizontal and vertical direction relative to the original sample boring location to determine the complete extent of soil contamination. The number of samples and scope of sampling will be determined based on initial and subsequent sampling results.
- 2) If perched groundwater is encountered during soil sample collection in the impacted area, a water sample will be collected.
- 3) The samples collected in the impacted area will be analyzed for the contaminant of concern identified in the initial sample results. Laboratory analysis of the delineation of samples will be conducted in accordance with the methods detailed in the below Analysis section.
- 4) Excavation of the soil found to be contaminated will be initiated. Excavation may be restricted if physical limitations are imposed by building foundation. Upon completion of initial excavation, the sample location will be resampled. If any samples exceed background, the excavation procedures will be repeated at 0.5 feet intervals until clean closure is documented.

Analysis

Each sample will be tested for metals, VOCs, Semi-Volatiles, pesticides, herbicides, cyanides, mercury, and PCB's. The laboratory analysis of the samples will be conducted in accordance with the DEQ Application of Target Detection Limits and Designated Analytical Methods, March 2016 and associated target detection levels to allow comparison to the cleanup criteria established pursuant to Part 201, or the appropriate guidance at the time of closure. Under R299.9613(6), more stringent clean-up criteria might be needed for closure determination if Part 201 limits are less stringent than RCRA. Any monitoring parameters not exceeding the Generic Industrial Cleanup Criteria at a particular sample location will be removed from further consideration at that location. Background samples will be collected from a minimum of four boring locations at unimpacted areas located within the boundaries of the site but beyond the limits of the permitted facility.

The estimated time to perform soil sampling and analyses is approximately 30 days or longer and is subject to time requirements of the third-party laboratories responsible for reporting results.

5. Additional Waste Management Procedures

All waste inventory, decontamination material, or remediation waste that cannot be treated on site will be characterized in accordance with R299.9203 and shipped off-site to an approved treatment facility. There are no additional waste management procedures.

A11.A.5(c) Other Closure Activities

[R 299.9504(1)(c), R 299.9508(1)(b), and R 299.9613(1) and 40 CFR §§270.14(b)(13) and 264.112(b)(5)}

There are no other closure activities.

A11.A.6 Certification of Closure [R 299.9613]

Within 60 days of completion of closure EQ Detroit, Inc. will submit to the Director, by registered mail, a certification that the hazardous waste management unit or facility, as applicable, has been closed in accordance with the specifications in the approved closure plan. The certification will be signed by the EQ Detroit, Inc. and by an independent registered professional engineer. Documentation supporting the independent registered engineer's certification will be furnished to the Director in accordance with R 299.9613(3), including:

- 1. The results of all sampling and analysis;
- 2. Sampling and analysis procedures;
- 3. A map showing the location where samples were obtained;
- 4. Any statistical evaluations of sampling data;
- 5. A summary of waste types and quantities removed from the site and the destination of these wastes; and
- 6. If soil has been excavated, the final depth and elevation of the excavation and a description of the fill material used.

The EQ Detroit, Inc. facility will maintain financial assurance for closure until the Director releases the EQ Detroit, Inc. facility from the financial assurance requirements for closure under R 299.9703.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A11.A.7 Postclosure Notices Filed

[R 299.9504(1)(c) and R 299.9508(1)(b) and 40 CFR §270.14(b)(14)]

Not applicable: The applicant must provide documentation that the postclosure notices required under 40 CFR §264.119 have been filed for hazardous waste disposal units that have been closed at the facility.

A11.B POSTCLOSURE PLAN

[R 299.9613 and 40 CFR §264.118]

- A11.B.1 Applicability
- ✓ Not applicable: Hazardous waste will not be left behind at closure. A survey plat, postclosure care, postclosure certifications, and other notices are not required.

SECTION J

ENVIRONMENTAL ASSESSMENT

Part 111 Hazardous Waste Management of the Michigan Natural Resources Environmental Protection Act, 1994 PA 451, as amended, Section 324.11118(3) and R 299.9504(1)(e), R 299.9504 (1)(b) of the Part 111 Act 451 Administrative Rules

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FIGURES

Figures J-1 through J-7 listed below and referenced in this section are provided on the Hydrogeological Data CD included with this application

- Figure J- 1: Glacial Surface Geology Map
- Figure J- 2: Glacial Drift Thickness Map
- Figure J- 3: Bedrock Formation Map
- Figure J- 4: Bedrock Surface Map
- Figure J- 5: Thickness Lithofacies Map of Dundee Formation
- Figure J- 6: Thickness Lithofacies Map of Traverse Formation
- Figure J- 7: Thickness % Shale Map of Traverse Group

TABLES

The table listed below and referenced in this section is found in the Tables Tab of this application

Table J-1: Summary of Anticipated Environmental Impact

APPENDICES

The Appendix listed below and referenced in this section is found in the Appendices Tab of this application

Appendix J- 1: Evaluation of Releases

Appendix J- 2: MiEJ Screen Area of Interest Report

J-1 Description of Existing Environment

J-1a Physiography

J-1a(i) Topography

The EQD facility site occupies an area of approximately 15.6 acres and is located at 1923 Frederick Street in the City of Detroit, Wayne County Michigan. The location of the subject property is shown on **Sheet A-01** which is a portion of the Topographic Map.

The site and the areas adjacent to it have a relatively flat surface topography, and there are no streams or lakes within one mile of the facility.

EQD is extensively developed, and several buildings and other structures exist on the buildings include office property. These buildings, The Main Treatment Building/Laboratory/Maintenance Shop, the Transfer/Storage Area, the Process Building, the North Drum Storage Building, the Guard Shack, the Waste Acceptance Building, the Chemical Fixation Building with associated storage silos. and the Lab Pack/HHW/Transfer and Processing Building. The remaining portion of the site is covered with asphalt/concrete pavement, gravel and/or grass. Sheet A-02 (Surveyed Property Description) depicts the general layout of the property.

A review of the Federal Emergency Management Agency, National Flood Insurance Rate (FEMA-NFIR), shows the Detroit River, located approximately 2.7 miles south of the site, as the nearest surface water body, and the closest potential flood risk in the surrounding area. Based on this mapping EQD lies within a Zone C area and is not considered subject to flooding.

J-1a(ii) Geology

Based on a review of **Figures J-1 and J-2** (the glacial surficial geology map and the glacial drift thickness map), and **Figures J-3 and J-4** (bedrock maps of Wayne County), the site sits on lacustrine clays near a small beach ridge and lies above two formations which form the bedrock surface, specifically the Dundee Limestone and the Traverse Group formations. Geologic bedrock maps indicate the bedrock surface boundary between these formations runs near the site.

Maps showing the thicknesses of the Dundee Limestone and the Traverse Group formations throughout the Lower Peninsula of Michigan are presented in **Figures J-5**, **J-6**, **and J-7**.

The Traverse Group formation is a 100- to 800-foot-thick sequence of alternating shales, limestones, and dolomites. 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 near 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 in the eastern portion of Michigan's Lower Peninsula. Although the Dundee Limestone 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 Limestone is limited as a confining layer.

J-1a(iii) Soils and Hydrology

Based on the results of previous investigations, the subsurface conditions at the EQD site are characterized by near-surface sands, and fills occur as blanket materials under pavement and consist primarily of brown, loose to medium-dense, fine sands. These sands are limited in extent to the upper one to two feet below the pavement surfaces. Granular fill was also found in the eastern portion of the site. Miscellaneous cohesive fills are present throughout the site extending to a depth of about four to five feet below existing ground surface. Near-surface clays present below the fill materials, to depths up to 14 feet, are predominately highly desiccated, very stiff to hard, silty brown clays. Lenses of oxidation are found throughout this upper clay, forming both vertical and horizontal planes of separation. These planes are generally found to be discontinuous and limited in extent.

The glacial, lacustrine clays found below a depth of about 14 feet are medium to hard, silty to sandy, gray clays. Clayey sand and/or silty sand layers within this clay are of substantial thickness, on the order of about two to 15 feet, between the depths of 40 to 60 feet. Similar layers are also found at a depth of about 25 feet but are limited to less than three feet in thickness. Hydrogeological reports from the surrounding area indicate that these clayey/silty sand layers are common to the area and appear to be generally continuous within individual site boundaries. However, because of their random nature, the layers are not considered to be continuous over substantially larger distances. Based on a review of the literature it is anticipated that these clayey soils continue to depths of about 150 feet below the ground surface.

Groundwater at EQD reportedly occurs in both the "upper" (less than 30 feet bgs) and "lower" (40 to 60 feet bgs) aquifers. Data from the previous investigations indicated generally very low to moderate groundwater yields to depths of approximately 100 feet below ground surface. Groundwater elevations at EQD generally decrease from southwest to northeast or east. For a more detailed description of the geology of the site, see **Section E**; Environmental Monitoring Systems.

J-1b Climate

The Great Lakes have a significant effect on the climate in the area by providing a source of moisture; by increasing cloudiness; by lowering temperatures in the summer; and moderating winter temperatures. Because the prevailing westerly winds coming off Lake Michigan pass over considerable expanses of land surface before reaching the eastern part of the state, the influence of the Great Lakes on this region's weather is somewhat modified. Whenever the winds are from the northeast, east, or southeast, however, the influence of the Great Lakes on the region's climate is much more pronounced due to the proximity of Lake Huron, Lake St. Clair, and Lake Erie in these directions.

Wayne County falls within the Northern Temperate Climate Zone which is characterized by four seasons.

The average annual precipitation for the Wayne County area is 33 inches of rain and about 42 inches of snowfall. The mean temperature is about 22 °F during the winter and about 72° during the summer.

J-1c Terrestrial Systems

The site on which the EQD facility is located has been part of a developed urban area for at least 40 years. Land use north, south and west of the site is typically medium to heavy industrial. Land use to the east is generally residential and commercial. There are no rare and endangered plant species present at or near the site. Vegetation at the site is limited to small, isolated areas of grass.

Animals which may inhabit the area include such urban dwellers as squirrels, opossum, and raccoon. It is possible that other species of wildlife are present though probably in very small numbers. There are no endangered or threatened species of wildlife present in the vicinity.

J-1d Aquatic Systems

There are no surface water systems present in the vicinity of EQD. Surface water runoff in the area is directed into the urban stormwater/sanitary sewer system which has existed for many years.

J-1e Hydrology

J-1e(i) Groundwater Occurrence

The greatest density of community public water supplies, per county, is in southeast Michigan, including Oakland, Wayne, Monroe, and Macomb Counties. The water supplies in this area are generally served by the Detroit Metropolitan Water System which obtains water from Lake Huron, Lake St. Clair, Lake Erie, and the Detroit River. No records of wells exist for the area within a one-mile radius of EQD.

J-1e(ii) Surface Water Quality

Surface runoff from the site is generally collected through the City of Detroit combination storm/sanitary sewer system. In areas that are unpaved, surface water may infiltrate the ground in limited quantities.

The major bodies of water in the Detroit area include Lake St. Clair, the Detroit River, and the Rouge River. EQD will not discharge any wastewater into any of these waters.

All treated wastewater discharges from EQD go to the Great Lakes Water Authority (GLWA) sewerage system in accordance with the policy guidelines established by the GLWA Industrial Waste Control Permit No. 923-91964-IU. The water collected in this sewerage system is treated by the Metro Detroit Treatment Plant.

Detroit River water quality is of special importance because it is a connecting waterway for the Great Lakes and the largest inflow into Lake Erie. For this reason, Lake St. Clair and the Detroit River are both classified by EGLE for usage as public water supplies, for cold-water fish, and for total-body-contact recreation. The Rouge River is designated for use as an industrial and agricultural water supply, for partial-body-contact recreation, for

warm-water fish, and for navigation. The Detroit River receives many industrial and tributary inputs as well as municipal wastewater treatment plant effluents. Improvements in water quality of the Detroit River have been demonstrated over the past 20 years, due largely to improvements in municipal wastewater treatment, as well as municipal treatment of certain industrial wastes before discharge.

J-1e(iii) Groundwater Quality

Data from previous hydrogeological investigations conducted in 1987 through 1995 indicate that existing groundwater underlying EQD is free of contaminants. A discussion of the hydrogeological investigation information is contained in **Section E**.

Because the majority of the EQD property is paved and/or covered by buildings or other structures, site recharge of groundwater is negligible. This inhibits the downward travel of contaminants toward the water table.

J-1e(iv) Site Drainage

Runoff from EQD enters the combined storm and sanitary sewer system and under normal operating conditions, goes to the City of Detroit GLWA wastewater treatment plant for processing prior to release to the Detroit River.

J-1f Air Quality

Based on the Detroit River-Western Lake Erie Basin Indicator Project Report "INDICATOR: Criteria Air Pollutants in Southeast Michigan" 1995 through 2005 data, the air quality in the vicinity of the EQ Detroit site appears to have attained the NAAQS primary and secondary standards for sulfur dioxide, ozone, carbon monoxide, nitrogen dioxide and lead. The Detroit area did not meet the NAAQS standard for PM_{2.5} during 1995 through 2005. Currently Detroit area is nonattainment for sulfur dioxide (SO₂).

EQD makes every effort to reduce dust, odors, and/or other inconveniences to residents in the area. All on site-traffic areas are paved to minimize dust. Processing and/or reactor tanks and storage silos are fitted with baghouse filters, to control emissions from these areas.

The active portions (tank valves, transfer lines, etc.) of the above-ground tank storage tank farms are fully enclosed to control air emissions. The container storage and the loading/unloading area are equipped with an equalization line for emissions control from tank trucks loading and unloading.

All truck traffic is strictly controlled such that only the entrance off St. Aubin Street and the other major roadways in the area (Ferry Street, Russell Street, Farnsworth Street, Chene Street and I-75 and I-94) are authorized for use by trucks arriving at the EQD facility.

J-1g Aesthetics

The EQD site is in a primarily industrial area with no special aesthetic value. Perhaps the most dominant feature of this area is the flatness of the terrain for several miles in any direction. Any panoramic views of this terrain are limited by the other dominant feature of the area. The diversity and intensity of the land-use activities. No unique natural or

manmade features are present in the area and the site is typical of an industrial waste facility and offers little aesthetic quality from a visual sense.

J-1h Land Use

Detroit is highly urbanized and has a high density of population, housing, and industry. According to 1984 estimates, 93.6 per cent of the City's 89,343 acres are classified as urban development. Approximately 40 percent of this developed land is for residential use, 3.9 per cent for commercial use, 7.1 per cent for industrial use and 7.5 per cent for institutional use. Traffic ways account for 25.4 per cent of the developed land in Detroit. The 6.4% of undeveloped land in the city is in the form of small vacant lots situated between residences.

Detroit can be divided into three concentric districts which correspond to the three major stages in the city's development. The first area, "Old City", lies with Grand Boulevard and was built prior to 1900. This area was build without adherence to a building code, zoning regulations or street plans and therefore is characterized by narrow lots, congested street patterns, and mixed commercial and industrial land used with residential areas.

The "Middle City" is located between Grand Boulevard and a circle of industry that follows the Detroit Terminal Rail Line. This area grew, along with the development of the automobile industry between 1900 and 1930. Most homes were built in accordance with existing building codes but without regard to zoning. Again, the area is characterized by mixed industrial, commercial, and residential land uses and limited off-street parking.

The "New City" extends from "Middle City" to the outer city limits and is the most recent area to have undergone development. The area is less congested and is made up primarily of single-family homes built on single lots. Construction was performed in accordance with building codes, zoning, and subdivision controls. This area is adequately served by supermarkets, shopping centers, playgrounds, and recreational areas.

J-1i Archeological and Historical Resources and Sites

Based on a review of published information, it is revealed that EQD is situated within approximately one mile radius of seven of Detroit's historic landmarks. These landmarks are identified and described in the following table.

Name	Date	Description
Charles Lang Freer House* (Merrill-Palmer Institute of Human Life)	1887	Shingle-style home of well- known art collector Charles Lang Freer
Col. Frank J. Hecker House*	1888-91	Chateauesque-style mansion
David Whitney House*	1890-94	Chateauesque-style mansion of lumber baron David Whitney
Detroit Public Library	1921	Italian renaissance style; white marble exterior with mosaics and murals decorating interior
Sweetest Heart of Mary Roman Catholic Church	1892	Gothic revival design church
Packard Motor Co. No. 10 Building	1903-05	First reinforced concrete factory erected in Detroit
Ford Motor Company Piquette Plant	1904	First plant to manufacture model T

Recognized in National Register of Historic Places.

Source: Adapted from Giffels, Inc./Black and Veatch, 1977, pp 30-50.

However, due to the industrial nature of the area, the existence of EQD is not expected to affect the existing historic resources.

Contact with the State of Michigan's Archeologist's office revealed that no known archeological sites presently exist in the area.

J-1j Social Environment

The facility is in the City of Detroit which has a population of approximately 670,000 people. There are an estimated 500 people physically located and living within one mile of the site, but approximately 2,500 addresses are registered in the area. The nearest residential home is 0.25 miles to the east of the facility. No residential or recreational properties are located within 60 meters of active portions of the facility. Specific population characteristics in a one square mile area around the facility are provided in Appendix J-2. A non-exhaustive list of nearby public areas include the Dequindre Cut pathway, a newly constructed judicial complex, and various Detroit Cultural Center establishments, which are located within 1 mile of the EQD facility.

There are about 340,000 occupied housing units in Detroit with 49.4% of these units being owner occupied, single-family dwellings with the median value being \$42,300. The median family income is \$25,764 in 2015.

Detroit's economic base is largely comprised of retail establishments along with many industrial, manufacturing and service companies. The State-equalized value for EQD, including real and person property is \$1,289,000.

Public utilities available in the City of Detroit include electric (Detroit Edison), natural gas (Michigan Consolidated), telephone (Ameritech, AT&T, MCI, Sprint, and many other local mobile phone providers), and multiple cable TV providers. Water supply and sewage disposal are provided by the City of Detroit. The storm and sanitary sewer system in the area surrounding EQD is a combined system. Residential solid waste collection is provided by the City of Detroit. Solid and other waste disposal for business and industry is provided by private haulers, as contracted by the business or industry.

The major transportation routes that service Detroit include six freeways (I-94, I-75, I-375, I-96, M-10, and M-8), numerous major thoroughfares (2-way and 1-way), secondary thoroughfares (2-way and 1-way) and several railroads. Truck traffic is excluded from traveling on residential side streets around EQD by posted signs. Trucks traveling to and from the facility are limited to travel on the major traffic routes to the entrance off St. Aubin Street.

J-1k Floodplain Considerations

Based on the examination of the FEMA-NFIR Map for the City of Detroit, it is observed that the 100-year floodplain runs along the shore of the Detroit River and is approximately 2.7 miles from EQD. The area immediately surrounding the facility, as well as most of the City of Detroit is in Zone C, described as "areas of minimal flooding". This data indicates that the facility is not in a 100-year flood plain and should not be affected by a 100-year flood.

J-2 Alternatives Considered

The EQD Treatment facility has been specifically designed to safely process both hazardous and non-hazardous wastes. Alternative design features were reviewed, but the final selection of the design reflected several advantages, such as satisfying setback requirements, fire-protection needs and the use of structure already present, as well as providing optimum secondary containment structures and separate treatment processes for potentially incompatible wastes.

The processing of hazardous wastes at EQD complements the existing wastemanagement programs of the community, state, and nation, by providing properly designed and operating treatment facilities. EQD also implements management procedures that reduce the disposal amounts and the potential for release of hazardous and/or non-hazardous wastes or waste constituents to the environment. EQD also encourages reuse/recycling of materials, and thus reduces the consumption of natural resources.

The no-action alternative was considered but was not consistent with EQD's objectives of helping to meet the increasing demand for the safe management of a variety of wastes
from large-quantity and small-quantity generators of hazardous wastes. The wastes that are accepted for processing by EQD are primarily generated from the use of products that allows EQD to be very familiar with the waste's characteristics and the proper handling and processing of those wastes

Wastes are stored temporarily on-site until a sufficient quantity has accumulated. By storing wastes on-site, EQD can control how the wastes are handled, to assure that the environment is protected and that their liability is also minimized. EQD can also take advantage of some cost savings by accumulating sufficient quantities of hazardous wastes to make collection, disposal, or recycling of these wastes more practical for waste generators. Also, by minimizing the number of times that the wastes must be handled after they have been generated prior to the disposal, the possibility of releases from such handling can be reduced.

By not storing the hazardous wastes on-site at EQD, any potential adverse impacts from their storage would be eliminated locally, but these potentially adverse impacts would be transferred to another location.

J-3 Anticipated Environmental Impacts of the Proposed Action

J-3a Physiography

Existing operations/processes along with storage activities will not affect topography, drainage, streams, lakes, roads, bedrock, or glacial features of the area. There may be some very minor impacts on soils on the site, as related to the present waste processing activities. These soils have already been greatly altered and are paved over or covered with gravel or buildings, so the impact will not be significant.

J-3b Climate

Operations/processes at EQD will not affect the climate in any way.

J-3c Terrestrial Systems

Operations at EQD will have no significant impact on terrestrial systems. The area has no value as a wildlife habitat.

J-3d Aquatic Systems

Operations/processes at EQD will have no impact on any aquatic system. Most of the waste management areas, including storage areas and loading areas, will be covered, so runoff cannot come in contact with wastes. Dikes prevent runoff from entering any areas where wastes may be present. All storage and management areas have secondary containment, so that any leaked or spilled wastes are confined in blind sumps for recovery and disposal and cannot leave the site.

J-3e Aesthetics

Operations at EQD will not change the aesthetics of the area and will not result in any negative impacts on the aesthetics of the neighborhood.

J-3f Air Quality

Operations at the facility will have no significant impact on air quality. EQD reports emissions from treatment processes on the site in accordance with EGLE AQD Permit to Install No. 269-04H.

J-3g Hydrology and Hydrogeology

Processes and Operations as designed and routinely operated at EQD, are not anticipated to have adverse effects on hydrology or ground water quality. All process, storage and loading areas have curbing or secondary containment systems so that any accidental spills or releases are contained on-site for appropriate clean-up.

J-3h Land Use

Existing operations at EQD do not affect existing land use or the zoning of the site or nearby areas.

J-3i Archeological and Historic Resources

Existing operations at EQD are not anticipated to have any adverse impacts on the historic structures or the use of these known historic resources that may be located in the proximity of EQD.

J-3j Social Environment

The existing operations at EQD will not adversely affect fire or police protection or sewer services to the community or EQD.

Truck traffic to the facility may increase but combined with current truck traffic from neighboring facilities in the area, the minimal potential increase in traffic-related noise is not expected to be a source of annoyance for nearby residents. The potential adverse impact will be effectively mitigated by routing truck traffic to and from the site through an established route along I-94, I-75, Farnsworth Street, Russell Street, Ferry Street, St. Aubin Street, and Chene Street that will impact the smallest number of residences possible.

The risk of a traffic accident is not anticipated to increase significantly, due to the presence of EQD, because the amount of waste transported to the facility is fixed by the permitted storage and treatment capacities. If a traffic accident does occur, the impact will be limited to the immediate area of the accident.

The primary impacts of a transportation accident will be the possible release of waste materials to the air and ground. If the accident results in the release of a hazardous waste to the environment, the waste transporter and the generator will be responsible for any clean-up activities. Detroit Police and Fire Departments will respond to any emergency and are well trained and equipped to do so.

EQD recognizes its role and responsibility as the waste processing facility which would be receiving the waste material. EQD will use all information and resources available to aid designated response personnel in the containment and clean-up of any spill. EQD will also be able to provide spill containment supplies that are located at the facility for use in spill control procedures.

J-3k Energy Demand and Non-Renewable Resources

Safe local handling of hazardous waste reduces use of fuels for transportation. Other non-renewable resources may be required for disposal (e.g. solidification additives, incineration), recycling, or recovery at the facilities that will receive wastes from the EQD facility. This demand for energy and non-renewable resources is an unavoidable impact of safe handling and disposal of hazardous wastes; however, recycling reduces the overall consumption of non-renewable resources.

J-3I Summary of Environmental Impacts

Table J-1 summarizes the environmental impacts. The facility has no significant impacts on physiography, climate, terrestrial systems, aquatic systems, hydrology, hydrogeology, aesthetics, land use and/or zoning.

Truck traffic is routed to avoid adverse impacts on residential areas. Management and handling of stored hazardous wastes at EQD does not require substantial amounts of non-renewable resources to be consumed.

Existing operations at EQD will have beneficial effects on the local economy and tax base and on the management of hazardous wastes. The facility provides a needed service to its many customers that generate hazardous and/or non-hazardous wastes.

J-4 Unavoidable Adverse Impacts

Unavoidable adverse impacts include:

- An increase in truck traffic near a residential area
- An increased use of some non-renewable resources, to properly process hazardous wastes.

The adverse impact from these items is considered minimal; the EQD facility will work to reduce any adverse impacts from the storage and processing of hazardous wastes.

J-5 Mitigating Measures

The impact of increased truck traffic near a residential area has been mitigated by routing the traffic through the major transportation networks surrounding the site (I-94, I-75, Farnsworth Street, Russell Street, Ferry Street, St. Aubin Street, and Chene Street) and by requiring trucks to turn off their motors when the semi-tractors are not in use.

Safe and effective management of hazardous wastes require the use of some energy and non-renewable resources. The use of these required resources are minimized by reducing the amounts of hazardous wastes generated, by recycling certain wastes, and by bulking some wastes. Reducing the amounts of wastes generated can only be done by generators of the wastes.

Any measures that would prevent negative impacts on the environment from the processing of hazardous wastes at EQD have been and will be implemented. These

measures include secondary dike containment systems, overfill protection alarms, spillprevention structures and strategies and routine inspection procedures.

J-6 Failure Mode Assessment

J-6a Description of the System

The detailed physical description and operating processes of the facility are contained in **Section B** (Facility Site Description) and **Section D** (Plans and Specifications), respectively.

EQD operates a hazardous and non-hazardous waste treatment facility. The treatment facility processes hazardous and non-hazardous wastes which are regulated by the EPA and the EGLE. A description of the facility operations and the facility preparedness is presented in the following **Subsections J-6a(i)** through **J-6a(v)**.

The waste processing operations occur within primary structures. These structures are the Container Staging Area, the Container Storage Area, the Main Treatment Building, the Process Building, the Stabilization/Fixation Facility, and the Lab Pack/DePack Area.

J-6a(i) Main Treatment Building (Chem Pre, Maintenance, Lab)

The Main Treatment Building, maintenance area and laboratory services are located north of the general offices and are bordered by a continuous curbed concrete roadway. This building accepts and processes hazardous and non-hazardous wastewaters containing heavy metals, pressable sludge and oily wastes. The Main Treatment Building occupies most of a two-story concrete block building with concrete flooring. Entrance doors are located on all sides of the building. The treatment areas contain wastewater treatment or reactor tanks, reagent tanks, control office, plate frame filter presses, sumps, pumps, and piping, some of which is overhead. The treatment tanks are equipped with access covers, bottom drain lines and audible, visible high-level alarms.

The Main Treatment Building, two associated unloading areas and storage area for storing plastic polymer drums containing maintenance and treatment chemicals, are curbed to facilitate secondary containment of spilled wastes. The entire processing area, unloading area, and storage area is secondarily contained by the building walls and continuous concrete curbing.

Containment areas drain to the northwest sump or to the spill containment structure, where any accumulated liquids are removed for chemical and physical treatment at EQD according to their characteristics.

The south and east sides of the building houses in-plant offices, maintenance shop and an analytical laboratory. The laboratory contains instrumentation designed to analyze and characterize small quantity representative samples of the materials being treated. The maintenance shop area is utilized for repair and servicing of on-site equipment. This area is physically separated from the treatment plant by concrete block walls with metal entrance doors.

J-3a(ii) Process Building (Oily Water Treatment)

The Process Building is located to the north of the Main Treatment Building. This treatment building accepts non-hazardous oily wastewaters.

The Process Building operations are housed within a pre-engineered metal structure that is attached to the above-ground storage tank (AGST) farm. The active portions (tank valves, transfer lines etc.) of the AGST farm are fully enclosed to facilitate air emissions and is separated from the treatment building by a pre-engineered metal wall and metal doors. The associated exterior unloading area is secondarily contained within the Process Building structure by associated curbing and/or drains to the spill containment structure. Accumulated liquids are removed for chemical and physical treatment at EQD according to their characteristics.

J-6a(iii) Chemical Fixation Building (Chem Fix)

The facility is located north of the Main Treatment Building. The facility operations are housed within a pre-engineered metal structure that is attached to treatment/storage tanks/vaults. The active portions (i.e. vaults, pugmill) are fully enclosed within the building.

EQD's Chemical Fixation Facility utilizes a waste treatment technique commonly referred to as pozzolanic stabilization. This technique relies on materials rich in stabilization and fixation agents to provide a solid stabilized mass when mixed with wastes. The most utilized materials in EQD's process are soluble silicates, lime, Cement Kiln Dust (CKD), fly ash, and Portland Cement.

Table D-1 of the Plans and Specifications presents the waste storage and process tanks/vaults descriptions and volumes associated with the Chemical Fixation Facility operations. **Section G** (Contingency Plan) provides an overview of the hazards associated with these wastes and materials/chemicals.

J-6a(iv) Container Staging Area (Receiving Area)

Containerized waste streams arriving for process and destined for EQD will first arrive at the EQD Container Staging Area. Here, the drums will be off loaded, and appropriate representative samples taken. Those drums which meet waste acceptance criteria will be stored in either the Container Staging area or taken directly to the Container Storage Building. Incompatible wastes are not stored in the Container Staging area.

Rejected containerized wastes not meeting waste acceptance standards will then be loaded back on transporter trucks.

Containers are stored in a manner that will contain potential leaks/spills within the Staging Area. The Container Staging Area is inspected once per day. Accumulated liquids collected in trench containment structure or trench is removed upon detection.

J-6a(v) Container Storage Building (Drum Warehouse)

The Container Storage Building is centrally located north of the Main Treatment Building and is completely enclosed. The waste is stored in rows running east and west approximately 4 foot wide, separated by approximately 2 foot wide aisle. Incompatible wastes are separated in accordance with DOT and 40 CFR Appendix 5 segregations criteria. Incompatible wastes are separated by a dike, berm wall, or other devices as per 40 CFR 264.177 as shown on **Sheets R-05 and R-06**.

Containers are placed into the storage area on pallets or directly onto the concrete slab using a fork-truck or other container/drum handling equipment.

The Container Storage Building is completely covered which prevents precipitation from entering. The storage is sloped to blind sumps which serve as a collection point for liquids in the event of spills or leaks in the storage area. Containers are stored in a manner that will contain potential leaks/spills within the curbed area.

The container storage area and blind sumps are inspected daily. Accumulated liquids collected in the blind sumps will be removed with a vacuum truck.

J-6a(vi) North Container Storage Pad

The North Container Storage Pad is located adjacent to and North of the Container Storage Building. This area is exterior to the Container Storage Building and is entirely enclosed by concrete curbing which serves as secondary containment to collect precipitation and in the event of a spill. The concrete pad is sloped to a blind sump which serves as a collection point for liquids. Containers are stored in a manner that will contain potential leaks/spills within the curbed area.

The container storage area and blind sumps are inspected daily. Accumulated liquids collected in the blind sumps will be removed with a vacuum truck.

J-6a(vii) Corrosive (Acid/Base) Treatment Area

The Corrosive Treatment Area lies directly northeast of the administrative building and is completely enclosed inside the Main Treatment Building. The waste is stored in rows running east to west approximately 4 foot wide separated by 2-foot-wide aisles. Drums are place in the area on pallets or directly onto the concrete slab using a fork-truck or other container/drum handling equipment. The area is completely covered which prevents precipitation from entering.

The storage area is sloped towards trenches which serve as a collection point for liquid in the event of spills or leaks in the storage area. Containers are stored in a manner that will contain potential leaks or spills within the curbed area.

J-6a(viii) DePack Area

The DePack Building is located at the Northeast corner of the facility. The DePack area is entirely enclosed within the building. Secondary containment for this area is shown in **Sheet C-27**. Containers are stored in a manner that will contain potential leaks/spills within the secondary containment. The container storage area and blind sumps are inspected daily.

J-6a(ix) DePack Drum Storage Pad

The DePack Drum Storage Pad is located East of the Depack Area. This area is exterior to the Depack Area and is entirely enclosed by concrete curbing which serves as

secondary containment to collect precipitation and in the event of a spill. The concrete pad is sloped to a blind sump which serves as a collection point for liquids. Containers are stored in a manner that will contain potential leaks/spills within the curbed area. The container storage area and blind sumps are inspected daily. Accumulated liquids collected in the blind sumps will be removed with a vacuum truck.

J-6a(x) Other Structures

In addition to the wastes in tank trucks, EQD accepts wastes in rail tank cars. The tank cars are positioned northwest of the Main Treatment Building. The railroad car spur was designed and installed to provide secondary containment for possible leaks that may occur during the rail cars loading/unloading process. The soils directly under the rail tracks were excavated and the excavation is lined with a 80 mil polyvinyl chloride (PVC) liner, backfilled with stone ballast and a series of metal collections pans installed to capture any leakage. The collection pans are sloped to cross drains, which slope to a collection under-drain system which will drain into the lined spill containment structure.

In addition to the structures described above, the facility contains several waste and reagent unloading areas adjacent to the described structures. All unloading areas are in the concrete roadway described, at locations not to restrict traffic flow patterns. The unloading areas are within the engineered spill containment and collection system.

J-6b Definition of Failure

While many precautions have been implemented within the existing systems to prevent the release of hazardous wastes into the environment, such as the design of processing and containment structures, as well as the training of employees in handling these wastes, the potential for system failure does exist as it does for any system. A failure in the existing system would be defined as a release of hazardous waste or hazardous waste constituents into the environment due to:

- 1. A leak or spill of hazardous waste during waste handling;
- 2. A leak or spill of hazardous waste during waste processing;
- 3. A leak or spill of hazardous waste during waste storage;
- 4. A leak or spill of hazardous waste during waste transportation;
- 5. A chemical reaction between a hazardous waste and an incompatible material;
- 6. Power outages, failure of electrical equipment or failure of mechanical equipment;
- 7. Inadequate storage space for wastes;
- 8. The inability to identify a facility to accept wastes for treatment/disposal;
- 9. The acceptance of restricted wastes; and
- 10. Fire, explosion, and extreme weather.

J-6c Possible Causes of Failure

The possible causes of system failure that could result in the release of hazardous waste or hazardous waste constituents into the environment of each of the failures defined above are summarized as follows:

- 1. Leakage or spillage of waste could be caused by:
 - a. Leakage from tank trucks or drums during loading or unloading;
 - b. Leakage from the secondary containment structures, transfer pipes, piping or valves;
 - c. Leakage from waste storage tanks;
 - d. Leakage from waste processing reactors;
 - e. Leaks from drums in storage; and
 - f. Overfilling of storage/processing tanks or drums.
- 2. Each of these failures could potentially cause contamination of soil or groundwater only if the secondary containment system also failed at the same time. Possible causes of failure of the secondary containment system are:
 - a. Physical damage to the secondary containment structures;
 - b. Contact of containment structure with wastes that affect the integrity of the structure;
 - c. Inadequate capacity of the secondary containment to store the volume of wastes leaked or spilled; and
 - d. A loss of containment volume due to the presence of water, wastes soil or other material in the containment area.

A large spill or leak combined with a failure of secondary containment could result in wastes flowing from the site and into nearby storm sewers. This could contaminate the sewage and storm water. This combination of events is highly unlikely.

- 3. Incompatible chemical reactions between wastes or wastes and their containers could be caused by:
 - a. The mixing of incompatible wastes in a tank or container;
 - b. The mixing of incompatible wastes that have leaked or spilled;
 - c. The addition of waste to a container containing residue of an incompatible waste; and
 - d. The addition of a waste to a container that is incompatible with the waste.
- 4. Power outages, failure of electrical equipment, or failure of mechanical equipment could be caused by:
 - a. Damage to the equipment;
 - b. Inadequate maintenance;

- c. A power failure outside of the facility;
- d. Defective equipment supplied by the manufacturer; and
- e. Improper use or installation of equipment.
- 5. Inadequate storage space for wastes could be caused by:
 - a. The failure to locate and transfer wastes to treatment/disposal facilities on schedule; and
 - b. The acceptance of wastes at the facility for which proper storage is not available.
- 6. Inability to identify a facility that will accept wastes to be transferred could be caused by:
 - a. Acceptance of a waste before a facility that will accept it has been identified;
 - Rendering a waste unacceptable through unintentional mixing as the result of improper containment, inadequate documentation, or inadequate testing; and
 - c. Facility that formerly agreed to accept a waste subsequently refusing to do so.
- 7. Acceptance of restricted waste could be caused by:
 - a. Inadequate waste evaluation;
 - b. Inadequate screening and fingerprint analysis; and
 - c. Incorrect identification of a waste by a generator.
- 8. Fire or explosion due to improper processing. The risk of fire or explosion due to the improper storage methods is virtually non-existent. There are very clearly defined proper storage procedures for the material and containers stored at the site. EQD is committed to complying with these requirements. Inspections are conducted daily to ensure proper storage procedures being adhered to. EQD is also required to follow these procedures as a requirement of their facility liability insurance.

J-6d Detection of Failure

Failure of waste storage containers or tanks, containment systems, pumps, piping, and/or management systems will readily be detected by careful observations, regular and routine inspection and testing of equipment and waste handling procedures, communication with disposal facilities for wastes being transferred, and screening of shipments by plant personnel. Facility inspections include observation of waste storage container conditions, any structural deterioration, container spacing and labeling, waste quantities, equipment operation, containment system integrity and any potential problems that may lead to system failure. Plant personnel are also instructed to check for any leaks or spills of stored material and to immediately initiate appropriate response procedures when such a release has been detected. All inspections are guided by an inspection schedule and are recorded on inspection logs (see **Section 0**).

J-6d(i) Leaks and Spills

This failure mode will be obvious if it occurs and will be immediately detected by facility personnel. Incoming tank trucks are unloaded by trained personnel and will be continuously observed by facility personnel.

Any leaks or spills from the tanker or hoses connected to receiving tanks will be immediately evident. Regularly conducted inspections will detect any leaks or spills.

Groundwater underneath the EQD site is free of contaminants. For a complete discussion of the current site groundwater monitoring status, refer to **Appendix E-3** (Hydrogeological Investigations Summary).

J-6d(ii) Incompatible Reactions

The possibility of mixing incompatible wastes is minimized by using procedures for identifying and accepting wastes. Incompatible reactions will be easily observed by trained facility personnel who will take prompt action in accordance with EQD's Prevention Plan (**Section F**) and Contingency Plan (**Section G**) of this Permit Application.

J-6d(iii) Power Outages and Equipment Failure

Power outages at the facility will be detected immediately since all equipment and lights operate on electricity. Any pumps in use would cease operating in the event of loss of power. In this way, the transfer, overfilling or releases of waste material will be stopped by loss of power. Failure of mechanical or electrical equipment will also be detected immediately if the equipment stops working completely, delivers reduced power or emits false signals (in the case of pump controls and meters) Regular inspection and testing of critical equipment will detect potential equipment failure.

J-6d(iv) Inadequate Storage

Inadequate storage at EQD will be detected by regular inspections and inventory of wastes.

J-6d(v) Inability to Transfer Wastes

Inability to transfer wastes to treatment/disposal facilities will be detected by refusal of facilities to accept wastes.

J-6d(vi) Potential Acceptance of Restricted Wastes

Acceptance of restricted wastes will be detected and prevented by proper waste evaluation and shipping screening as described in **Section C**, the Waste Analysis Plan.

J-6e Environmental Effects of Failure

The potential environmental effects of failure will be separated into those effects confined on-site and those effects that may have consequences off-site.

The potential environmental effects on-site at EQD because of a release of hazardous wastes or hazardous waste constituents will be the degradation of groundwater quality

and the exposure of employees with the release either in the form of a surface leak or spill or a toxic gas emitted from the chemical reaction of incompatible materials.

The effects of a failure that would degrade air quality will be dependent upon the type of failure, the magnitude of the failure, and the type of material lost to the atmosphere from this failure. A failure mode for the container storage and/or processing areas that could affect air quality will be the corrosion of a container, a puncture to the container, a release of the container's contents, or improperly covering the container during storage. The container storage areas at EQD allow the natural movement of air so that concentrations of vapors do not build up.

The complete failure of the containers and the container storage and/or processing areas at EQD may result in localized but temporary degradation of air quality.

EQD accepts hazardous and non-hazardous wastes from various generators in liquid and solid forms.

Solids are directed to chemical fixation in the presence of lime and CKD at pH ranges that are well within the alkaline range (pH=9-12.4 su). The release of any toxic gases such as cyanides, sulfide and/or chlorine is not possible due to the stability of the above three liquids in an alkaline medium. Furthermore, the whole building is under negative pressure and vented through the Chemical Fixation Building Air Pollution Control System. Details are outlined in **Sheet M-26**.

Liquid wastes are directed to the acid tanks, where acids are bulked for transshipment. The tanks are pumped through a scrubber system that neutralizes any acidic vapors that may be generated during the bulking operation. Should any release occur, then the exhaust fan will cause significant dilution to lower the concentration in air to a level below the TLV values.

Potential off-site environmental effects from systems failure may be described as either localized, affecting nearby neighborhoods; or as more regional impacts where the effects span a larger distance beyond the EQD site. Potential localized environmental effects from system failure may include the contamination of exposed solids from the runoff of a spill or leak, the degradation of groundwater quality, damage to vegetation or wildlife, and exposure of nearby residents and industries to a toxic gas release. More distant environmental effects may be to surface waters where a spill or release enters the combination sanitary sewer/storm drain.

Many of these potential environmental effects presumes a "worst case" scenario where the system experiences a complete failure and large quantities of hazardous wastes have been involved. Under the most probable failure situation, any potential environmental effects will be confined on-site, easily managed and result in minimal effects to the environment on-site, locally, or regionally.

J-6f Possible Corrective Actions in the Event of Failure

If a failure of the system has occurred, the following summarized corrective actions would be undertaken as detailed in the Contingency Plan (**Section G**) that has been prepared by EQD. This plan describes the procedures that will be followed in the event of an

emergency such as fire, explosion, tornados, severe weather, or any unplanned sudden or non-sudden release of hazardous materials to the air or surface water at the facility.

- 1. The discoverer of an emergency contacts the Emergency Coordinator. A determination is made whether the situation is an imminent or actual emergency. All facility personnel and appropriate Federal, State, and local agencies will be notified.
- 2. The character, source, amount, and extent of released material will be identified. Any potential hazard to human health or the environment associated with this release will be assessed. Evacuation will be initiated, if necessary. Any materials that may be reactive with the release will be removed from the area.
- 3. For a fire and/or explosion, efforts will be made to prevent the fire from spreading to nearby areas. Spills of flammable material will be contained with chemical absorbents. Flushing the area with large quantities of water or applying foam to the spill will be performed, if indicated.
- 4. In the event of a leak or a spill, standing liquids will be transferred to a containment system or tank. If beyond in-house capabilities, a contractor will be called to remove standing liquids within the containment system and transport the spilled materials to an approved facility or transfer the material into another approved tank or container on-site. Small spills or leaks will be flushed to the sump, and a pump will be used to retrieve the waste material. Absorbent material may also be used. Spills or leaks that are not contained will be isolated, appropriately recovered, and disposed. Though the entire EQD storage areas are poured concrete flooring, if soils are involved, excavation of affected soils may be necessary.
- 5. If the spill or leak results in the formation and release of a toxic vapor cloud, and assessment will be made of what areas may be impacted and should be evacuated.
- 6. Actions will be undertaken to prevent the recurrence of fire, explosion, or release, including shutting down processes and operations, the collection and containment of released material and the recovery or isolation of containers. Valves, pipes, and other equipment will be monitored prior to start up for leaks, pressure build-up, gas generation or ruptures.
- 7. Arrangements will be made for the treatment, storage, or disposal of recovered or contaminated materials. These materials will be properly stored at EQD until they can be properly removed.

All these actions will be undertaken to correct any hazard that may result from the release of hazardous waste constituents. Note that the above is a summary of corrective actions which would be taken as detailed in the Contingency Plan (**Section G**)

J-6g Actions to Minimize the Possibility of Failure and Adverse Impacts of Failure

The following procedures, structures, and equipment have been established to minimize the possibility of failure and any adverse impacts resulting from a failure of the system:

J-6g(i) Reaction of Incompatible Wastes

One of the reasons for establishing six separate hazardous waste storage and/or processing areas at EQD is to keep incompatible wastes separate from each other. Additionally, the possibility of mixing incompatible wastes is minimized using procedures for identifying and accepting wastes for processing. Employees are trained to prevent the mixing of incompatible wastes. Lastly, any incompatible reactions will be observed by trained personnel who will take prompt action

J-6g(ii) Hazards During Unloading Operations

A trained employee familiar with waste loading and unloading operations will be available to observe and control waste loading and unloading activities. Every precaution will be taken to ensure that these materials are handled properly.

Areas where hazardous wastes are loaded/unloaded have been designed and constructed to contain any spills/leaks and to prevent the release of any materials. Features include concrete curbs, imperviously coated container storage and tank storage surfaces, sloping floors to accommodate access by forklift trucks and to control the direction of flow, and plugged drains with blind trenches and sumps. Spill response materials are readily available to minimize any potentially adverse effects of a release during waste loading/unloading operations.

J-6g(III) Run-off From Waste Handling Areas to Other Areas

The runoff of accumulated water within the waste handling, processing and storage areas will be managed through facility design, such as the installation of impervious surfaces, sloping floors, secondary containment structures, blind trenches and sumps and a roof to prevent precipitation from accumulating in these areas. Regular inspections of these areas will identify where runoff may present a problem.

J-6g(iv) Contamination of Water Supplies

Because water for the City of Detroit is supplied by the Detroit River and there are no recorded potable water wells in use within a 1.5-mile radius of EQD, the probability of water supplies becoming contaminated from the failure of the system would be considered negligible. However, the actions that have been established to minimize the possibility of failure and other adverse impact, would also effectively prevent the contamination of any water supplies if they were present.

J-6g((v) Effects of Equipment Failure and Power Outages

In the event of equipment failure or power outage, the pumps will cease to be operated. The high-level alarms on the tanks will not be operable, but since the pumps will not be able to load any material into the tanks, this will not present a problem. Equipment failure or power outages will not result in the discharge of any hazardous waste material.

J-6g(vi) Exposure of Personnel to Hazardous Wastes

All employees that handle hazardous wastes have been trained in procedures to minimize their potential exposure. The use of personal protective equipment is covered under training programs, as is the safe and proper handling, storage, and processing of hazardous wastes. Employees are also instructed on the hazardous nature of these wastes and what procedures should be followed during an emergency. Both classroom and on-the-job instruction are included in the training program (see Section H: Personnel Training) which is reviewed and updated annually.

During an emergency, all personnel not essential to the response activities would be evacuated to prevent their exposure to any released hazardous wastes or hazardous waste constituents. Evacuation routes have been established. Personnel will be allowed to return to the area once the area has been cleaned and it has been determined safe to return the area to normal operations. For more detailed information see **Section G: Contingency Plan**.

The effects of any failure on employee health and on public health will depend on the type of material lost during failure, the concentration of the material, the exposure routes, and the duration of human contact. Employees at EQD are the most likely population that could be exposed to the wastes.

Losses of dilute acidic or alkaline solutions or more concentrated reagents could pose a threat to employee or public health upon direct contact. The leakage or spillage of corrosive materials, either acidic or alkaline, could cause acute symptoms ranging from tissue irritation to chemical burns on exposed skin or other tissue. Inhalation of acidic fumes or vapors could result in inflammation of the nose, throat, or larynx.

A massive spill of any liquid material could produce a spray of material as the spilled material contacted a hard surface, such as the concrete containment structure. The spray would be of short duration, and its health effect would be dependent upon individuals present in the spray area, the type of material sprayed, and the barrier provided by clothing or personal protective equipment. Contact with sprays, which may be produced in the event of a massive spill, could cause those employees in the immediate vicinity of the spilled material to be exposed by both tissue contact and inhalation of small quantities of the material. There is no reason to believe that public health would be affected beyond the boundaries of this facility. Vapors released from a massive spill would be quickly diluted and dispersed in the atmosphere. Power outages or mechanical or equipment failure are not expected to cause adverse effects to employee or public health from the storage of containerized wastes.

J-6g(vii) Effects of Tornados or Other Severe Storms

Whenever weather conditions indicate the potential for severe weather, EQD personnel will inspect and secure the container storage areas to minimize the effect of heavy precipitation or heavy winds on these areas. The container storage areas have been designed and constructed to withstand most severe storms anticipated to be encountered

and to prevent the release of hazardous wastes during storm events. Employees will be evacuated from the facility or directed to designated weather emergency sheltersduring a tornado warning to minimize any injuries from the storm. EQD has adopted procedures and provided structures as needed. The mitigation procedures for hazardous waste released during a catastrophic event, such as a direct hit by a tornado, have been installed by EQD in the best anticipated manner for an unpredictable and low probability situation.

J-6g(viii) Air Quality Impact

A preliminary screening analysis of the air quality impact of two, worst case, accidental releases was performed by Tetra Tech EM, Inc. using US EPA "T-Screen" Model. The results show that the predicted maximum air quality impact from these two release scenarios is well below a harmful level for both H₂S and HCN. The results of these two scenarios are provided in **Appendix J-2**.

SECTION K

COMPLIANCE WITH OTHER FEDERAL LAWS

40 CFR 270.14(b)

SECTION K

COMPLIANCE WITH OTHER FEDERAL LAWS

40 CFR 270.14(b)(20) states the applicability of other Federal Laws as indicated in 40 CFR 270.3 that may apply to Hazardous Wastes Management (HWM) facilities. Due to the location of EQD and the nature of operations that is and will be performed, the requirements of 40 CFR 270.14(b)(20) do not apply. However, EQD is subject to the SARA Title III Requirements. Annual pollutant discharge information, as required under Section 313 of SARA Title III, will be submitted to the appropriate Federal, State, and local agencies.

SECTION L

FACILITY LOCATION

40 CFR 270.14(b)(11) and R 299.9504(1)(c)

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L-1. Facility Information

40 CFR 270.14(b) and R 299.9504(1)(c)

L-1a Facility Location

40 CFR 270.14(b)(11)(i)

EQ Detroit, Inc. (EQD) property is located at 1923 Frederick Street in the City of Detroit, Wayne County, Michigan. The subject site is located near the intersection of Michigan Interstates 75 and 94, and is bordered on the south by Farnsworth Street, to the east by St. Aubin Street, to the north by Ferry Street and to the west by the Grand Trunk and Western Railroad. A municipal waste incinerator is located on the northwest side about 1/2 mile from the facility, but discontinued operations. A vacant cold storage building is located north of the facility. On the east and south, the facility is surrounded by vacant residential lots and abandoned residential buildings. The location of EQD is shown on **Sheet A-01.**

The area immediately adjacent to the facility is primarily commercial and industrial. The facility is in the City of Detroit which has a population of approximately 670,000 people. There are an estimated 652 people living within one mile of the site, and an estimated 1,000 live within 3 miles, but approximately 2,500 addresses are registered at the post office for the area. The nearest residential homes are located 0.25 miles to the east.

No environmentally sensitive areas such as wetlands, streams or ponds are located on or around the subject property. No endangered flora or fauna have been identified on the site.

Access to the facility is made from Kirby Street through a guarded checkpoint, which is staffed 24 hours per day. Currently all vehicles and persons entering the site pass by the security building.

L-1b Seismic Standards

40 CFR 270.14(b)(11)(ii)

The State of Michigan does not appear in Appendix VI of Part 264; therefore, the facility is compliant with seismic standards.

L-1c Floodplain Information

40 CFR 270.14(b)(11)(iii) and 40 CFR 270.14(b)(11)(iv)

Surface run-off from the site is generally collected through the Great Lakes Water Authority (GLWA) combination storm/sanitary sewer system. All treated wastewater from EQD is discharged into the GLWA sewerage system in accordance with the requirements established by the GLWA-Industrial Waste Permit No. 923-91964-IU. In areas that are unpaved, surface water may infiltrate the ground in limited quantities.

The major bodies of water in the Detroit area include Lake St. Clair, the Detroit River, and the Rouge River. Run-off from EQD does not discharge into any of these waters.

The Detroit River water quality is of special importance because it is a connecting waterway for the Great Lakes and provides the largest inflow into Lake Erie. Lake St. Clair and the Detroit River are both classified by the EGLE for usage as public water supplies, for cold-water fish and for total body-contact recreation. The Rouge River is designated for use as an industrial and agricultural water supply, for partial-body contact recreation, for warm-water fish and for navigation. The Detroit River receives many industrial and tributary inputs as well as municipal wastewater treatment plant effluents. Improvements in water quality of the Detroit River have been seen over the past 20 years, due largely to improvements in municipal wastewater treatment as well as municipal treatment of certain industrial wastes before discharge.

Based on the examination of the FEMA-NFIR Map for the City of Detroit, it is observed that the 100-year floodplain runs along the shore of the Detroit River and is approximately 2.7 miles from EQD. The area immediately surrounding the facility, as well as most of the City of Detroit is in Zone C, described as "areas of minimal flooding". This data indicates that the facility is not in a 100-year flood plain and should not be affected by a 100-year flood.

SECTION M

OPERATING RECORDS AND RECORD KEEPING PROCEDURES

R 299.9504, R 299.9609, R 299.9610 and 40 CFR 264.71 through 264.77 and 264 Appendix I

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TABLE

The table listed below and referenced in this section is found in the Tables Tab of this application

Table M-1: Manifest Distribution

APPENDICES

The Appendices listed below and referenced in this section are found in the Appendices Tab of this application

Appendix M- 1: Protocol for Evaluating the UHW Manifest

Appendix M- 2: Land Disposal Restrictions

M-1 Introduction

(40 CFR 264.73(a) and 264.74(a))

EQD maintains accurate records pertaining to all hazardous waste accepted, treated, and stored at the facility. These records will be used to document and manage operations at the facility and to maintain compliance with 40 CFR 264.73, Part 264 Appendix I, R 299.9609, and R 299.9610. These records will be retained at the facility located at 1923 Frederick Street, Detroit Michigan always and will be available upon request at reasonable times for inspection by designated representatives of the USEPA and EGLE. Note that records are retained electronically or as a hard copy. All company records are retained for a period of at least three years or longer as specified by the regulations. These records will be maintained in the operating record until closure of the facility as per the information required by the provisions of 40 CFR 264.73 and Part 264 Appendix I.

Monthly operating reports (MOR) will be submitted to the Michigan Environment, Great Lakes, and Energy (EGLE) Division Chief.

EQD will submit manifests as required by the e-manifest system.

M-2 Biennial Report

(40 CFR 264.75 and R 299.9610(1))

EQD will prepare and submit a single copy of a summary report to the Director of the EGLE and the USEPA on a biennial basis by March 1 of each even numbered year for the prior year. The Biennial Report will be submitted on U.S. EPA Form 8700-13B in accordance with the requirements of R 299.9610, R 299.9521(1)(a) and 40 CFR 270.30(I)(99).

M-3 Environmental Monitoring Reporting

EQD will submit the results of all environmental monitoring required by this permit as well as the results of any non-permit required sampling or analysis in an Environmental Monitoring Report. The report(s) will be submitted to the EGLE Division Chief as outlined in Section E of this application. EQD will submit air monitoring results to the EGLE Air Quality Division in accordance with R 299.9521(1)(a), R 299.9521(3)(b) and 40 CFR 270.14(I)(4).

M-4 Incident Reporting and Recordkeeping

Refer to **Section G, Contingency Plan** for a detailed description of the incident reporting and notification procedures that will be followed by EQD following any incident that could threaten human health or the environment.

M-4a Immediate Notification

EQD will notify Michigan Environment, Great Lakes, and Energy (EGLE) as soon as EQD is aware of an incident that could threaten human health or the environment. EQD will immediately provide verbal notification to the Division Chief of EGLE and the Pollution Emergency Alerting System (PEAS) as applicable. The notification will include the following:

- Information concerning the incident (fire, explosion, release, or discharge of any hazardous waste or hazardous waste constituent that could threaten human health or the environment, has reached surface water or groundwater, or may threaten public drinking water supplies or the environment.
- A description of the incident and the cause of the incident, if known, in accordance with R 299.9607(2)(a) to (i).

M-4b Written Notification

EQD will provide a written report within five days after EQD is aware of an incident. The written "5-day Report" will be submitted as required. The written report will describe the exact time, date, and duration of the incident, and provide a detailed description of the type of incident (fire, explosion, release or discharge of hazardous waste or hazardous waste constituent). The report will also indicate whether EQD has corrected any non-compliance. If the non-compliance has not been corrected, the report will provide the actions needed to reduce, eliminate, and prevent a recurrence of the incident and an anticipated date that the non-compliance will be corrected. The "5-Day Report" will also contain information supporting any EQD contention that the incident did not endanger human health or the environment.

M-5 Manifest System

(40 CFR 264.71)

EQD receives hazardous waste accompanied by a manifest. Manifest copy distribution is found in **Table M-1**. EQD uses the procedure found in **Appendix M-1** for evaluating the Manifest for received wastes. When waste is received, the operator must:

- 1. Sign and date each copy of the manifest to certify that the hazardous waste covered by the manifest was received.
- 2. Note any significant discrepancies in the manifest on each copy of the form.
- 3. Immediately give the transporter at least one copy of the signed manifest.
- 4. Within 30 days after the delivery, EQD will send a copy of the manifest to the generator, and
- 5. Retain a copy of each manifest for at least three (3) years from the date of delivery at EQD.

M-6 Manifest Discrepancies

(40 CFR 264.72)

EQD Waste Acceptance personnel will check each incoming shipment of hazardous waste against the manifest for significant discrepancies. These significant discrepancies would be:

- 1. For bulk waste, variation of more than 10% in weight from that stated on the manifest.
- 2. The discovery of a discrepancy in the type of waste reported in the manifest.

Upon discovering a significant manifest discrepancy, EQD will contact the waste generator or transporter (e.g., with telephone conversation) to attempt to reconcile the discrepancy within 15 days of acceptance of the waste shipment. If the discrepancy cannot be resolved with the hazardous waste generator, EQD will submit a written report to the USEPA and the EGLE describing the discrepancy and their attempt to reconcile it. EQD will attach to this report a copy of the manifest of issue.

M-7 Land Disposal Restrictions (LDR) Recordkeeping Requirements

All facilities that receive or generate restricted wastes are subject to land disposal restriction record keeping requirements. Pursuant to 40 CFR 268.7(2) generators are required to provide EQD with a one-time written notice that describes the appropriate treatment standard set forth in 40 CFR 268 Subpart D and any applicable prohibition levels set forth in 40 CFR 268.32 or RCRA 3004(d). Thereafter a copy of the written notice must be maintained at the generators file. A description of the Land Disposal Restrictions is found in **Appendix M-2**.

For generated process wastes that will be managed at an off-site disposal facility, EQD will comply with the same generator notice and certification requirements.

The facility will maintain copies of all generator notices and certification and copies of notices and certification sent by EQD to off-site disposal facilities for a minimum of five years.

M-8 Unmanifested Waste Reports

(R 299.9610(2)40 CFR 264.76)

EQD will not knowingly accept hazardous wastes at the facility without an accompanying manifest. However, if the EQD facility accepts unmanifested waste from an off-site source for storage or treatment, and if the waste is not excluded from the manifest requirement by R 299.9205, then an "Unmanifested Waste Report" will be prepared, and a single copy shall be submitted to EGLE within 15 days after receiving the unmanifested waste. The Unmanifested Waste Report shall include all the following information:

- 1. The U.S. EPA identification number, name, and address of the facility.
- 2. The date the facility received the unmanifested waste.
- 3. The U.S. EPA identification number, name and address of the generator and transporter, if available.

- 4. A description and the quantity of each unmanifested hazardous waste that the facility received.
- 5. The method of storage and treatment for each unmanifested hazardous waste received.
- 6. The certification signed by the owner or operator, or their representative, of the facility.
- 7. A brief explanation of why the waste was unmanifested, if known.

M-9 Modifications of Recordkeeping Forms

EQD provides reports and keeps operating records on a variety of forms. Forms that have been provided as attachments to this application may require modification to change the format, update references and information, add information or change certification or notification information in accordance with Part 111 of Act 451 rules and RCRA regulations. EQD will submit any such modifications to these forms to the Division Chief. If the Division Chief does not reject or require revision of the modified form(s) within 14 days, EQD will implement the use of the modified form(s) and incorporate the modified form(s).

SECTION N

TRAFFIC INFORMATION R 299.9504(1)(C) AND 40 CFR 270.14(B)(10)

TRAFFIC INFORMATION

The information provided in this section is submitted in accordance with 40 CFR 270.14(b)(10) and Michigan Act 451 R 299.9504(1)(c) requirements for traffic information. EQD has been in existence and operating as a permitted RCRA storage facility since 02/04/2004.

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N-1 General Information

EQD is in the City of Detroit and occupies an area of approximately 15 acres and is located at 1923 Frederick Street. The general area around the site is heavily industrialized.

The major transportation routes that service Detroit include six freeways (I-94, I-75, I-375, I-96, M-10, and M-8), numerous major thoroughfares (2-way and 1-way), secondary thoroughfares (2-way and 1-way) and several railroads.

The EQD site is located near the intersection of interstates I-75 and I-94 and is situated on a land parcel roughly bounded to the south by Farnsworth Street, to the east by St. Aubin Street, to the north by Ferry Street and to the west by Grand Trunk Western Railroad. Access to the facility is off St. Aubin Street through a 24-hour staffed guard check point. Current operations associated with the facility are limited to the buildings herein which are all located north of Frederick Street.

N-2 Traffic Routes

EQD's operational policy for traffic routing is as follows:

EQD requires trucks delivering loads to its facility to utilize the Warren Street exit from I-75, the Russell Street exit from eastbound I-94 and the Mt. Elliot exit from westbound I-94. These routes are listed below:

Directions from I-75 North: I-75 North to Warren Street exit (Exit 53A); proceed on service drive until it ends on Ferry Street; right on Ferry Street; proceed two blocks to St. Aubin Street; right on St. Aubin Street; proceed one block to the entrance on the right; EQD facility entrance is clearly marked as "US Ecology".

Directions from I-75 South: I-75 South to Warren Street exit. Proceed over freeway onto service drive; proceed on service drive until in ends on Ferry Street; right on Ferry Street; proceed two blocks to St. Aubin Street; right on St. Aubin Street; proceed one block to the entrance on the right; EQD facility entrance is clearly marked as "US Ecology".

Directions from I-94 East: I-94 East to Russell Street Exit Right on Russell Street; proceed to Ferry Street; Left on Ferry Street; proceed one block to St. Aubin Street; right on St. Aubin Street; proceed one block to the entrance on the right; EQD facility entrance is clearly marked as "US Ecology".

Directions from I-94 West; I-94 West to Mt. Elliot Exit. Proceed on the service drive from Chene Street; Left on Chene Street; proceed to Ferry Street; right on Ferry Street; proceed to St. Aubin Street; left on St. Aubin Street; proceed one block to the entrance on the right; EQD facility entrance is clearly marked as "US Ecology".

N-3 Traffic Volume

Truck traffic is prohibited from traveling on the residential streets around EQD by posted signs. Trucks traveling to and from the facility are limited to travel upon the major traffic routes described below.

The number of trucks using each I-75 and I-94 exit is a matter of speculation. It is safe to assume that only a fraction of facility bound trucks will exit at Russell Street. It would be desirable to keep truck traffic on St. Aubin Street to minimize interference with the traffic to the Detroit Renewable Power municipal incinerator. The area west of St. Aubin is zoned intensive industrial, although it includes several older residences predating the change in the zoning. Land on the east side has been designated a residential zone. Regular traffic on St. Aubin Street is relatively light and therefore the small volume of EQD truck traffic is not likely to create a significant inconvenience to the residents.

Roll-off trucks, stake trucks, covered and uncovered flatbed trucks, bulk tank trucks, vacuum tank trucks and rail car tankers will deliver drummed and bulk waste liquids and sludges to EQD. Treated liquid wastes and recycled products not discharged to the sanitary sewer will be manifested as appropriate and shipped off-site via bulk tanker trucks. Solid waste will be manifested as appropriate and shipped off-site in roll-off boxes.

EQD does not anticipate major differences in the amount and pattern of traffic to and from the site. Truck traffic to the facility may increase; but combined with current truck traffic from neighboring facilities in the area, the minimal potential increase in traffic related noise is not expected to be a source of annoyance for nearby residents. The potential impact will be effectively mitigated by routing traffic to and from the site through an established route along I-94, I-75; Farnsworth Street; Russell Street; Ferry Street; St. Aubin Street; and Chene Street. This will impact the smallest number of residences possible.

Waste Hauling Vehicles	Average Number per Day
Waste Hauling Trailers	35 – 50
Waste Hauling Tankers	15 – 35
Van Trailers Hauling Containers	15 - 20
Pneumatic Trailers	5 - 15

N-3a Estimated Number and Types of Vehicles

N-4 Access Road Construction

All roadways traveled to EQD facility are designated for heavy vehicles and are maintained by the City of Detroit of Wayne County. The maximum weight of any road vehicle traveling the access roadways varies according to season and is regulated by the Michigan Department of Transportation, Wayne County, and the City of Detroit. All vehicles transporting to and from EQD will be loaded in accordance with the applicable restrictions in force throughout the year.

N-5 Description of the Site and Traffic Flow

The internal network, traffic pattern and control devices for the facility are described below:

N-5a Site Traffic Flow

All incoming traffic will enter the EQD facility through the electric gate off St. Aubin Street. Traffic will proceed to the Waste Acceptance Building for processing. Following acceptance of a shipment (after screening at the Waste Acceptance Building), hazardous waste transporting vehicles proceed via the internal roadway system to the waste processing facility. Drivers are directed to off-load their shipment at either the:

- 1. Main Treatment Building near the Chemical Precipitation Room
- 2. Main Treatment Building near the Corrosive Treatment Room
- 3. Process Treatment Building
- 4. Container Storage and Container Staging Area
- 5. Chemical Fixation Building

Traffic destined for the Chemical Fixation Building will approach the plant from the south and exit through the north or south side of the building. Containerized waste will be delivered to the plant's Container Staging Area on the south side of the building. Traffic unloading bulk liquids will approach the Main Treatment Building west side. Traffic will exit east through the facility via the security area and exit on St. Aubin Street.

N-6 Security Procedures and Equipment

Vehicles must enter the site through the entrance off St. Aubin Street when delivering hazardous waste to EQD. Once inside the facility, all vehicles must stop at Security to check in and then proceed to the Receiving Department for processing of manifests, other shipping documents and for load inspection and sampling. At all times, a security guard is posted at the security guard office to monitor delivery vehicle entry (such as delivery of equipment and supplies) and to exclude any unauthorized person from the site.

As per 40 CFR Part 264.14(c), warning signs are posted on the fence surrounding the facility.

SECTION O

FACILITY INSPECTION SCHEDULES

R 299.9504(1)(c) and 40 CFR, Part 264.15(b)(5)

INSPECTION SCHEDULES TABLE OF CONTENTS

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FIGURES

All Figures listed below and referenced in this section are found in the Figures Tab of this application

FIGURE O-1:	Daily Inspection Logs
FIGURE O-2:	Weekly Inspection Logs
FIGURE O-3:	Monthly Inspection Log

O-1 General Information

(40 CFR 264.15(a)(1)(2))

This Inspection Plan has been designed to detect malfunction, deterioration, operator errors, discharges, and any other situation that may cause, or lead to, the release of hazardous materials which could become a threat to human health or the environment. The designated personnel conduct these inspections often enough to identify problems in time to initiate corrective actions before any harm to human health or the environment is created.

The facility conducts regular inspections of the Treatment and Storage areas, including associated tanks/vaults and all ancillary equipment. The facility's structures and equipment, including monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment are inspected routinely by plant personnel.

"Inspection Report Forms" have been developed for use during EQD facility inspections. These forms specify the areas to be inspected, the frequency of each type of inspection and the type of problems to investigate. When identifying a problem, the inspector is required to specify:

- The type of problem identified,
- The remedial action required, if known,
- Notify management to implement remedial action.

Completed inspection report forms and the schedule of inspections are kept at the facility's office at 1923 Frederick Street, Detroit, Michigan. The facility Inspection Plan shall always be maintained at the facility and updated as required whenever any changes take place at the facility.

O-2 Purpose of the Inspection Plan

The purpose of this plan is to describe and delineate the procedures that will be implemented by EQD personnel for inspecting the facility. Periodic inspections are required at EQD to detect any malfunctions, deteriorations, operator errors, discharges and any other situation which may cause a release of hazardous materials, and to identify and correct it before any threat is posed to human health or the environment.

O-3 Inspection Categories

The inspector follows a written schedule for inspections in compliance with RCRA, part 111 and the Rules:

- Safety and emergency equipment,
- Security devices; and
- Operating and structural equipment important to preventing, detecting, or responding to human health hazards.
O-4 Inspection Frequency

The frequency of inspection is based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if the deterioration or malfunction, or any operator error goes undetected between inspections.

O-5 Inspection Schedule

(40 CFR 264.15(b)(1-4), 264.33, 264.174, 264.193(i), 264.195 and 270.14(b)(5))

The inspection schedule is kept at the facility. The inspections are to be conducted at the frequency and timeframe indicated below:

Daily - Each day the facility is handling hazardous waste

Weekly - Each week the facility is handling hazardous waste

Monthly - Each month the facility is handling hazardous waste

O-6 Daily Inspection Schedules

The following areas at EQD are inspected daily when the facility is in operation. The inspection sheets for daily inspections are found in **Figure 0-1**.

O-6a Inspection Requirements for Waste Handling and Storage Areas

(40 CFR 264.15)

The inspector will inspect waste handling and storage areas looking for any evidence of spilled material or leaks from storage containers or tanks. The containment system will be inspected for any cracks or deterioration. Spilled or leaked waste must be removed from the secondary containment system within 24 hours or as soon as possible in accordance with 40 CFR 264.193.

O-6b Areas Subject to Spills

(40 CFR 264.15)

Areas subject to spills, such as loading and unloading areas are inspected daily when in use. Liquids and pumpable solids accumulated in the secondary containment structure shall be removed within 24 hours of detection. Non-pumpable solids shall be removed every 60 days. For high precipitation conditions, where removal cannot be completed within 24 hours, removal of the spilled or leaked waste and accumulated precipitation must begin within 24 hours of detection and continue until all liquid and/or solid is removed and it shall be managed in accordance with the requirements of Part 111 of Act 451 and the rules. {R299.9521(3)(b), R299.9614(1)(a) and 40 CFR, §264.175(b)(5).

O-6c Container Storage Areas

(40 CFR 264.174)

The inspector must inspect areas where containers are stored, looking for leaking containers and for deterioration of containers and the containment system caused by corrosion or other factors. Containers stored in the container storage areas are inspected for signs of deterioration.

O-6d Tank Systems

(40 CFR 264.193)

As applicable to the facility, the inspection schedule meets the following requirements for all tank systems for storing or treating hazardous waste.

Containment and detection of release:

Leak Detection Devices for primary containment are checked to detect the failure of that structure or the presence of any release within 24 hours or at the earliest practical time if it is not possible to detect a release within 24 hours. If the leak detections system fails to detect the failure of the primary containment structure or the presence of any release within 24 hours, EQD will demonstrate to the EGLE that existing detection technologies or site conditions will allow the detection of a release within 24 hours (40 CFR 264.193 (c)(3))

Spilled or leaked waste and accumulated precipitation must be removed from the secondary containment system within 24 hours or in as timely manner as possible in accordance with 40 CFR 264.193. If spilled or leaked waste and accumulated precipitation cannot be removed from the secondary containment within 24 hours, EQD will demonstrate to the EGLE that removal of the released waste or accumulated precipitation cannot be accomplished in 24 hours. (40 CFR 264.193(c))

Aboveground piping without secondary containment is visually inspected for leaks on a daily basis. All such piping at the facility is provided secondary containment by sloping concrete and blind trenches, therefore daily piping inspection is not mandatory, but will be conducted as best management practice. (40 CFR 264.293(f)(1))

Welded flanges, welded joints and welded connections without secondary containment are visually inspected for leaks on a daily basis. (40 CFR 264.193(f)(2)

Sealless or magnetic coupling pumps and sealless valves without secondary containment are inspected on a daily basis. (40 CFR 264.193(f)(3))

Pressurized aboveground piping systems with automatic shutoff e.g. excess flow check valves, flow metering shutdown devices, loss of pressure actuated shut-off devices that have no secondary containment are visually inspected on a daily basis. All such piping at the facility is provided secondary containment by the sloping concrete and blind trenches, therefore daily piping inspection is not mandatory, but will be conducted as best management practice (40 CFR 264.193(f)(4))

For all tank systems without secondary containment meeting 40 CFR 264.193, annually conduct a leak test that meets the requirements of 40 CFR 264.191(b)(5) or other tank integrity method (40 CFR 264.193(i)(1-2)). All tanks in use at the facility have secondary containment, therefore annual tank integrity assessment is not mandatory. Tank integrity assessment will be conducted according to the Steel Tank Institute (STI) SPOO1 standard with future assessments based on STI calculated deterioration rates.

O-6e Tank Inspections

(40 CFR 264.195)

EQD will develop and follow best management practices for ensuring that tanks are not overfilled. At least once a day, EQD personnel will inspect aboveground portions of the tank system, the area immediately around the tank system and check the data gathered from monitoring and leak detection equipment.

O-7 Weekly Inspections

Surface conditions at EQD are inspected weekly when the facility is in operation using the inspection sheet found in **Figure O-2.**

O-8 Monthly Inspections

EQD conducts a monthly safety and security inspection using the inspection sheet found in **Figure O-3**.

O-9 Inspection Records

(40 CFR 264.73(b)(5))

The Inspection Log or Summary is compiled by inserting all completed Inspection Report forms into a binder kept on site. These records, at a minimum, include the date of the inspection, the name of the inspector, and a notation of the observations made. For routine and quickly remedied types of problems, such as precipitation in containment, a check mark on the inspection form will indicate that the problem has been corrected, for example, the containment was pumped.

Problems requiring more extensive repairs or remedies will also be recorded on the inspection form; specific plan(s) of action needed to correct the problem as well as the anticipated completion date may be included in other documents such as the EQD Non-Conformance and Corrective Action Log. The date the problem was corrected will be recorded in the EQD inspection log.

The inspection records are kept for at least three years from the date of the inspection.

Three Inspection Report forms (Figure O-1, Figure O-2, and Figure O-3) are currently in use at the facility.

- 1. Daily Inspection Report
- 2. Weekly Inspection Report
- 3. Monthly Inspection Report

These Inspection Report forms list and describe items to be examined at a specific frequency. A revised or improved version of any Inspection Report form may be implemented upon proper administrative change notification to Michigan Environment, Great Lakes, and Energy (EGLE), Waste Management Division. Each inspection record will be kept on file in an Inspection Log binder or file for a minimum of three years from the time of the inspection.

O-10 Corrective Measures

(40 CFR 264.15(c))

The operator remedies any deterioration/malfunction of equipment or structures, which the inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action is taken immediately.

O-11 Procedures to Ensure Transport Vehicles and Containers are Empty

(R 299.9504(16) and R 299.9605(2) and 40 CFR 261.7)

EQD has a Vehicle Post Inspection (VPI) Release Ticket (RT) log to ensure hazardous waste transport vehicles and/or other containers leaving the EQD facility will be empty of hazardous waste.

If a transport vehicle or other container is not RCRA empty, EQD will either instruct the driver to have the waste removed by physical means (dig-out, wash-out) before leaving the site or will modify the manifest as described in the WAP under "Rejected Load Procedures".

O-12 Standard Operating Procedures

In addition to the formal inspection program, EQD has Standard Operating Procedures (SOP) that ensure hazardous waste track-out does not occur, that the air handling system is maintaining negative pressure in the Chemical Fixation Building, and that equipment scheduled for repair is decontaminated prior to removal from hazardous working conditions.

It should be noted that these Standard Operating Procedure references are provided for informational purposes only, and are not intended to be incorporated into the Hazardous Waste Operating License as License conditions. However, EQD intends to follow these procedures, or similar procedures that provide equivalent protection with respect to matters addressed therein.

JIONAVING NO.	TITLE 1	TITLE 2
A-01	USGS SITE MAP - 1 MILE RADIUS	h
A-02	SURVEY PROPERTY DESCRIPTION	
A-03	FACILITY DRAWING	
A-04	CHEMICAL FIXATION BUILDING	FLOOR PLAN
A-05	T&P BUILDING	FLOOR PLAN
A-06	WWT MAIN TREATMENT BUILDING	FLOOR PLAN
A-07	CHEMICAL FIXATION BUILDING	ARCHITECTURAL ELEVATIONS
A-08	T&P BUILDING	ARCHITECTURAL ELEVATIONS
A-09	WWT MAIN TREATMENT BUILDING	ARCHITECTURAL ELEVATIONS
C-01	CHEMICAL FIXATION BUILDING	FOUNDATION PLAN
C-02	CHEMICAL FIXATION BUILDING	SILO & APC AREA FOUNDATION PLAN
C-03	CHEMICAL FIXATION BUILDING	RESTROOM / MECHANICAL FIRE ROOM AREA FOUNDATION /FRAMING PLAN & DETAIL
C-04	T&P BUILDING	FOUNDATION PLAN
C-05	CHEMICAL FIXATION BUILDING	FOUNDATION DETAILS & SECTIONS
C-06	CHEMICAL FIXATION BUILDING	FOUNDATION DETAILS & SECTIONS
C-07	CHEMICAL FIXATION BUILDING	STANDARD FOUNDATION DETAILS
C-08	CHEMICAL FIXATION BUILDING	FOUNDATION DETAILS & SECTIONS
-00-0	FIRE HYDRANT AND STORM WATER DETAILS	
C-10	MISCELLANEOUS PAVEMENT DETAILS	
C-11	MISCELLANEOUS CIVIL DETAILS	
C-12	SEWER SYSTEM PLAN	
C-12		
C-14	IMPERVIOUS COATING CONTAINMENT PLAN	
C_15	STORAGE CONTAINMENT	SITE EXTERIOR STORAGE CONTAINMENT
C-16		BUILDING INTERIOR STORAGE CONTAINMENT
C 17	STOPAGE CONTAINMENT	WWT OIL PROCESSING STORAGE CONTAINMENT
C 18		WWT UNLOADING PAD STORAGE CONTAINMENT
C-19	STORAGE CONTAINMENT	CHEMICAL FIXATION SOUTH EXTERIOR STORAGE
C-20	STORAGE CONTAINMENT	WWT RAILROAD STORAGE CONTAINMENT
C-21	STORAGE CONTAINMENT	CHEMICAL FIXATION SOUTH RAIL EXTERIOR STORAGE
C-22	STORAGE CONTAINMENT	CHEMICAL FIXATION NORTH EXTERIOR STORAGE
C 22		T&P EXTERIOR STORAGE CONTAINMENT
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C-25	STORAGE CONTAINMENT	CONTAINER STORAGE & CONTAINER STAGING STORAGE
C-27	STORAGE CONTAINMENT	DE-PACK & T&P INTERIOR STORAGE CONTAINMENT
E-01	CHEMICAL FIXATION BUILDING	ONE LINE ELECTRICAL DIAGRAM - DISTRIBUTION PANEL
E-02	CHEMICAL FIXATION BUILDING	ONE LINE ELECTRICAL DIAGRAM - MCC 1
E-03	CHEMICAL FIXATION BUILDING	ONE LINE ELECTRICAL DIAGRAM - MCC 2
E-04	CHEMICAL FIXATION BUILDING	ONE LINE ELECTRICAL DIAGRAM - MCC 3
	WWT MAIN TREATMENT BUILDING	ONE LINE ELECTRICAL DIAGRAM
E-05		ONE LINE ELECTRICAL DIACRAM

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M-01	CHEMICAL FIXATION BUILDING	WASTE TREATMENT & STORAGE TANKS T-701 TO T-706								
M-02	CHEMICAL FIXATION BUILDING	WASTE TREATMENT & STORAGE TANKS SECTIONS & DETAILS								
M-03	CHEMICAL FIXATION BUILDING	HAZARDOUS WASTE STORAGE SILOS - H1 & H2								
M-04	CHEMICAL FIXATION BUILDING	HAZARDOUS WASTE STORAGE SILOS - ELEVATION VIEWS								
M-05	WWT MAIN TREATMENT BUILDING	HAZARDOUS TREATMENT TANKS T-201, T-202 AND T-203								
M-06	WWT MAIN TREATMENT BUILDING	HAZARDOUS TREATMENT TANKS T-204								
M-07	WWT MAIN TREATMENT BUILDING	HAZARDOUS TREATMENT TANKS T-205								
M-08	WWT MAIN TREATMENT BUILDING	HAZARDOUS TREATMENT TANKS T-206								
M-09	WWT MAIN TREATMENT BUILDING	HAZARDOUS TREATMENT TANKS T-207								
M-10	WWT MAIN TREATMENT BUILDING	HAZARDOUS TREATMENT TANKS T-208								
M-11	WWT MAIN TREATMENT BUILDING	HAZARDOUS TREATMENT TANKS T-301 AND T-302								
M-12	WWT MAIN TREATMENT BUILDING	HAZARDOUS TREATMENT TANKS T-303								
M-13	WWT MAIN TREATMENT BUILDING	HAZARDOUS TREATMENT TANKS T-304								
M-14	WWT MAIN TREATMENT BUILDING	HAZARDOUS TREATMENT TANKS T-305								
M-15	WWT MAIN TREATMENT BUILDING	HAZARDOUS TREATMENT TANKS T-306								
M-16	CHEMICAL FIXATION BUILDING	FIRE PROTECTION SYSTEM - DRY SPRINKLER SYSTEM								
M-17	CHEMICAL FIXATION BUILDING	FIRE PROTECTION SYSTEM - CONTAINER STORAGE								
M-18	CHEMICAL FIXATION BUILDING	FIRE PROTECTION SYSTEM - CONTAINER STAGING								
M-19	CHEMICAL FIXATION BUILDING	FIRE PROTECTION SYSTEM - BULKING								
M-20	CHEMICAL FIXATION BUILDING	FIRE PROTECTION SYSTEM - TREATMENT TANKS								
M-21	CHEMICAL FIXATION BUILDING	FIRE PROTECTION SYSTEM - FIRE EQUIPMENT ROOM WET SYSTEM								
M-22	CHEMICAL FIXATION BUILDING	FIRE EQUIPMENT ROOM PLAN								
M-23	T&P BUILDING	FIBE PROTECTION SYSTEM								
M-20	WANT MAIN TREATMENT BUILDING									
M-24	MAANT MAIN TREATMENT BUILDING	FIRE PROTECTION SYSTEM - LABORATORY								
M-25										
M-20 M-27		AIR POLITION CONTROL SYSTEM - FLEVATION VIEW								
M-27										
IVI-20	CHENICAL FIXATION BUILDING									
P_01	SITE TRAFFIC PLAN									
P-02		PROCESS FLOW DIAGRAM								
P_03		DE-PACK PROCESS FLOW DIAGRAM								
P 04	MAAT MAIN TREATMENT BUILDING	PROCESS FLOW DIAGRAM								
P.04		APCS PIPING & INSTRUMENTATION DIAGRAM								
F-03										
R-01	SPILL EMERGENCY PREPAREDNESS									
R-02	MEDICAL EMERGENCY PREPAREDNESS									
R-03	FIRE EMERGENCY PREPAREDNESS									
R-04	EVACUATION PLAN									
8-05	FACILITY SITE	AREA HAZARD CLASSIFICATION								
RJAG	CONTAINER STORAGE / STACING AREA	AREA HAZARD CLASSIFICATION								
R_07	AMBIENT AIR MONITORING STATION									
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S 04	CHEMICAL EXATION RUILDING									
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5-06	CHEMICAL FIXATION BUILDING									
S-07	CHEMICAL FIXATION BUILDING	AIR POLLUTION CONTROL SYSTEM & SILO STRUCTURAL PLAN								
S-08	CHEMICAL FIXATION BUILDING	APCS DUCI SUPPORT STRUCTURAL PLAN								
S-09	CHEMICAL FIXATION BUILDING	AIR POLLUTION CONTROL SYSTEM & SILO STRUCTURAL DETAILS								
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1. ELEVATIONS AND DIMENSIONS OF EXISTING STRUCTURES AND PLANT UTILITIES HAVE BEEN BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME OF DESIGN AND MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE TO VERIFY ALL DIMENSIONS AND ELEVATIONS BEFORE PROCEEDING WITH ANY WORK. IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICTS WHICH WILL EFFECT THE PROGRESS OF THE WORK.

OF THE WORK. 2. NOTIFY FIBER OPTIC UTILITY OWNERS BEFORE PERFORMING ANY EXCAVATION OR FOUNDATION WORK IN THE VICINITY OF THESE BURIED LINES. (REFER TO CIVIL DRAWINGS FOR LOCATION.) 3. SHALLOW FOUNDATIONS SHALL BE PLACED ON UNDISTURBED NATURAL SOIL WITH AN ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF. IF UNACCEPTABLE SOIL CONDITIONS ARE ENCOUNTERED. THE ENGINEER SHALL BE CONSULTED FOR DIRECTION WITH REGARD TO FOUNDATION CONCEPTION

FOUNDATION CONSTRUCTION.

FOUNDATION CONSTRUCTION. DRILLED PIER FOUNDATIONS SHALL EXTEND DOWN TO THE NATIVE SILTY CLAY WITH AN ALLOWABLE SOIL BEARING PRESSURE OF 10,000 PSF. REFER TO NTH CONSULTANT'S "GEOTECHNICAL INVESTIGATION – PROPOSED ADDITION TO CITY ENVIRONMENTAL FREDERICK STREET FACILITY, DETROIT MICHIGAN" PROJECT NO. 34-4634-00 REPORT, DATED DECEMBER 6, 1994, FOR FOUNDATION RECOMMENDATIONS, AS WELL AS THE STE SOIL CONDITIONS

REPORT, DATED DECEMBER 6, 1994, FOR FOUNDATION RECOMMENDATIONS, AS WELL AS THE SITE SOLL CONDITIONS. THE FLOOR SLAB SUB-BASE SHALL BE PLACED ON NATURAL SUBGRADE MATERIAL AFTER THE TOPSOL HAS BEEN STRIPPED AND THE SUBGRADE PROFILED. IF UNDERCUTTING IS REQUIRED TO REMOVE UNSUITABLE SUBGRADE MATERIAL OR IF THE NATURAL SUBGRADE IS BELOW THE DESIGN LEVEL, COMPACTED GRANULAR FILL SHALL BE USED TO ACHIEVE THE DESIRED SUBGRADE ELEVATION. FILL MATERIAL SHALL BE AS SHOWN ON THE DRAWINGS, AND SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM STANDARD D-1557 (MODIFIED PROCTOR). . GRADE BEAM EXCAVATIONS MAY BE TRENCHED IF THE EXCAVATION SIDES WILL STAND WITHOUT CAVING DURING CONCRETE PLACEMENT. OTHERWISE, THE GRADE BEAMS SHALL BE FORMED WITH VERTICAL SIDES.

WITHOUT CAVING DURING CONCRETE PLACEMENT. UTHERWISE, THE GRADE BEAMS SHALL BE FORMED WITH VERTICAL SIDES. TESTING OF FOUNDATION SUBGRADE, FOUNDATION AND FLOOR SLAB CONCRETE, GRANULAR BACKFILL, AND OTHER TESTING REQUIRED WILL BE BY THE CONTRACTOR AND COORDINATED WITH THE ENGINEER. THE ENGINEER SHALL BE ADVISED OF AND APPROVE OF THE TEST RESULTS PRIOR TO THE PERFORMANCE OF ANY TEST-DEPENDENT WORK BY THE CONTRACTOR.

STRUCTURAL STEEL:

 THE TYPE OF CONSTRUCTION AND ASSOCIATED DESIGN ASSUMPTIONS SHALL BE IN ACCORDANCE WITH AMERICAN INSTITUTE OF STEEL CONSTRUCTION TYPE 2 STRUCTURAL STEEL CONSTRUCTION UNLESS DETAILED OTHERWISE. 2. ALL STRUCTURAL STEEL SHALL CONFORM TO:

STEEL SHAPES, BARS AND PLATES ASTM A36 STEEL TUBING AND PIPE ASTM A501,A500, GRADE B OR A53 GRADE B

 3. WELDING ELECTRODES:
 AWS E70XX.

 4. HIGH STRENGTH BOLTS:
 ASTM A325, WITH FLAT WASHERS UNDER TURNED ELEMENTS.

 5. ANCHOR BOLTS:
 ASTM A307.

CAST-IN-PLACE CONCRETE:

1. ALL REINFORCING IN FOOTINGS AND WALLS SHALL BE CONTINUOUS AROUND CORNERS AND INTERSECTIONS 2. PROVIDE 3/4" BEVELED EDGES ON ALL PERMANENTLY EXPOSED SURFACES OF CONCRETE

SURFACES. MINIMUM COMPRESSIVE STRENGTHS (F'c): 3,500 PSI FOR FOOTINGS AND FOUNDATIONS 4,000 PSI FOR SLABS ON GRADE. MINIMUM CEMENT CONTENT: 5-1/2 SACKS PER CUBIC YARD FOR 3,500 PSI, 6.0 SACKS PER CUBIC YARD FOR 4,000 PSI. AGGREGATES: COURSE - M.D.O.T.6A; FINE M.D.O.T.2NS. STEEL REINFORCEMENT: ASTM 615, GRADE 60. Fy = 60,000 PSI. ALL CONCRETE CONSTRUCTION SHALL COMPLY WITH ACI "SPECIFICATIONS FOR STRUCTURAL CONCRETE" 301-84

CONCRETE" 301-84

8. WELDED WIRE FABRIC (FLAT SHEET) SHALL CONFORM TO ASTM A-185.

SUPERIMPOSED DESIGN LOADS

CAL	RC	ом/тс	DILET	ROOMS 30	PSF
L. ECH	&	ELEC.	D.L.	15 5	PSF PSF
ANK	С	OVER		30	PSF
L. ECH	&	ELEC.	D.L.	15 10	PSF PSF

SPECIFIC CONCENTRATED POINT LOADS DUE TO HEAVY MECHANICAL EQUIPMENT ARE SUPPORTED BY STEEL FRAMING AS DETAILED ON DRAWINGS. MEZZANINES & CATWALKS 100 PSF

DRILLED PIER FOUNDATION:

CONTRACTOR IS RESPONSIBLE FOR PROVIDING LINE AND GRADE FOR CONSTRUCTION.
 TOWER FOUNDATION SHALL BE A DRILLED TYPE PIER.
 PIER FOUNDATION SHALL BE FOUNDED ON SOLID UNDISTURBED SOIL. BOTTOM SHALL BE EXCAVATED TO A LEVEL PLANE AND CLEARED OF LOOSE MATERIAL. NO WATER SHALL BE STANDING IN BOTTOM OF THE PIER EXCAVATION AT THE TIME OF PLACING THE CONCRETE.
 ALL REINFORCING STEEL SHALL BE TIES AND FORMED INTO A CAGE PRIOR TO SETTING INTO POSITION IN THE EXCAVATED PIER.
 ALL CONCRETE SHALL BE PLACED AGAINST UNDISTURBED EARTH.
 MAXIMUM FREE DROP OF CONCRETE SHALL BE OF FEET PROVIDED IT IS DIRECTED THROUGH A HOPPER OR OTHER SIMILAR DEVICE TO PREVENT THE SEGREGATION OF THE MATERIAL. CONCRETE SHALL NOT HIT SIDES OF SOIL OR REINFORCING.

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T&P BUILDING FOUNDATION PLAN













6 (TPP.)

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DETAIL

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1'-2" (TPP.)

2

NOTCH CURB AS REOD COLUMIN

🕝 (TNP.)

- 1'-11" -

<u>DETAIL</u>

1'-2

B

<u>SECTION</u>



OVERHEAD DOOR ENTRANCE DETAIL







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BASE PLATE BY OTHERS



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1923 FREDERICK ST., DETROIT, MI 48211 (313) 347-1300 CHEMICAL FIXATION BUILDING

FOUNDATION DETAILS & SECTIONS

C-06













REINFORCEMENT FOR OPENINGS DETAILS

-1/2" X 1/2" DEEP RECESS FILLED WITH FLEXIBLE JOINT SEALANT (REQ'D. WHERE WATER IS PRESENT) EX. CONC. STRUCTURE ROUGHEN SURFACE & APPLY EPOXY BOND ٠ - OUTSIDE FACE . – B – C DWL. SIZE & SPACING -WATERSTOP-RX 101 BY "AMERICAN COLLOID CO." OR APPROVED EQUAL 3" -- DRILL 2" DIA. HOLE OR AS NOTED, FILL HOLE W./EPOXY GROUT BEFORE INSERTING DWLS. (OR AS INDICATED ON STRUCT. SHEETS.)

NOTE: FOR "A", "B", & "C" SIZES SEE STRUCT. SHEETS.





ROUGHEN SURFACE SECTION



- #6X24" DWL. AT 16" (TYP. U.N.O.) ROUGHEN SURFACE OF EX. CONC. & APPLY EPOXY BOND



STANDARD JOINT EITHER SHOWN ON SECTION OR NOTED AS C.J. ON PLAN

REINFORCING TENSION SPLICE TABLE							
BAR SIZE	TENSION LAP LENGTH	* TOP BARS					
# 3	16"	18"					
# 4	20*	24"					
≸ 5 24" 30"							
1 6 28" 36"							
# 7 34" 42"							
 8	38"	48"					
# 9	42"	56*					
#10	50"	66"					
#11	62"	80"					
NOTES: 1. ALL SPLICES SHALL BE CONSIDERED TENSION SPLICES USING LAP LENGTHS IN TABLE ABOVE UNLESS SPECIFICALLY SHOWN OTHERWISE ON THE DRAWINGS. 2. LENGTHS ARE BASED ON LAP CLASS B SPLICES WITH CENTER TO CENTER SPACING OF BARS GREATER THAN 0 DUMETERS.							
* 3. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST UNDER THEM.							
4. USE TENSION LA	P LENGTHS FOR WALL BAR	°S.					





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SDR 26 SEWER PIPE

PVC PIPE

BRICK PIPE

UNKNOWN

PRE-CAST CONCRETE

CLAY CROCK PIPE

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Xypex Material Overview

Xypex is a non-toxic, chemical treatment for the waterproofing and protection of concrete. Xypex's primary and most distinguishing performance feature is its unique ability to generate a non-soluble crystalline formation deep within the pores and capillary tracts of the concrete - a crystalline structure that permanently seals the concrete against the penetration of water and other liquids from any direction.

A major independent testing laboratory performed concrete waterproofing tests on Xypex in accordance with Army Corps Permeability Specification CRD C48-73. The results showed that a two coat application of Xypex on two inch thick 2000 PSI porous concrete totally eliminates leakage at pressures of at least 405 feet of head pressure.

The Xypex chemical reactions that initially take place at the concrete surface or immediately adjacent area, will continue deep into the concrete structure. Independent testing measured the depth of Xypex crystalline penetration into a cast-in-place concrete block at 12 inches. The test concrete sample was coated on the top surface with Xypex Concentrate and left outside the research laboratory in ambient conditions for 12 months.

A Xypex application, unlike most other systems, is permanent. Its unique, dendritic crystalline growth will not deteriorate under normal conditions.

Based on independent testing according to ASTM C 267-77 "Chemical Resistance of Mortars", Xypex in not affected by a wide range of aggressive chemicals including mild acids, solvents, chlorides, and caustic materials. Because Xypex is pH specific (not chemical specific) it will protect concrete from any chemical whose pH range is 3.0 to 11.0 constant contact, or 2.0 to 12.0 periodic contact.

Xypex Application

Weather and Concrete Conditions:

The Xypex treatment must not be applied under rainy conditions or when ambient temperature is below 40 F

The concrete surface must be a minimum of 20 hours old before application of the Xypex coating. For fresh concrete, the period between 24 hours and 72 hours is the optimum time within which to apply Xypex, as the new concrete is still "green" and requires very little pre-watering.

Preparation:

Concrete surfaces to receive waterproofing treatment shall have an open capillary system to provide tooth and suction, and shall be free from scale, excess form oil, laitance, curing compounds and foreign material. Surfaces shall be water blasted as necessary to provide a clean absorbent surface.

Cracks:

Chip out defective areas in a "U" shaped slot one inch wide and a minimum of one inch deep. Clean slot of debris and dust. Soak area with water and remove excess surface water. Apply a slurry coat of Xypex Concentrate at the rate of 1.5 lb/sq. yd. to the slot. Allow slurry to reach an initial set, then fill cavity with Dry-Pac. Compress tightly into cavity using pneumatic packer or block and hammer.

DrvPac Mixing

Using a trowel, mix one part clean water with six parts Xypex Concentrate powder by volume for 10 to 15 seconds. Lumps should be present in this mixture. Do not mix more than can be applied in 20 minutes.

Other Concrete Defects:

Rout out defective areas to sound concrete. Remove loose materials and saturate with water. Remove excess surface water and apply a slurry coat of Xypex Concentrate to area. After slurry has set, but while still "green", fill cavity to surface level with non-shrink grout.

Wetting Concrete

Prior to application of waterproofing treatment, throughly saturate concrete surfaces with clean water as required to ensure migration of crystalline chemicals into voids and capillary tracts of the concrete. Remove free surface water before application.

Application:

After repairs, surface preparations, and treatment of joints have been completed in accordance with specifications, apply Xypex treatment at the rate of 1.5 lb/sq. yd. uniformly to concrete surfaces with semi-stiff broom, or suitable spray equipment to a thickness of 0.0625 inches. A thicker coating can cause difficulties, especially in warm weather. When brushing, work slurry well into surface of the concrete, filling surface pores and hairline cracks. When spraving, hold nozzle close enough to ensure that slurry is forced into pores and hairline cracks.

Second Coat:

A second coat should be applied after the first coat has reached an initial set but while it is still "green" (less than 48 hours). Light pre-watering between coats may be required due to drying. The second coat shall be applied at the rate of 1.25 lb/sq. yd. uniformly to a thickness of 0.0625 inches.

Curing:

Begin curing as soon as Xypex coating has hardened sufficiently so as not to be damaged by a fine spray. Cure Xypex treatment with a mist fog spray of clean water three times a day for 3 days, or cover treated surfaces with damp burlap for 3 days. At high temperatures, more than three sprayings may be necessary to prevent excessive drying of coating.

Protection:

During the curing period, the coating must be protected from rainfall, frost, wind, the puddling of water and temperatures below 36 F for a period of not less than 48 hours after application. If plastic sheeting is used as protection, it must be raised off the Xypex to allow the coating to breather

Drying:

After curing, the coating will be allowed to dry without any heavy vehicle traffic for a period of 3 days. After three days, a film of Xypex Quick Set Hardner will be applied. Surface is then ready for use.

Silver Nitrate

Tie-Coat

Material

Crack Preparation Rout cracks out to a depth of 1 inch. Blow dust out of crack with oil-free compressed air.

Sealant Application: Material may be poured into joint out of the mixing container. Fill joints to full depth. Because of polyurea's short pot life, two component pumps or "quick mix" cartridges are highly recommended.

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Dur-A-Gard Coating Overview

Dura-A-Gard Epoxy Coating is a pigmented, two component, low odor 100% solids, thermosetting epoxy designed especially for flooring applications subjected to moderate traffic and chemicals. Dur-A-Gard Epoxy Coating is ideally suited for application on concrete, wood and metal. The high gloss, tile-like finish is stain-resistant and virtually unaffected by oil, grease, gasoline, strong detergents and salt.

This product is resistant to most common chemicals, including Acetic Acid, 10% Ammonium Hydroxide, 28% Calcium Chloride. 30% Chromic Acid, 10% Citric Acid. 30% Ethlyene Glycol Ethylene Dichloride, 10% Ferric Chloride Gasoline Glycerin Hydrogen Peroxide, 6% Hydrochloric Acid, 30% Isopropyl Alcohol Lactic Acid, 20% Mineral Spirits Sulfuric Acid, 30% Sodium Hydroxide, 30% Tri-sodium Phosphate

Dur-A-Gard is best suited for application in temperatures between 55 F and 95 F. Substrate must be clean, sound, and dry. Substrate must be primed with Dur-A-Shield, Dur-a-Poxy High Gloss, or Dur-A-Glaze

Concrete Joint/Crack Repair

Polyurea is a two component, pourable, self-leveling hybrid material designed for use as a joint sealer for interior warehouse/industrial floors subject to heavy forklift traffic and loads. Good chemical resistance.



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POND. STORAGE VOLUME = 115,125 GALLONS (15,389 CFT) STORAGE VOLUME = 115,125 GALLONS (15,3 LOW POINT POND ELEV. = 627.0' TOP OF CONTAINMENT WALL ELEV. = 634.0' (STORAGE CALCULATED AT ELEV. 633.40') SURFACE AREA = 2,500 SFT

LEGEND

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CONTAINMENT AREA A STORAGE VOLUME = 75,134 (ALLONS (10,044 CFT) TRENCH AND SUMP PIT = 2,363 GALLONS (316 CFT) LOW POINT ELEV. = 632.62' HIGH POINT ELEV. = 633.50' SURFACE AREA = 17,769 SFT TRIBUTARY AREA = 20,338 SFT (0.47 ACRES)

CONTAINMENT AREA B STORAGE VOLUME = 27,765 GALLONS (3,711 CFT) SUMP PIT 15×12×4.167' = 5,610 GALLONS (750 CFT) LOW POINT TRENCH ELEV. = 631.80' HIGH POINT ELEV. = 633.50' SURFACE AREA = 5,702 SFT TRIBUTARY AREA = 13,593 SFT (0.31 ACRES)

SIX PACK AREA

TRENCH: 84'L x 3.83'w x 3.9' = 9,380 GALLONS (1,254 CFT) TRENCH: 24'L x 3.83'w x 3.9' = 2,880 GALLONS (358 CFT) LOW POINT TRENCH ELEV. = 629.50' HIGH POINT CONTAINMENT ELEV. = 633.40'

PROCESSING BUILDING. TRENCH: 47'L x3.83'w x3.4' = 5,251 GALLONS (702 CFT) LOW POINT TRENCH ELEV. = 629.50' HIGH POINT CONTAINMENT ELEV. = 633.40'

TOTAL CONTAINMENT STORAGE PROVIDED = 243,508 GA

REQUIRED STORAGE = 236,263 GALLONS

NOTE:

CONTAINMENT VOLUMES ARE BASED ON THE CONTAINMENT AREAS, TRENCHES AND SUMPS BEING FREE AND CLEAR OF ANY DEBRIS OR SLUDGE AND READY TO RECEIVE LIQUID.

CONTAINMENT VOLUMES ARE ALSO BASED ON THE ASSUMPTION THAT THE VALVE ON PIPE FROM TRENCH IN AREA A TO SIX PACK CONTAINMENT IS CLOSED.

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	© 2017 Hubball, Roth & Clark, Inc. All Rights Reserved	

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1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300

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MAIN TREATMENT PLANT

CHEMICAL PRECIPITATION CONTAINER STORAGE STORAGE VOLUME = 19,187 GALLONS (2,565 CFT) LOW POINT ELEV. = 633.69 CONTAINMENT ELEV. = 634.35' SURFACE AREA = 6,531 SFT

CORROSIVE CONTAINER STORAGE AREA STORAGE VOLUME = 6,709 GALLONS (897 CFT) LOW POINT ELEV. = 633.70' CONTAINMENT ELEV. = 634.35' SURFACE AREA = 2,090 SFT

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MCC ONE-LINE DIAGRAM

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$\sqrt{3}$	GE	TP1616TTR	148808	1600 Amps	1200 Amps		
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DESCRIPTION	CAPABLE OF DETECTING & COLLECTING RELEASES UNTIL REMOVED	COMPATIBLE MATERIAL OF CONSTRUCTION OR LINED	LEAK DETECTION	SLOPED TO DRAIN OR REMOVE LIQUIDS	LARGEST TANKS WITHIN BOUNDARY	DIMENSIONS & CAPACITY	PREVENTION OF RUN-ON OF INFILTRATION OR PRECIPITATION	FREE OF GAPS & CRACKS	CHEMICAL RESISTANT WATER STOP AT ALL JOINTS	л			
700 SERIES TANKS	IN VAULT WITH INTERSTITIAL MONITORING WELLS	REINFORCED CONCRETE LINED WITH WELDED STEEL PLATES AND INTERSTITIAL BARS	YES	YES	T-704 NOMINAL505 CUBIC YARDS	IN VAULT WITH CONTAINMENT EQUAL TO TANK VOLUME	INSIDE BUILDING	NOT ACCESSIBLE	YES			L	U
													1
											T-706	T-705	
											<u>S</u>	Ø	٩
											©	@	7 700
													1-702
	SPECIFIC	PART B INFOR	MATION REQUI	REMENTS FOR	TANK SYSTEMS	40 CFR 270.1	6					MONITO	RING
TANK	SPECIFIC DIMENSIONS/ CAPACITY	PART B INFOR	MATION REQUI	REMENTS FOR PRESSURE CONTROL (VENT)	TANK SYSTEMS WASTE TYPE/ MATER OF CONSTRUCTIO	40 CFR 270.1 EQUIP.F RIAL N N PROTECT	6 OR AL ION LEVEL ELEI ION	IENTS				MONITO WELL (TYPICA	1-702 RING -)
TANK T-701	SPECIFIC DIMENSIONS/ CAPACITY 21' X 26'-6" X 10' DEEP 206 CYDS	PART B INFORM	NONE	REMENTS FOR PRESSURE CONTROL (VENT) VENTED TO ATMOSPHERE THROUGH CONTROL SYSTEM	TANK SYSTEMS WASTE TYPE/ MATER OF CONSTRUCTIO HAZARDOUS, LIQUII SLUDGES AND SOLI REINFORCED CONCR WITH WELDED STE PLATE LINING	40 CFR 270.1 EQUIP.F EXTERN PROTECT DS, DS/ ETE N/A	6 OR AL ION LEVEL ELEI ION NO	IENTS				MONITO WELL (TYPICA	-)
TANK T-701 T-702	SPECIFIC DIMENSIONS/ CAPACITY 21' X 26'-6" X 10' DEEP 206 CYDS 50'-6" X 26'-6" X 10' DEEP 496 CYDS	PART B INFORM	NONE	REMENTS FOR PRESSURE CONTROL (VENT) VENTED TO ATMOSPHERE THROUGH CONTROL SYSTEM VENTED TO ATMOSPHERE THROUGH CONTROL SYSTEM	TANK SYSTEMS WASTE TYPE/ MATEF OF CONSTRUCTIO HAZARDOUS, LIQUIE SLUDGES AND SOLI REINFORCED CONCR WITH WELDED STE PLATE LINING HAZARDOUS, LIQUIE SLUDGES AND SOLI REINFORCED CONCR WITH WELDED STE PLATE LINING	40 CFR 270.1 EQUIP.F EXTERN CORROS PROTECT DS, DS/ ETE N/A EL N/A	6 OR AL ION ION NO NO	/ENTS				MONITO WELL (TYPICA	-)
TANK T-701 T-702 T-703	SPECIFIC DIMENSIONS/ CAPACITY 21' X 26'-6" X 10' DEEP 206 CYDS 50'-6" X 26'-6" X 10' DEEP 496 CYDS 50'-6" X 26'-6" X 10' DEEP 496 CYDS	PART B INFOR! SAFETY CUT OFF NONE NONE NONE	MATION REQUI BYPASS SYSTEM NONE NONE	REMENTS FOR PRESSURE CONTROL (VENT) VENTED TO ATMOSPHERE THROUGH CONTROL SYSTEM VENTED TO ATMOSPHERE THROUGH CONTROL SYSTEM	TANK SYSTEMS WASTE TYPE/ MATER OF CONSTRUCTIO HAZARDOUS, LIQUII SLUDGES AND SOLI REINFORCED CONCR WITH WELDED STE PLATE LINING HAZARDOUS, LIQUII SLUDGES AND SOLI REINFORCED CONCR WITH WELDED STE PLATE LINING HAZARDOUS, LIQUII SLUDGES AND SOLI REINFORCED CONCR WITH WELDED STE PLATE LINING	40 CFR 270.1 EQUIP. F EXTERN SCORROS PROTECT DS, DS/ ETE ELE N/A EL N/A	6 OR AL ION ION ION NO NO	AENTS				MONITO WELL (TYPICA	-)
TANK T-701 T-702 T-703 T-704	SPECIFIC DIMENSIONS/ CAPACITY 21' X 26'-6" X 10' DEEP 206 CYDS 50'-6" X 26'-6" X 10' DEEP 496 CYDS 50'-6" X 26'-6" X 10' DEEP 496 CYDS 65' X 21" X 10' DEEP 506 CYDS	PART B INFORI	NONE	REMENTS FOR PRESSURE CONTROL (VENT) VENTED TO ATMOSPHERE THROUGH CONTROL SYSTEM VENTED TO ATMOSPHERE THROUGH CONTROL SYSTEM VENTED TO ATMOSPHERE THROUGH CONTROL SYSTEM	TANK SYSTEMS WASTE TYPE/ MATER OF CONSTRUCTIO HAZARDOUS, LIQUII SLUDGES AND SOLI REINFORCED CONCR WITH WELDED STE PLATE LINING HAZARDOUS, LIQUII SLUDGES AND SOLI REINFORCED CONCR WITH WELDED STE PLATE LINING HAZARDOUS, LIQUII SLUDGES AND SOLI REINFORCED CONCR WITH WELDED STE PLATE LINING HAZARDOUS, LIQUII SLUDGES AND SOLI REINFORCED CONCR WITH WELDED STE PLATE LINING	40 CFR 270.1 EQUIP.F EXTERN ORROS PROTECT DS, DS/ ETE N/A EL N/A EL N/A EL N/A	6 OR AL ION LEVEL ELEI NO NO	AENTS				MONITO WELL (TYPICA	-)
TANK T-701 T-702 T-703 T-704 T-705	SPECIFIC DIMENSIONS/ CAPACITY 21' X 26'-6" X 10' DEEP 206 CYDS 50'-6" X 26'-6" X 10' DEEP 496 CYDS 50'-6" X 26'-6" X 10' DEEP 496 CYDS 65' X 21" X 10' DEEF 506 CYDS 36' X 21" X 10' DEEF 280 CYDS	PART B INFOR! SAFETY CUT OFF NONE NONE NONE NONE NONE	MATION REQUI BYPASS SYSTEM NONE NONE NONE NONE	REMENTS FOR PRESSURE CONTROL (VENT) VENTED TO ATMOSPHERE THROUGH CONTROL SYSTEM VENTED TO ATMOSPHERE THROUGH CONTROL SYSTEM VENTED TO ATMOSPHERE THROUGH CONTROL SYSTEM VENTED TO ATMOSPHERE THROUGH CONTROL SYSTEM	TANK SYSTEMS WASTE TYPE/ MATER OF CONSTRUCTIO HAZARDOUS, LIQUII SLUDGES AND SOLI REINFORCED CONCR WITH WELDED STE PLATE LINING HAZARDOUS, LIQUII SLUDGES AND SOLI REINFORCED CONCR WITH WELDED STE PLATE LINING	40 CFR 270.1 EQUIP. F EXTERN SS, 205	6 OR AL ION ION ION IEVEL ELEI NO NO NO	AENTS				MONITO WELL (TYPICA	-)

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		CONTAINMENT & DETECTION OF RELEASES 40 CFR 264.193										
DESCRIPTION	CAPABLE OF DETECTING & COLLECTING RELEASES UNTIL REMOVED	COMPATIBLE MATERIAL OF CONSTRUCTION OR LINED	LEAK DETECTION	SLOPED TO DRAIN OR REMOVE LIQUIDS	LARGEST TANKS WITHIN BOUNDARY	DIMENSIONS & CAPACITY	PREVENTION OF RUN-ON OF INFILITRATION OR PRECIPITATION		CHEMICAL RESISTANT WATER STOP A ALL JOINTS			
H-1 (S-5)	CONTAINMENT AREA VISIBLE	CONCRETE	VISUAL	YES	41,500 GALLONS 100 YEAR RAINFALL = 4.8" = 64,000 GALLONS	CURB AREA 41' LONG X 22' WIDE, 9" AVE. DEPTH = 4966 GALLONS. ADDITIONAL AREA (21,620 SF) SOUTHEAST OF BUILDING = 64,000 GALLONS	DRAINS TO LOW POINT SUMPS, CURBING PROVIDED, NO COVER	YES	YES			
H-S (S-4)	CONTAINMENT AREA VISIBLE	CONCRETE	VISUAL	YES	41,500 GALLONS 100 YEAR RAINFALL = 4.8" = 64,000 GALLONS	CURB AREA 41' LONG X 22' WIDE, 9" AVE. DEPTH = 4966 GALLONS. ADDITIONAL AREA (21,620 SF) SOUTHEAST OF BUILDING = 64,000 GALLONS	DRAINS TO LOW POINT SUMPS, CURBING PROVIDED, NO COVER	YES	YES			

	SPECIFIC PART B INFORMATION REQUIREMENTS FOR TANK SYSTEMS 40 CFR 270.16										
TANK	DIMENSIONS/ CAPACITY	SAFETY CUT OFF	FETY CUT OFF BYPASS SYSTEM PRESSURE CONTROL (VENT)			EQUIP. FOR EXTERNAL CORROSION PROTECTION	LEVEL ELEMENTS				
H-1 (S-5)	12" DIA X 56' TALL/ 5541 CUBIC FEET	HIGH LEVEL ALARM	NONE	VENTED TO ATMOSPHERE THROUGH BAG HOUSE	DRY POWER/ CARBON STEEL	PAINTED	YES				
H-2 (S-4)	12" DIA X 56' TALL/ 5541 CUBIC FEET	HIGH LEVEL ALARM	NONE	VENTED TO ATMOSPHERE THROUGH BAG HOUSE	DRY POWER/ CARBON STEEL	PAINTED	YES				

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AGREEMENT THAT THE DRAWING AND INFORMATION THEREIN GY AND WILL NOT BE REPRODUCED, COMED, OR OTHERWISE ID WHOLC OR NAMET TO ASSET IN MAXING OR TO PURNEH WING, PRIVIL, OR OTHER REPRODUCTIONS HEREOT, OR TOR THE REPET URON WHITTH PREMISSION OF US ECOLOGY INTE THE ACCEPTANCE OF THIS DRAWING WILL BE CONSTRUED AS AN T. 1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300

CHEMICAL FIXATION BUILDING HAZARDOUS WASTE STORAGE SILOS - ELEVATION VIEWS

M-04

	SPECIFIC PART B INFORMATION REQUIREMENTS FOR TANK SYSTEMS 40 CFR 270.16										
TANK	DIMENSIONS/ CAPACITY	SAFETY CUT OFF	BYPASS SYSTEM	PRESSURE CONTROL (VENT)	WASTE TYPE/ MATERIAL OF CONSTRUCTION	EQUIP. FOR EXTERNAL CORROSION PROTECTION	LEVEL ELEMENTS				
T-201	14' DIAMETER 20' HEIGHT 20,000 NOMINAL GALLONS	ALARM ON HIGH LEVEL	NONE	OPEN VENT TO ATMOSPHERE	HAZARDOUS/ COATED STEEL	PAINTED	YES				
T-202	14' DIAMETER 20' HEIGHT 20,000 NOMINAL GALLONS	ALARM ON HIGH LEVEL	NONE	OPEN VENT TO ATMOSPHERE	HAZARDOUS/ COATED STEEL	PAINTED	YES				
T-203	14' DIAMETER 20' HEIGHT 20,000 NOMINAL GALLONS	ALARM ON HIGH LEVEL	NONE	OPEN VENT TO ATMOSPHERE	HAZARDOUS/ COATED STEEL	PAINTED	YES				

SPECIFICATIONS:

OPERATING TEMPERATURE:	MAXIMUM 200F
OPERATING PRESSURE:	ATMOSPHERIC
NOMINAL CAPACITY:	20,000 US GALLONS
SPECIFIC GRAVITY :	MAXIMUM 1.15

FLAT TOP:	5 16 A36 CARBON STEEL PLATE
SHELL:	$\frac{1}{4}$ " A36 CARBON STEEL PLATE
CONE BOTTOM	: $\frac{1}{4}$ " A36 CARBON STEEL PLATE
DISH BOTTOM:	¹ / ₄ " A36 CARBON STEEL
AIR TEST:	1.5 PSIG
EXTERIOR COA	TING: WHITE EPOXY (4-6 MILS)

	Fitting Schedule										
ITEM	DESCRIPTION	Material									
10	11	4	150	RF SOF w/ 4" S/40 PIPE .	CARBON ST						
20	1	30		MANWAY ASSEMBLY	CARBON ST						
30	1	30		MANWAY ASSEMBLY	CARBON ST						
40	4	4	150	RF SOF w/ 4" S/40 PIPE	CARBON ST						
50	5	1	150	RF SOF w/ 1" S/40 PIPE	CARBON ST						
60	1	6	150	RF SOF w/ 6" S/40 PIPE	CARBON ST						

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HAZARDOUS WASTE TANK - T-201, T-202, T-203

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	DATE: 01-JUNE-2020	1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300
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	DATE:	HAZARDOLIS TREATMENT TANKS T 201 T 202 AND T 202
S AGREEMENT	T THAT THE DRAWING AND INFORMATION THEREIN	TIAZARDOUS TREATMENT TANKS T-201, T-202 AND T-203
OGY AND WILL NOT BE REPRODUCED, COPIED, OR OTHERWISE SED IN WHOLE OR IN PART TO ASSIST IN MARINE OR TO FURNISH ANNIG, PRINTS, OR OTHER REPRODUCTIONS HEREOF, OR TOR THE DECEPT UPON WRITTEN PERMISSION OF US ECOLOGY FIRST THE ACCEPTANCE OF THIS DRAWING WILL BE CONSTRUED AS AN		
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SPECIFIC PART B INFORMATION REQUIREMENTS FOR TANK SYSTEMS 40 CFR 270.16									
TANK	DIMENSIONS/ CAPACITY	SAFETY CUT OFF	BYPASS SYSTEM	PRESSURE CONTROL (VENT)	WASTE TYPE/ MATERIAL OF CONSTRUCTION	EQUIP. FOR EXTERNAL CORROSION PROTECTION	LEVEL ELEMENTS		
T - 204	14' DIAMETER x 15'-10" TALL / 17,000 NOMINAL GALLONS	ALARM ON HIGH LEVEL	NONE	OPEN VENT TO ATMOSPHERE	HAZARDOUS/ DERAKANE 441-400 F.R.P.	NONE	YES		

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NUMBER	REFERENCE DRAWING		REV	DATE:	DESCRIPTION: BY	Y	ACCEPTANCE OF THE FOREGOING AGREEP

OWNER PO No EQUIPT. No. SERVICE:	EQ DETROIT 12187 TANK 204 TREATMENT OF INDUSTRIAL WASTE BY CHEMICAL PRECIPITATION UNSING 40% FERRIC CHLORIDE AND 15% SODIUM HYPOCHLORITE
DESIGN DATA:	
DESIGN STANDARD MAX. PRESSURE VACUUM MAX TEMP. SPECIFIC GRAVITY SEISMIC CODE SEISMIC DESIGN WIND LOAD SNOW LOAD APPROX. EMPTY WEIGHT NOM. CAPACITY INTERIOR CATALYST EXTERIOR CATALYST LINER RESIN STRUCTURAL RESIN EXTERIOR LAYER RESIN EXTERIOR LAYER RESIN COLOR VEIL	ASTM D 3299-10 ATMOSPHERIC NONE 70°F 1.5 MAX ASCE 7-10(SITE CLASS=D) RISK CATEGORY = II, SDs = 0, SD1 = 0.075 0 MPH 0 PSF 6,900 LBS. 16,603 GALLONS BPO/DMA Co/MEKP DERAKANE 441-400 DERAKANE 441-400 DERAKANE 441-400 NATURAL DOUBLE GLASS

SPECIFIC PART B INFORMATION REQUIREMENTS FOR TANK SYSTEMS 40 CFR 270.16								
TANK	DIMENSIONS/ CAPACITY	SAFETY CUT OFF	BYPASS SYSTEM	PRESSURE CONTROL (VENT)	WASTE TYPE/ MATERIAL OF CONSTRUCTION	EQUIP. FOR EXTERNAL CORROSION PROTECTION	LEVEL ELEMENTS	
T-205	14' DIAMETER x 15'-10" TALL / 17,000 NOMINAL GALLONS	ALARM ON HIGH LEVEL	NONE	OPEN VENT TO ATMOSPHERE	HAZARDOUS/ DERAKANE 441-400 F.R.P.	NONE	YES	

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NUMBER	REFERENCE DRAWING	REV	DATE:	DESCRIPTION:	BY	ACCEPTANCE OF THE FOREGOING AGREEMEN

OWNER US ECOLOGY PO No 11487 EQUIPT. No. TANK 205 SERVICE: TREATMENT OF INDUSTRIAL WASTE B CHEMICAL PRECIPITATION UNSING 40 FERIC CHLORIDE AND 15% SODIUM	8Y %
HYPOCHLORITE	
DESIGN DATA:	
DESIGN STANDARDASTM D 3299-10MAX. PRESSUREATMOSPHERICVACUUMNONEMAX. TEMP.AMBIENTSPECIFIC GRAVITY1.5 MAXSEISMIC CODEASCE 7-10(SITE CLASS=D)SEISMIC DESIGNRISK CATEGORY = II, SDs = 0.103, SD1WIND LOAD0 MPHSNOW LOAD0 PSFAPPROX. EMPTY WEIGHT8,900 LBS.NOM. CAPACITY16,619 GALLONSINTERIOR CATALYSTBPO/DMAEXTERIOR CATALYSTDERAKANE 441-400STRUCTURAL RESINDERAKANE 441-400EXTERIOR LAYER RESINDERAKANE 441-400EXTERIOR LAYER RESINDERAKANE 441-400EVILDOUBLE GLASS	= 0.07

EQ DETROIT

NONE	SHEET:
EO	DATE: 01-JUNE-2020
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PRESS AGREEMENT THAT THE DRAWING AND INFORMATION THEREIN ICCOLOGY AND WILL NOT BE REPRODUCED, COPILE, OR OTHERWISE BE USED IN WHOLG OR IN PART TO ASSI'T IM MARING OR TO FURNISH IP GRAWING, PRINTS, OR OTHER BEPRODUCTIONS HEREOS, OR FOR TH GRAG, PLCPET UPON WITTEN FERBINISMON OF US ECOLOGY FIRST TASE. THE ACCEPTANCE OF THIS DRAWING WILL BE CONSTRUED AS AN INFUT 1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300

WWT MAIN TREATMENT BUILDING HAZARDOUS TREATMENT TANKS T-205

M-07

VOLUME = 16,913 GALLONS WEIGHT = 15,000 LBS.

NOTES:

- 1. MATERIALS : SHELL: ASTM A-36 PIPE: ASTM A-53 GR. B FLANGES; ASTM A-181 SHAPES/BAR: ASTM A-36
- 2. ALL BOLT HOLES TO STRADDLE CENTERLINE.
- 3. ALL FLANGES TO BE 150# RAISED FACE FLANGES. 4. ALL EXTERIOR SURFACES TO BE CLEANED OF
- DIRT, WELD SLAG, ETC..
- 5. ALL EXTERIOR SURFACES TO BE TOP COATED WITH (1) COAT OF SHOP PRIMER.
- 6. TANK DESIGNED AND BUILT IN ACCORDANCE WITH API 650.
- 7. PRESSURE TEST TANK TO 7 PSI.

150# RFSO FLANGE (ANSI B16.5)WATERTIGHT

FORMATION REQUIREMENTS FOR TANK SYSTEMS 40 CFR 270.16									
CUT OFF	BYPASS SYSTEM	PRESSURE CONTROL (VENT)	WASTE TYPE/ MATERIAL OF CONSTRUCTION	EQUIP. FOR EXTERNAL CORROSION PROTECTION	LEVEL ELEMENTS				
ON HIGH VEL	NONE	OPEN VENT TO ATMOSPHERE	HAZARDOUS/ COATED STEEL	PAINTED	YES				

ONE	SHEET:	EQ DETROIT
	DATE: 01-JUNE-2020	1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300
	DATE:	
	DATE:	
	•	HAZARDOUS TREATMENT TANKS T-206
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SPECIFIC PART B INFORMATION REQUIREMENTS FOR TANK SYSTEMS 40 CFR 270.16							
TANK	DIMENSIONS/ CAPACITY	SAFETY CUT OFF	BYPASS SYSTEM	PRESSURE CONTROL (VENT)	WASTE TYPE/ MATERIAL OF CONSTRUCTION	EQUIP. FOR EXTERNAL CORROSION PROTECTION	LEVEL ELEMENTS
T-207	6' x 5' x 6' TALL / 1,200 NOMINAL GALLONS	ALARM ON HIGH LEVEL	NONE	OPEN VENT TO ATMOSPHERE	HAZARDOUS/ CARBON STEEL	NONE	YES

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1923 FREDERICK ST., DETROIT, MI 48211 (313) 347-1300 WWT MAIN TREATMENT BUILDING HAZARDOUS TREATMENT TANKS T-207

HAZARDOUS TREATMENT TANKS

OWNER EQ DETROIT	LAMINATE CHART	PROJECT NOTES	<u>^</u>	SLUDGE DISCHARGE -	N14	1 6" 150# FLANGED NOZZLE	F.R.P.
P.O. No. 12187 EQUIP No. TANK 208	LAMINATE SEQUENCE THICKNESS	1. TRANSLUCENT EXTERIOR RESIN COAT W	TH U.V. INHIBITOR REQUIRED.	A SAMPLE	N13	1 150# FLANGED NOZZLE W/	F.R.P.
	V = 1 LAYER VEIL	3. TANK TO SHIP IN TWO (2) SECTIONS. EAC	ED AFTER JOINT ASSEMBLY. I SECTION, INCLUDING LEG STAND,		N12	1 1" 150# FLANGED NOZZLE W/	EPD
	M = 1 1/2 OZ/FT SQ. CHOPPED STRAND .043" EM = EABMAT 1524	SHALL BE AS CLOSE TO EQUAL HEIGHT 4 (1) LOT OF PRE-CUT GLASS AND VEIL FO	AS POSSIBLE. DR FIFLD JOINT (PROVIDE GLASS AND		1112	CONICAL GUSSET	1.10.1
DESIGN DATA	$R = 24 \text{ OZ/YD. SQ. WOVEN ROVING} \qquad .033"$	VEIL FOR INTERNAL AND EXTERNAL JO	NT, AS WELL AS LAMINATE SEQUENCE.)	$\angle 1$ pH PROBE —	N11	CONICAL GUSSET	F.R.P.
DESIGN STANDARD ASTM D 3299-10	CP = CHOPPED STRAND ROVING HW = FILAMENT WINDING .034"	(RESIN, GLASS, AND VEIL TO BE PICKED	UP AT BTT BY CUSTOMER.)	A SPARE	N10	1 2" 150# FLANGED NOZZLE W/ CONICAL GUSSET	F.R.P.
MAX. PRESSURE ATMOSPHERIC	CH = CHOP-HOOP WINDING .028" SW = STRAIGHT WIND .017"	6. BPO/DMA CATALYST CURE FITTINGS REQU 7. (1) SET OF PLASTIC FLANGE PROTECTO	JIRED. RS REQUIRED FOR SHIPPING.	A SPARE ─────	N9	4" 150# FLANGED NOZZLE W/	F.R.P.
VACUUM NONE MAX. TEMP. (F) 70 □	U = 15 1/2 OZ/TD. SQ. UNIDIRECTIONAL .025"	8. BELDING TANK RECOMMENDS THE VENT	BE EQUAL TO OR LARGER THAN THE		N8	4" 150# FLANGED NOZZLE W/	FRP
SPECIFIC GRÁVITY 1.5 MAX SEISMIC CODE ASCE 7-10/SITE CLASS=D)	FLAT TOP: .520" NOM. TH.	9. REQUIRED TESTING ON TANK:			N7	CONICAL GUSSET	FRP
SEISMIC DESIGN RISK CATEGORY = II	2V CP(.100) CP(.030) 3(R CP(.030)) CP(.181)	 a. VISUAL INSPECTION IN CONFORMANCE W b. BARCOL HARDNESS PER ASTM D-2583. 	ITH ASTM C-582, TABLE 5.		N6	4" 150# FLANGED NOZZLE W/	F.R.P.
SDs =0.103, SD1 =0.075 WIND LOAD 0 MPH	SIDEWALL TOP SECTION: .273" NOM. TH. 2V CP(.100) SW 4HW	c. ACETONE SENSITIVITY PER REFERENCED	TANK DESIGN		NE	4" 150# FLANGED NOZZLE W/	5.0.0
SNOW LOAD 0 PSF APPROX. EMPTY WEIGHT (LBS) 7.300	EIELD CENTER JOINT: 473" NOM TH			Z_1 TANK FILL	GN		F.R.P.
NOM. CAPACITY (GALS) 16,603	INTERIOR: 3M 2V EXTERIOR: 2M 2FM 2M			A TANK FILL	N4 -	CONICAL GUSSET	F.R.P.
EXTERIOR CATALYST BPO/DMA EXTERIOR CATALYST Co/MEKP	SIDEWALL BOTTOM SECTION: 307" NOM. TH. TAPER TO .273" NOM. TH.			∧ SPARE —	N3 -	2" 150# FLANGED NOZZLE W/	F.R.P.
LINER RESIN DERAKANE 441-400 STRUCTURAL RESIN DERAKANE 441-400	2V CP(.100) 3SW 4HW				N2	2" 150# FLANGED NOZZLE W/	F.R.P.
EXTERIOR LAYER RESIN DERAKANE 441-400	2V CP(.100) CP(.158) 3(R CP(.030)) CP(.158) 3(R CP(.030)) CP(.030) R CP(.160)				NA	2" 150# FLANGED NOZZLE W/	500
VEIL DOUBLE GLASS	LEGSTAND ATTACHMENT: .390" NOM. TH.			$\underline{I_1}$ SPARE			F.R.P.
	4FM 2M	J			TEMP		MATERIAL
					M4	BOLTS & EPDM GASKET	F.R.P.
					M3 -	1 30" DIA. SIDE MANHOLE	F.R.P.
					M2	BOLTS & EPDM GASKET	F.R.P.
					M1	1 30" DIA. TOP MANHOLE	F.R.P.
					ITEM QT	Y DESCRIPTION	MATERIAL
	(2) ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	$(1,7,7] \rightarrow (A^2)$				MANHOLE	
		B			5	3/16" TH. x 1 1/2" ANGLE SINGLE	C.S. POLY-U
│┃ ╻ ╻ ╻ 			RELEASED		4 1	15/16" TH. x 7 1/2" DIA. FLOOR	C.S. POLY-U
			FOR			FLANGES W/ (4) 3/4" DIA HOLES	C.S. POLY-U
	168 NOM. ¹ .D.		FABRICATION		3 1	LEGS	(PAINT GRAY
			DATE: <u>6-12-18</u>		2 1	3/8" TH. x 12" W. SUPPORT RING	(PAINT GRAY
		┝ラ-╎			1A -	8 ASSEMBLY LUGS No. 7	C.S. POWDER
			RELOCATED BTT TAG, CHANGED	SERVICE &	1	8 LIFTING LUGS No. 7	C.S. POWDER
			2 BOLT HOLE PATTERN ON AGITAT	OR RAIL, DDL	ITEM OT	Y DESCRIPTION	MATERIAI
			CORRECTED CENTER JOINT MAT	SEQUENCE	-		
61 FIELD			1 ADDED EQUIP. No., CHANGED F	TTINGS		TAIN COM CILIN	10
│┃ ┌┐↓┸┻┈╶╬╴││	<u></u> ↓ - + - ↓ 1 - ↓ - ↓ - ↓ - ↓ - ↓ - ↓ - ↓ - ↓ - ↓ - ↓ -	┝シ-│ ││ │ │ │	REV DESCRIPTION	DATE		70 W. LONG LAKE R TROY, MI 4	2. SUITE 121 8098
			REVISION			PHONE: (248) 8	379-9000
					-	WWW WAGNERENTE	RPRISE.COM
			· · · · · · · · · · · · · · · · · · ·		_		
			A7 6 1" DIA. SKIRT DRAIN HOLES	F.R.P.	-	200 N. GOODING ST P. BELDING, MICHIGAN 4	O. BOX 160 - 48809-160
			A5 1 C15" @ 33.9#/FT. AGITATO	RAIL C.S. POLY-U		PHONE: (616) 794-1130 FAX	: (616) 794-3666
	$ \cup \uparrow \downarrow \downarrow$		ASSEMBLY)	WEBSITE: www.beldin	igtank.com
			A4 4 ANTI-SWIRL BAFFLES	= F.R.P.	_	GENERAL ARRANGEME	ENT
			A3 4 ANTI-SWIRL BAFFLES	= F.R.P.	160" 0		
			A2 9 3/8" TH. x 4" W. x 11" H. HAN	DRAIL F.R.P.			
				AII	04/24/	32864	KOR
			A1 1 REMOVABLE SKIRT HANDE	AL FRP	SCALE:	MODEL No.:	CHECKED BY
			A1 1 REMOVABLE SKIRT HANDH ASSEMBLY W/ SAFETY GAT		SCALE: NONE CUSTOMER:	(1) C-FDV-14-16603	CHECKED BY: MWW
				F.R.P. MATERIAL	CUSTOMER:		CHECKED BY: MWW
SECTION D-D SECTION E-E 14			A1 1 REMOVABLE SKIRT HANDF ASSEMBLY W/ SAFETY GAT ITEM 2TY DESCRIPTION ACCESSOR	ES	CUSTOMER:	EQ DETROIT	SHEET NO.: 1 OF 4

SPECIFIC PART B INFORMATION REQUIREMENTS FOR TANK SYSTEMS 40 CFR 270.16										
TANK	DIMENSIONS/ CAPACITY	SAFETY CUT OFF	BYPASS SYSTEM	PRESSURE CONTROL (VENT)	WASTE TYPE/ MATERIAL OF CONSTRUCTION	EQUIP. FOR EXTERNAL CORROSION PROTECTION	LEVEL ELEMENTS			
T-208	14' DIAMETER x 15'-10" TALL / 17,000 NOMINAL GALLONS	ALARM ON HIGH LEVEL	NONE	OPEN VENT TO ATMOSPHERE	HAZARDOUS/ DERAKANE 441-400 F.R.P.	NONE	YES			

						PROJECT No.
			5			DRAWN: AEO
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		1	1			DISPOSED OF DIRECTLY OR INDIRECTLY, BE I ANY INFORMATION FOR THE MAKING OF D
		1	0			MAKING OF APPARATUS OF PARTS THEREOR OBTAINED AND SPECIFIED AS TO EACH CASE
NUMBER	REFERENCE DRAWING		REV	DATE:	DESCRIPTION: BY	ACCEPTANCE OF THE FOREGOING AGREEM

EQ DETROIT

M-10

SCALE:	NONE	SHEET:	

D DATE: 01-JUNE-2020 DATE: DATE:

1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300 WWT MAIN TREATMENT BUILDING HAZARDOUS TREATMENT TANKS T-208

RES AGREEMENT THAT THE DRAWING AND INFORMATION THEREIN OLOGY AND VIIL, MOT BE REPRODUCED, COPED, OR OTHERWISE USED IN WHOLE OR IN PART TO ASSIST IN MAKING OR TO FURNISH DRAWING, PRINT, OR OTHER REPRODUCTIONS HIERED, OR FOR TH 9, EXCEPT UPON WHITTIN PERMISSION OF US ECOLOGY FIRST S. THE ACCEPTANCE OF THIS DRAWING WILL BE CONSTRUED AS AN

SPECIFIC PART B INFORMATION REQUIREMENTS FOR TANK SYSTEMS 40 CFR 270.16										
TANK	DIMENSIONS/ CAPACITY	NS/ TY SAFETY CUT OFF BYPASS SYSTEM		BYPASS SYSTEM PRESSURE CONTROL (VENT)		EQUIP. FOR EXTERNAL CORROSION PROTECTION	LEVEL ELEMENTS			
T-301	9'-10" x 9'-10" x 12' HEIGHT 8,000 NOMINAL GALLONS	ALARM ON HIGH LEVEL	NONE	OPEN VENT TO ATMOSPHERE	CORROSIVE/ CARBON STEEL FIBERGLASS LINED	PAINTED	YES			
T-302	9'-10" x 9'-10" x 12' HEIGHT 8,000 NOMINAL GALLONS	ALARM ON HIGH LEVEL	NONE	OPEN VENT TO ATMOSPHERE	CORROSIVE/ CARBON STEEL FIBERGLASS LINED	PAINTED	YES			

NOTE: INTERIOR OF TANK LINED WITH¹/₄" FIBERGLASS, NEXUS VEIL AND DOW VINYL ESTER DERAKANE 470-36

	Fitting Schedule									
ITEM	TEM QTY SIZE RATING DESCRIPTION				Material					
10	3	4	150	RF SOF w/ 4" S/40 PIPE .	CARBON ST					
20	3	3	150	RF SOF w/ 4" S/40 PIPE .	CARBON ST					
30	2	2	150	RF SOF w/ 4" S/40 PIPE .	CARBON ST					
40	1	10	150	RF SOF w/ 10" S/40 PIPE	CARBON ST					
50	2	30		MANWAY ASSEMBLY	CARBON ST					

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5 DRAWN: AEO 4	
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REFERENCE DRAWING REV DATE: DESCRIPTION: BY ACCOMMENTATION BY	:N1.

NUMBER

M-11

	DATE: 01-JUNE-2020							
	DATE:							
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AGREEMENT THAT THE DRAWING AND INFORMATION THEREIN								

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HAZARDOUS TREATMENT TANKS T-301 AND T-302

SPECIFIC PART B INFORMATION REQUIREMENTS FOR TANK SYSTEMS 40 CFR 270.16											
TANK	DIMENSIONS/ CAPACITY	SAFETY CUT OFF	BYPASS SYSTEM	PRESSURE CONTROL (VENT)	WASTE TYPE/ MATERIAL OF CONSTRUCTION	EQUIP. FOR EXTERNAL CORROSION PROTECTION	LEVEL ELEMENTS				
T-303	10' DIAMETER x 12' TALL / 6,500 NOMINAL GALLONS	ALARM ON HIGH LEVEL	NONE	OPEN VENT TO ATMOSPHERE	CORROSIVE/ HDL POLYETHYLENE	NONE	YES				

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			1				DISPOSED OF DIRECTLY OR INDIRECTLY, BE U ANY INFORMATION FOR THE MAKING OF DR
			0				MAKING OF APPARATUS OF PARTS THEREOF, OBTAINED AND SPECIFIED AS TO EACH CASE.
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EQ DETROIT

SCALE:	NONE	SHEET:
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DATE: 01-JUNE-2020 DATE: DATE:

1923 FREDERICK ST., DETROIT, MI 48211 (313) 347-1300 WWT MAIN TREATMENT BUILDING

HAT THE DRAWING AND INFORMATION THEREIN OT BE REPRODUCED, COPIED, OR OTHERWISE IN IN PART TO ASSIST IN MAKING OR TO FURNISH OR OTHER REPRODUCTIONS HEREOF. OR FOR THE

HAZARDOUS TREATMENT TANKS T-303

M-12

SPECIFICATIONS

1) Service:	Waste Acid Storage
2) Temperature:	Operating: Ambient Design: 120 F
3) Pressure:	Operating: Atmospheric
4) Capacity:	6,500 U.S. Gallons
5) Specific Gravity:	Design: 1.15 maximum

CONSTRUCTION

Shell: High Density Cross-Linked Polyethylene

	Fitting Schedule									
Item	Item Qty Size Rating Description/Service Material									
10	2	2		Threaded Connections	HDPE					

SPECIFIC PART B INFORMATION REQUIREMENTS FOR TANK SYSTEMS 40 CFR 270.16										
TANK	DIMENSIONS/ CAPACITY	SAFETY CUT OFF	BYPASS SYSTEM	PRESSURE CONTROL (VENT)	WASTE TYPE/ MATERIAL OF CONSTRUCTION	EQUIP. FOR EXTERNAL CORROSION PROTECTION	LEVEL ELEMENTS			
T-304	10' DIAMETER x 10' TALL / 6,500 NOMINAL GALLONS	ALARM ON HIGH LEVEL	NONE	OPEN VENT TO ATMOSPHERE	CORROSIVE/ HDL POLYETHYLENE	NONE	YES			

		SIDE VIEW					S	CALE: NONE	SHEET:	EQ DETROIT
							Pf	ROJECT No.	DATE: 04 HINE 2020	
[5					RAWN: AEU	DATE: 01-JUNE-2020	1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300
			4						DATE.	WWT MAIN TREATMENT BUILDING
			3				A	PPROVED:	DATE:	HAZARDOUS TREATMENT TANKS T-304
			2				THIS	S DRAWING IS LOANED WITH THE EXPRESS AGREEME VITAINED ARE THE PROPERTY OF US ECOLOGY AND W	ENT THAT THE DRAWING AND INFORMATION THEREIN VILL NOT BE REPRODUCED, COPIED, OR OTHERWISE	
			1				DISP	POSED OF DIRECTLY OR INDIRECTLY, BE USED IN WHO I INFORMATION FOR THE MAKING OF DRAWING, PRI	OLE OR IN PART TO ASSIST IN MAKING OR TO FURNISH INTS, OR OTHER REPRODUCTIONS HEREOF, OR FOR THE	NA 40
			0				MAI	KING OF APPARATUS OF PARTS THEREOF, EXCEPT UP FAINED AND SPECIFIED AS TO EACH CASE. THE ACCEP	PON WRITTEN PERMISSION OF US ECOLOGY FIRST PTANCE OF THIS DRAWING WILL BE CONSTRUED AS AN	N/I_13
	NUMBER	REFERENCE DRAWING	REV	DATE:	DESCRIPTION:		BY	EPTANCE OF THE FOREGOING AGREEMENT.		

SIDE VIEW

	SPECIFIC PART B INFORMATION REQUIREMENTS FOR TANK SYSTEMS 40 CFR 270.16										
ТА	ANK	DIMENSIONS/ CAPACITY	SAFETY CUT OFF	BYPASS SYSTEM	PRESSURE CONTROL (VENT)	WASTE TYPE/ MATERIAL OF CONSTRUCTION	EQUIP. FOR EXTERNAL CORROSION PROTECTION	LEVEL ELEMENTS			
т-	305	12' DIAMETER X 17" HEIGHT 15,000 NOMINAL GALLONS	ALARM ON HIGH LEVEL	NONE	OPEN VENT TO ATMOSPHERE	CORROSIVE WASTE/ COATED STEEL FIBERGLASS LINED	PAINTED	YES			

SPECIFICATIONS

Service:
 Temperature: Operating: Ambient Design: 200 F
 Pressure: Operating: Atmospheric
 Capacity: 15,000 U.S. Gallons
 Specific Gravity: Design: 1.15 maximum

CONSTRUCTION

Tank Shell: Carbon Steel Interior Liner: FRP

	Fitting Schedule											
ltem	Qty	Size	Rating	Description/Service	Material							
10	1	6	125	H.L. Flange	FRP							
20	1	24		Manway Assembly	FRP							
30	1	3	125	H.L. Flange	FRP							
40	1	2	125	H.L. Flange	FRP							
50	1	2 1/2	125	H.L. Flange	FRP							
60	1	1 1/2	125	H.L. Flange	FRP							
70	1	1	125	H.L. Flange	FRP							
80	1	16	125	H.L. Flange	FRP							
90	1	4	125	H.L. Flange	FRP							

HAZARDOUS WASTE TANK - T-305

5 I E TAININ - T-300							
							SCALE: NO
							PROJECT No.
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	SPECIFIC PART B INFORMATION REQUIREMENTS FOR TANK SYSTEMS 40 CFR 270.16											
TANK	DIMENSIONS/ CAPACITY	SAFETY CUT OFF	BYPASS SYSTEM	PRESSURE CONTROL (VENT)	WASTE TYPE/ MATERIAL OF CONSTRUCTION	EQUIP. FOR EXTERNAL CORROSION PROTECTION	LEVEL ELEMENTS					
T-306	14' DIAMETER x 17'-8" TALL / 20,000 NOMINAL GALLONS	ALARM ON HIGH LEVEL	NONE	OPEN VENT TO ATMOSPHERE	HAZARDOUS/ DERAKANE SIGNIA 441 F.R.P.	NONE	YES					

							F	SCALE: NONE	SHEET:	EQ DETROIT
								PROJECT No.		
		_	6					DRAWN: AEO	DATE: 01-JUNE-2020	1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300
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			4						DATE	WWT MAIN TREATMENT BUILDING
			3				ŀ	AFFROVED.	DATE.	HAZARDOUS TREATMENT TANKS T-306
			2					THIS DRAWING IS LOANED WITH THE EXPRESS AGREEME CONTAINED ARE THE PROPERTY OF US ECOLOGY AND W	ENT THAT THE DRAWING AND INFORMATION THEREIN VILL NOT BE REPRODUCED, COPIED, OR OTHERWISE	
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NUMBER	REFERENCE DRAWING	R	EV DA	TE:	DESCRIPTION:	E	3Y	ACCEPTANCE OF THE FOREGOING AGREEMENT.		

EQ DETROIT P121-300035	, INC. 6	LAMINATE CHART	
WASTEWAT	FR	LAMINATE SEQUENCE	THICKNESS
- Chan		V = 1 LAYER VEIL	.010"
		M = 1 1/2 OZ/FT SO, CHOPPED STRAND	.043"
		FM = FABMAT 1524	.076"
SIGN DA	ΔΤΔ	R = 24 OZ/YD. SQ. WOVEN ROVING	.033"
	114	CP = CHOPPED STRAND ROVING	
ANDARD	ASTM D-3299-10	HW = FILAMENT WINDING	.056"
SURE	ATMOSPHERIC	CH = CHOP-HOOP WINDING	.039"
	NONE	5W = STRAIGHT WIND	.028"
(F)	150°	U = 15 1/2 OZ/TD. SQ. UNIDIRECTIONAL	.022"
RAVITY	1.5 MAX.	FLAT TOD FOOT NOW TH	
DE	ASCE 7-16 (SITE CLASS = D)	FLAT TOP: .520" NOM. TH.	6
31011	SDa=0.110 SD1=0.072	2V CP(.100) 2[CP(.050) K) CP(.050) K CP(.151)	
	0 MPH	FLAT TOP JOINT: .321" NOM. TH.	
0	0 PSF	INTERIOR: 3M 2V EXTERIOR: 4M	
Y WEIGHT (LBS)	6.600	STDEWALL TOP SECTION: 260" NOM TH	
CITY (GALS)	20,143	2V CPC 1001 SW 2HW	
ATALYST	BPO/DMA		
CATALYST	Go/MEKP	CENTER JOINT: .549" NOM. TH.	
and the second second	DERAKANE SIGNIA 411	INTERIOR: 3M 2V EXTERIOR: 2M 3FM 2M	
RESIN	DERAKANE SIGNIA 411	STDEWALL BOTTOM SECTION: 344" NOM TH TAPER TO 2	HT MOM TH
AYER RESIN	DERAKANE SIGNIA 411	2V CP(100) 4SW 2HW	
	DOUBLENEYUR		
	DOUBLE NEXUS	SLOPE BOTTOM: .395" NOM. TH.	
		2V CP(.100) 2(CP(.050) R) CP(.109)	
		KAULOKIE TUTOKNECC, 2001 NOM TU	
		KNULKLE IHILKNESS: 739 NOM. IH.	
		SUPE DUTION + 3(K LP(.0817))	
		HOLD DOWN LUG WALL THICKNESS: .589" NON	4. TH.
		CP(.245) + SIDEWALL	

FIRE PROTECTION NOTES:

						ſ	SCALE: NO
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DESIGN DENSITY: 0.2 GPM / SQ FT

	DATE: 01-JUNE-2020	
	DATE:	
	DATE:	
S AGREEME	INT THAT THE DRAWING AND INFORMATION THEREIN ILL NOT BE REPRODUCED, COPIED, OR OTHERWISE	

923 FREDERICK ST., DETROIT , MI 48211 (313) 347-130 HEMICAL FIXATION BUILDING

IRE PROTECTION SYSTEM - FIRE EQUIPMENT ROOM WET SYSTEM

M-21

NUMBER

tem No.	Description	Normal Position	Locked	Supervised?	Comments
1	8 inch Valve - Service Isolation	Open	No	Yes	
2	8" Backflow Preventer		No	No	
3	8 inch Valve - Backflow Isolation	Open	No	Yes	
4	System Horn/Strobe	Off	No	No	
5	1/2" Jockey Pump Pressure Tap	Open	No	No	
6	8 inch Value - Bypass Isolation	Closed	No	Yes	
7	8 inch Check Value - Bunass	Onen	No	No	
8	8 inch Value - Fire Pump Isolation	Open	No	Ves	
0	Eira Dumo soal drain line	Open	No	No	Should drip X drops/min
10	Rinch Check Volue Fire Pump	Open	No	No	Should drip X drops/min
10	Tast Det Dessue Tast	Open	NO	NO	
10	Pressure Peliet Value	Closed	NO	NO	00 DOL satesiat
12	2 Pressure Relief Valve	Closed	NO	NO	90 PSI setpoint
13	Pressure Tap For Fire Pump Control	Open	NO	Yes	
14	8 inch Check Valve - Flow Test Assembly	Open	NO	NO	
15	Fire Pump Flow Test Assembly	Closed	No	No	
					Used to test fire pump
16	Fire Pump Control Pressure Bleed	Closed	No	Yes	pressure switch
17	Jockey Pump	Off	No	Yes	90 PSI setpoint
18	Jockey Pump Control Panel		No	No	
					Used to test jockey pump
19	Jockey Pump Control Pressure Bleed	Closed	No	Yes	pressure switch
20	6 inch Reliable DXX Dry Valve	Closed	No	Yes	
21	Air Supervision Manifold Assembly	Open	No	Yes	20 PSI setpoint
22	1/2 inch Valve - A S Bypass	Closed	Yes	No	2010100000
23	1/2 inch Valve - A S Isolation	Onen	No	No	
24	Air Pressure Regulator	Open	No	Ves	20 PSI setpoint
24	Processore Regulator	Open	No	Vec	15 PSI setpoint
20	Mater Level Indication Value	Closed	No	Vec	15 F SI Setpoint
20	Vvater Level indicating valve	Closed	NO	res	Namel Beading 20 DOI
21	Pressure Gauge - Dry System				Normal Reading 20 PSI
28	Pressure Gauge - Water Supply				Normal Reading 80 PSI
29					
30	Pressure Switch - Flow			Yes	
31	1/2 inch Valve - Flow Switch Test	Open	Yes	No	Close to test flow switch
32	2 inch Valve - Main Drain	Closed	No	Yes	Drain water from dry syste
33	???				
34	6 inch Valve - Riser Isolation	Open	No	Yes	
35	1/2 inch Valve - Jockey Pump Flow Isolation	Open	No	No	
36	2 inch Valve - Foam Tank Pressure	Open	Yes	No	
37	2 inch Valve - Foam Tank Water Side Drain	Closed	No	No	Plugged
38	1 1/2 inch Valve - Foam Fill	Closed	No	No	Plugged
39	Foam Injection Assembly				
40	2 inch Check Valve - Foam Injection	Closed	No	No	
41	Foam Proportioning Valve				
42	222				
43	2 inch Valve - Foam Tank Isolation	Open	Yes	No	
44	222	open	100	110	
44	3/4 inch Value Air Compressor Isolation	Open	No	Voc	
40	Dressure Switch Supervision Air	Open	NO	Vec	100 PSI sotopist
40	Hessule Switch - Supervision All	Closed	No	Yes	Too PSI setpoint
4/	1/2 mch valve - Air Compressor Drain	Closed	NO	res	Drain condensate
48	4 Inch Reliable DX Deluge Valve	Closed	NO	Yes	Manually and a
49	Manual Activation Valve	Closed	Pinned	Yes	manually activates system
50	1/2 Inch Valve - Boost Line	Open	NO	No	A 40 44 47 4
51	Solenoid Valve	Closed	No	Yes	Automatically activates syst
52	Pressure Gauge				
53	1/2 inch Valve - Solenoid Valve Isolation	Open	Yes	No	
54	1/2 inch Valve - Valve Test	Closed	No	Yes	
55	2 inch Valve - Foam Test	Closed	No	No	Take foam sample, Plugge
56	1 inch Valve - System Drain - Test	Closed	No	Yes	
57	2 inch Valve - System Drain - Main	Closed	No	Yes	

8 INCH WATER MAIN					- 1	SCALE:	NONE	3
	1	5				DRAWN:	AEO	
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DNE	SHEET:	
	DATE: 01-JUNE-2020	1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300
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LOGY AND WILL NOT BE REPRODUCED, COPIED, OR OTHERWISE USED IN WHOLE OR IN PART TO ASSIST IN MANING OR TO FURNISH RAWING, PRINTS, OR OTHER REPROJUCTIONS INFECTO, OR FOR THE F, EXCEPT UPON WRITTEN PERMISSION OF US ECOLOGY FIRST E. THE ACCEPTANCE OF THIS DRAWING WILL BE CONSTRUED AS AN ENT.		
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NUMBER OF SPRINKLERS: 229 BASIS OF DESIGN DESIGN DENSITY: 0.20 GPM / SQ FT DESIGN AREA: REMOTE MOST 3,000 SQ FT SYSTEM DEMAND DESIGN FLOW RATE: 600 GPM DESIGN PRESSURE: 40 PSI

NONE SHEET:

DATE: 01-JUNE-2020 DATE: DATE:

VAND WILL NOT BE REPROVING VALUED, COPIED, OR OTHERWISE ED IN WHOLE OR IN PART TO ASSIST IN MAKING OR OTHERWISE BWING, PRINTS, OR OTHER REPRODUCTIONS HEREO, OR FOR THE EXCEPT UPON WRITTEN PERMISSION OF US ECOLOGY FIRST THE ACCEPTANCE OF THIS DRAWING WILL BE CONSTRUED AS AN T. 1923 FREDERICK ST., DETROIT, MI 48211 (313) 347-1300 WWT MAIN TREATMENT BUILDING

FIRE PROTECTION SYSTEM - WET SPRINKLER SYSTEM

M-24

DATE: DESCRIPTION:

REV

NUMBER REFERENCE DRAWING

DRY CHEMICAL MECHANICAL REMOTE MANUAL RELEASE

21/45 LB. DRY CHEMICAL CYLINDER - ABC

EQ DETROIT

	DATE: 01-JUNE-2020
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1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300 WWT MAIN TREATMENT BUILDING

FIRE PROTECTION SYSTEM - LABORATORY

M-25






1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300

CHEMICAL FIXATION BUILDING

EEMENT THAT THE DI

DATE: 01-JUNE-2020

DATE:

DATE:

AIR POLLUTION CONTROL SYSTEM - ELEVATION VIEW

M-27



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NUMBER REFERENCE DRAWING

BY





EQ DETROIT

1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300

P-04



SYSTEM DESCRIPTION	BUILDING DUST
MATERIAL	DUST
TEMPERATURE-DEG F	0° F
CONVEY RATE	-
LINE SIZE	90'
BLOVER ICFM	180,000 SCFM
BLOVER PRESSURE	18.5' dWC
HORIZONTAL RUN	-
VERTICAL RUN	-
ELBOWS	-

VELOCITY FPM	SCFM	ACFM
3635	180,000	160, 615
4074	180,000	180,000
4327	180,000	191, 154

ONE	SHEET:	EQ DETROIT
	DATE: 01-JUNE-2020	1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300
	DATE:	CHEMICAL FIXATION BUILDING
	DATE:	APCS PIPING & INSTRUMENTATION DIAGRAM
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ALL TRENCHES AND BASINS INSIDE ALL BUILDINGS ARE BLIND AND REQUIRES TO BE PUMPED OUT



PLEASE NOTE: <u>ALL LOCATIONS</u> <u>ARE APPROXIMATE</u>

SPIL - SPILL KIT (ABSORBENTS, COVERS, ETC.
 SAIR - 5 MINUTE AIR PACK
 SCBA - AIR PACK (SCBA)
 PPE - PPE EQUIPMENT
 CB - CATCH BASIN DISCHARGES DIRECTLY TO SEWER
 MH - OPEN MAN HOLE DISCHARGES TO SEWER
 MH - SEALED MAN HOLE DISCHARGES TO SEWER
 - BLIND SUMP

		FO DETROIT
ONE	SHEET:	LUDLINOIT
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PLEASE NOTE: <u>ALL LOCATIONS</u> <u>ARE APPROXIMATE</u>

AUTOMATIC EXTERNAL DEFIBRILLATOR
OXYGEN PAC
EYE WASH / SAFETY SHOWER
EYE WASH
FIRST AID KIT OR CABINET
SAFETY DATA SHEET STATION

		FO DETROIT
ONE	SHEET:	LYDLINOIT
	DATE: 01-JUNE-2020	1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300
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PLEASE NOTE: ALL LOCATIONS

— FIRE DEPARTMENT CONNECTION

— EMERGENCY PULL STATION

- MAIN PLANT WET SPRINKER ZONE - MAIN PLANT DRY SPRINKER ZONE - LAB PAC AND T&P WET SPRINKER ZONE - CHEMICAL FIXATION NORTH DRY SPRINKLER ZONE - CHEMICAL FIXATION SOUTH DRY SPRINKLER ZONE - CHEMICAL FIXATION WEST FOAM DELUGE ZONE - CHEMICAL FIXATION EAST FOAM DELUGE ZONE - CONTAINER STORAGE FOAM DELUGE ZONE - CONTAINER STAGING FOAM DELUGE ZONE - BULK LOADING FOAM DELUGE ZONE OIL PROCESSING FOAM DELUGE ZONE

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ILOGY AND W USED IN WHI IRAWING, PR XF, EXCEPT UP IE. THE ACCEI IENT.	IIL NOT BE REPRODUCED, COPIED, OR OTHERWISE OLE OR IN PART TO ASSIST IN MAKING OR TO FURNISH INS, OR OTHER REPRODUCTIONS HEREOF, ON FOR THE PON WRITTEN PERMISSION OF US ECOLOGY FIRST PTANCE OF THIS DRAWING WILL BE CONSTRUED AS AN	R-03











EQ DETROIT

1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300

CONTAINER STORAGE / STAGING AREA AREA HAZARD CLASSIFICATION

R-06





1. ELEVATIONS AND DIMENSIONS OF EXISTING STRUCTURES AND PLANT UTILITIES HAVE BEEN BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME OF DESIGN AND MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE TO VERIFY ALL DIMENSIONS AND ELEVATIONS BEFORE PROCEEDING WITH ANY WORK. IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICTS WHICH WILL EFFECT THE PROGRESS OF THE WORK. OF THE WORK. 2. NOTIFY FIBER OPTIC UTILITY OWNERS BEFORE PERFORMING ANY EXCAVATION OR FOUNDATION WORK IN THE VICINITY OF THESE BURIED LINES. (REFER TO CIVIL DRAWINGS FOR LOCATION.) SHALLOW FOUNDATIONS SHALL BE PLACED ON UNDISTURBED NATURAL SOIL WITH AN ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF. IF UNACCEPTABLE SOIL CONDITIONS

ARE ENCOUNTERED, THE ENGINEER SHALL BE CONSULTED FOR DIRECTION WITH REGARD TO FOUNDATION CONSTRUCTION. 4. DRILLED PIER FOUNDATIONS SHALL EXTEND DOWN TO THE NATIVE SILTY CLAY WITH AN

DRILLED PIER FOUNDATIONS STALL EXTEND DOWN TO THE NATIVE SILT CAN WITH AN ALLOWABLE SOIL BEARING PRESSURE OF 10,000 PSF.
 REFER TO NTH CONSULTANT'S "GEOTECHNICAL INVESTIGATION – PROPOSED ADDITION TO CITY ENVIRONMENTAL FREDERICK STREET FACILITY, DETROIT MICHIGAN" PROJECT NO. 34-4634-00 <u>REPORT. DATED DECEMBER 6, 1994</u>, FOR FOUNDATION RECOMMENDATIONS, AS WELL AS THE

SITE SOIL CONDITIONS. 6. THE FLOOR SLAB SUB-BASE SHALL BE PLACED ON NATURAL SUBGRADE MATERIAL AFTER THE TOPSOIL HAS BEEN STRIPPED AND THE SUBGRADE PROFILED. IF UNDERCUTTING IS REQUIRED TO REMOVE UNSUITABLE SUBGRADE MATERIAL OR IF THE NATURAL SUBGRADE IS BELOW THE DESIGN LEVEL, COMPACTED GRANULAR FILL SHALL BE USED TO ACHIEVE THE DESIRED SUBGRADE ELEVATION. FILL MATERIAL SHALL BE AS SHOWN ON THE DRAWINGS, AND SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE

BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM STANDARD D-1557 (MODIFIED PROCTOR).
7. GRADE BEAM EXCAVATIONS MAY BE TRENCHED IF THE EXCAVATION SIDES WILL STAND WITHOUT CAVING DURING CONCRETE PLACEMENT. OTHERWISE, THE GRADE BEAMS SHALL BE FORMED WITH VERTICAL SIDES.
8. TESTING OF FOUNDATION SUBGRADE, FOUNDATION AND FLOOR SLAB CONCRETE, GRANULAR BACKFILL, AND OTHER TESTING REQUIRED WILL BE BY THE CONTRACTOR AND COORDINATED WITH E ENGINEER. THE ENGINEER SHALL BE ADVISED OF AND APPROVE OF THE TEST RESULTS PRIOR TO THE PERFORMANCE OF ANY TEST-DEPENDENT WORK BY THE CONTRACTOR

THE TYPE OF CONSTRUCTION AND ASSOCIATED DESIGN ASSUMPTIONS SHALL BE IN ACCORDANCE WITH AMERICAN INSTITUTE OF STEEL CONSTRUCTION TYPE 2 STRUCTURAL STEEL CONSTRUCTION UNLESS DETAILED OTHERWISE.
 ALL STRUCTURAL STEEL SHALL CONFORM TO:

STEEL SHAPES, BARS AND PLATES ASTM A36 STEEL TUBING AND PIPE ASTM A501,A500, GRADE B OR A53 GRADE B

 3. WELDING ELECTRODES:
 AWS E70XX.

 4. HIGH STRENGTH BOLTS:
 ASTM A325, WITH FLAT WASHERS UNDER TURNED ELEMENTS.

 5. ANCHOR BOLTS:
 ASTM A307.

1. ALL REINFORCING IN FOOTINGS AND WALLS SHALL BE CONTINUOUS AROUND CORNERS AND

2. PROVIDE 3/4" BEVELED EDGES ON ALL PERMANENTLY EXPOSED SURFACES OF CONCRETE SURFACES.

MINIMUM CEMENT CONTENT: 5-1/2 SACKS PER CUBIC YARD FOR 3,500 PSI, 6.0 SACKS PER CUBIC YARD FOR 4,000 PSI.

5. AGGREGATES: COURSE - M.D.O.T.6A; FINE M.D.O.T.2NS.
6. STEEL REINFORCEMENT: ASTM 615, GRADE 60. Fy = 60,000 PSI.
7. ALL CONCRETE CONSTRUCTION SHALL COMPLY WITH ACI "SPECIFICATIONS FOR STRUCTURAL

8. WELDED WIRE FABRIC (FLAT SHEET) SHALL CONFORM TO ASTM A-185.

M/TOILET	30 PSF
EC. D.L.	15 PSF 5 PSF
ER	30 PSF 15 PSF

MISC. MECH & ELEC. D.L. 10 PSF

SPECIFIC CONCENTRATED POINT LOADS DUE TO HEAVY MECHANICAL EQUIPMENT ARE SUPPORTED BY STEEL FRAMING AS DETAILED ON DRAWINGS. MEZZANINES & CATWALKS 100 PSF

CONTRACTOR IS RESPONSIBLE FOR PROVIDING LINE AND GRADE FOR CONSTRUCTION.
 TOWER FOUNDATION SHALL BE A DRILLED TYPE PIER.
 PIER FOUNDATION SHALL BE FOUNDED ON SOLID UNDISTURBED SOIL. BOTTOM SHALL BE EXCAVATED TO A LEVEL PLANE AND CLEARED OF LOOSE MATERIAL. NO WATER SHALL BE STANDING IN BOTTOM OF THE PIER EXCAVATION AT THE TIME OF PLACING THE CONCRETE.
 ALL REINFORCING STEEL SHALL BE TIES AND FORMED INTO A CAGE PRIOR TO SETTING INTO POSITION IN THE EXCAVATED PIER.
 ALL CONCRETE SHALL BE PLACED AGAINST UNDISTURBED EARTH.
 MAXIMUM FREE DROP OF CONCRETE SHALL BE 6 FEET PROVIDED IT IS DIRECTED THROUGH A HOPPER OR OTHER SIMILAR DEVICE TO PREVENT THE SEGREGATION OF THE MATERIAL. CONCRETE SHALL NOT HIT SIDES OF SOIL OR REINFORCING.

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	DATE: 01-JUNE-2020	1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300
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ELEVATION LOOKING NORTH

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BUILDING STRUCTURAL DETAIL - SOUTH ELEVATION

S-02



ELEVATION LOOKING WEST

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1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300 CHEMICAL FIXATION BUILDING BUILDING STRUCTURAL DETAIL - EAST ELEVATION

S-03



ELEVATION LOOKING SOUTH

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1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300

CHEMICAL FIXATION BUILDING

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BUILDING STRUCTURAL DETAIL - NORTH ELEVATION

S-04



ELEVATION LOOKING EAST

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1923 FREDERICK ST., DETROIT , MI 48211 (313) 347-1300 CHEMICAL FIXATION BUILDING BUILDING STRUCTURAL DETAIL - WEST ELEVATION







TYPICAL SCREW SUPPORT DETAIL CONVEYOR

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