EMERALD
TRANSFORMER

EMERALD TRANSFORMER PPM LLC
Twinsburg, Ohio

EPA ID# OHD 986 975 399

COMBINED TSCA
PERMIT APPLICATION

February 2018

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1.0 COMMERCIAL TREATMENT/STORAGE INTRODUCTION

Emerald Transformer PPM LLC, a subsidiary of Emerald Transformer Western States LLC, headquartered in DeFuniak Springs, FL, owns and operates a PCB commercial storage and disposal facility in Twinsburg, Ohio. This facility is a fully permitted facility by the U.S. Department of Environmental Protection Agency to receive, store, treat and transfer a variety of PCB waste streams. The treatment methods utilized at this facility reduce the volume and toxicity of waste materials.

The Emerald Transformer PPM LLC – Twinsburg operation consists of a 25,000 square foot facility located on four acres of land in a Twinsburg, Ohio industrial park. This facility was built from the ground up to reclaim metals from PCB contaminated equipment with no free flowing liquid and to store regulated PCB material prior to shipment to an EPA approved disposal facility.

The initial waste-related activity at the site started in 1985, when USPCI acquired PPM, Inc. of Georgia and initiated a transformer decommissioning business. This basic activity has continued over the years. Light ballast recycling was started at the facility in 1985; but was closed in 2007. The granulation of metals ceased in January 2018. Laidlaw Environmental Services purchased the facility in 1995, Safety-Kleen in 1998, Clean Harbors in 2002, and Emerald Transformer in 2017. On June 30, 2017, Emerald Transformer Western States LLC acquired the Twinsburg facility and the legal name of the facility is Emerald Transformer PPM LLC.

The Twinsburg location includes the following areas within the 25,000 square foot operations building:

- PCB container storage area
- Non-TSCA storage area
- Maintenance and general storage area
- On-site laboratory area
- General office area
- Employee shower/change area
- Metals reclamation area.

The facility maintains the storage area for items that are either awaiting treatment at the facility or awaiting further transportation to an alternative off-site disposal facility (i.e., incineration or chemical waste landfill). The storage area is in compliance with the requirements as defined in 40 CFR 761.65(b)(1). The following are examples of items managed:

PCB Containers:

- Empty Containers
- Debris
- Wash Water (non-treatable)

- Treatable Liquid (less than or equal to 10,000 ppm)
- Non-treatable Liquid (greater than 10,000 ppm)

PCB Tanks
PCB Capacitors
PCB Contaminated Transformers

1.1 Facility Information

The Twinsburg facility contains the PCB container storage area, maintenance and general storage area, on-site laboratory area, general office area, employee shower/change area, and the metals reclamation area. The on-site laboratory handles PCB analyses of samples from the PCB treatment and storage operations according to the Quality Assurance Plan (see Appendix A).

The facility utilizes an AL-JON scrap metal recovery oven, natural gas-fired, multiple chambered (2 primary chambers, Furnace #1 [OHMR-1], rated heat input 1.5 MMBtu/hr, & Furnace #2 [G-466], rated heat input 1.0 MMBtu/hr, feeding a common afterburner, rated heat input 6.0 MMBtu/hr) with a 4,600 lbs/hr maximum rated salvageable material batch charging capacity, to oxidize combustibles on wire, electrical distribution equipment, motors, and other salvageable items. Electrical distribution equipment is limited to drained, less than 500 ppm polychlorinated biphenyls units, that are subsequently not regulated by 40 CFR 761 (for further information see Section 7.0).

The facility utilizes decontamination processes allowed under 40 CFR 761.79(b) such as stripping of insulation, scarification or use of abrasives for the disassembled parts of fully drained PCB-contaminated electrical equipment. Transformer carcasses with a capacity of 100 gallons or less are abrasively cleaned using fuller's earth. The facility conducts laboratory analysis on samples taken after the aforementioned process. An alternative sampling procedure is conducted to verify decontamination as approved by the USEPA on June 19, 2002 (for further information see Section 8.0).

Both the metals reclamation and PCB container storage areas are located within the berm area. The scrap metal recovery oven is also located within this berm. TSCA regulated wastes generated and/or received are containerized and sent to EPA approved disposal facilities. The general storage areas are located within the warehouse but outside the berm. This area is used for storage of clean metals, supplies and metals segregation.

Operational records/files are maintained and certificates of disposal generated in the facility office located at located at 1672 East Highland Road.

1.2 Process Description

Laboratory Services - Provide in-house monitoring of PCB levels and analysis of samples. The laboratory uses gas chromatography.

Commercial Storage - Operations utilize the EPA-approved storage facility to offer all of the available technology in PCB disposal, destruction and recycling to our customers. Combined tank and container storage capacity with the PCB berm area will not exceed 120,340 gallons or equivalents.

Container/Tank Storage/Transfer - A wide variety of wastes not acceptable for on-site treatment can be received for consolidation and transfer to other TSCA-permitted disposal facilities. The facility includes storage areas for tanks and containers meeting TSCA standards.

Scrap Metal Recovery Oven - The facility utilizes an AL-JON scrap metal recovery oven equipped with a high efficiency, high temperature afterburner, to oxidize combustibles on wire, electrical distribution equipment, motors, and other salvageable items. Electrical distribution equipment is limited to drained, less than 500 ppm polychlorinated biphenyls units, that are subsequently not regulated by 40 CFR 761. Once the combustibles are burnt off in the furnace, the remaining material is cooled, and the metals separated. The reclaimed ferrous and non-ferrous metals are then sent off-site for smelting and recycling.

Abrasive Cleaning – The facility performs abrasive cleaning of electrical equipment carcasses that are 100-gallons or less in size utilizing fuller's earth. This process is limited to drained, less than 500 ppm PCB units, that are subsequently not regulated by 40 CFR 761.

2.0 FACILITY OWNER/OPERATOR QUALIFICATIONS

2.1 Identification of the Owner, Operator, and Officials of the Facility with Direct Management Responsibilities

Property and Business Operation and Ownership

Building and Land Owner:	Emerald Transformer Western States LLC 4509 State Hwy 83 North DeFuniak Springs, FL 32435
Business Owner and Operator:	Emerald Transformer PPM LLC 1672 East Highland Road Twinsburg, OH 44087

This facility is one of four operating as part of this company. Emerald Transformer PPM LLC is a member organization of Emerald Transformer Western States LLC, with its headquarters located at:

4509 State Hwy 83 North
DeFuniak Springs, FL 32435

2.2 Identification of the Person Responsible for Overall Operations of the Facility, and the Supervisory Employees Responsible for Operation of the facility

The key employees responsible for the day-to-day operation of the Twinsburg facility are as follows:

Mike Burns	EVP - Operations
Mike Plank	General Manager
James DelPuppo	Plant Manager

Note:

1) Additional affiliations for Mike Burns are the Emerald Transformer PPM LLC and Emerald Transformer Los Angeles LLC locations. These facilities are permitted to manage PCB's and include the following 4 locations:

   Coffeyville, KS
   Philadelphia, PA
   Tucker, GA
   Los Angeles, CA

2) Additional affiliation for Mike Plank is the Transformer Decommissioning Inc. d/b/a Emerald Transformer location in Nabb, Indiana.

2.3 Principal Officers

The principal officers of Emerald Transformer Western States LLC are:

Chief Executive Officer:	Stuart Prior
Chief Financial Officer:	Mark Newman
Director of Human Resources:	Meredith Allred
Director of Safety/Environmental Compliance:	Jessica Pennington
Executive Vice-President Operations	Mike Burns
Senior Vice-President Operations West	Jason Crawford
Executive Vice-President Product Sales& Marketing:	Shane Willis

Emerald Transformer Western States LLC is composed of the businesses Emerald Transformer PPM LLC and Emerald Transformer Los Angeles LLC.

2.4 Companies Owned or Operated

Emerald Transformer PPM LLC is a wholly owned member company of Emerald Transformer which does own and operate other companies. Affiliations of key operating employees are shown in Section 2.2 and Section 2.7. The parent's officers own and operate all the related member companies and have or have had some ownership interest in numerous other corporate entities. There are no serious environmental violations extant of which the certifying officer(s) are aware in these other corporate entities. The compliance history in Section 2.6 covers the Emerald Transformer PPM LLC location as well as the Emerald Transformer Los Angeles LLC which make up the Emerald Transformer Western States LLC company.

2.5 Technical Qualifications & Experience of Key Employees

Individuals who are directly responsible for the operation of the facility have extensive training electrical equipment management and/or engineering. The principal individuals who make decisions related to the facility's operations are: the Plant Manager, the General Manager, and the Executive Vice-President of Operations.
Complete resumes may be found in Appendix B.

A training plan for employees may be found in Appendix L.

2.6 Compliance History

The following compliance history details past State and Federal environmental violations for the Facilities described below.

Emerald Transformer PPM LLC = Twinsburg, Ohio

The Emerald Transformer PPM LLC located in Twinsburg, Ohio has not had any violations or penalties within the last five years.

Emerald Transformer Western States LLC

The regulatory compliance history for other facilities owned by Emerald Transformer Western States LLC for the past five years is summarized below.

- Emerald Transformer PPM LLC = Coffeyville, KS:
  - 3/5/14 - Received a Notice of Violation from USEPA-RCRA for: 1) Failure to characterize lab waste appropriately. Added D001 to laboratory waste that was characterized with only the F003 waste code, 2) Failure to mark a laboratory waste collection container attached to laboratory equipment with the words "Hazardous Waste." Issue was resolved with no penalty.
  - 3/24/15 – Received a Letter of Warning from KDHE for failure to submit 3 air reports. Issue was resolved with no penalty.
  - 7/9/15 – Received Consent Administrative Order from KS Dept of Ag for failure to submit a groundwater report on time. Issue resolved with a $250.00 penalty.

- Emerald Transformer PPM LLC = Tucker, GA:
  - 5/16/16 – Received a Notice of Violation from the Georgia DNR for failure to submit a biennial used oil report. Issue was resolved with no penalty.
  - 9/12/16 – Received a Notice of Violation from the Georgia DNR for failure to update the Contingency Plan with home addresses and notify local emergency response agencies. Issue was resolved with no penalty.

- Emerald Transformer PPM LLC = Philadelphia, PA:
  - 11/6/14 – During an inspection by Pennsylvania DEP, it was noted a rolloff was not stored within a bermed area. Issue was resolved with no penalty.

- Emerald Transformer Los Angeles LLC = Los Angeles, CA:
    - 1/2/13 - Received a notice of violation from the CA DTSC for inadequate operating log for inspection conducted in November 2012. Issue was resolved with no penalty.
    - 6/30/15 - Received a notice of violation from the CA DTSC for improper management of a satellite accumulation container and manifest issues related to transportation shipments. Issue pending resolution.
    - 6/30/15 - Received a notice of violation from the Los Angeles Regional Water Quality Control Board for failure to have a stormwater permit. Issue pending resolution.
    - 4/29/16 - Received a notice of violation from the CA DTSC for storing waste in an undesignated area of the facility and failure to inspect inactive tanks. Issue pending resolution.
    - 11/3/16 - Received a notice of violation from the CA DTSC for 1) Storing oil with PCBs in an unpermitted location, 2) failure to inspect scrap metal with oil residues, 3) failure to repair gaps or cracks, 4) failure to mark a container with the words "hazardous waste." Issue pending resolution.
    - 11/10/16 - Received a notice of violation from the CA DTSC for storing TSCA waste without a permit. Issue pending resolution.

Emerald Transformer

The complete environmental history of the corporate entity will be submitted when requested.

2.7 Affiliation Listing

Companies currently owned or operated in the past five years by the principals or key employees directly or indirectly involved with waste handling activities:

Emerald Transformer Western States LLC
- -Emerald Transformer PPM LLC
- -Emerald Transformer Los Angeles LLC

Florida Transformer, Inc. d/b/a Emerald Transformer
Transformer Decommissioning, Inc. d/b/a Emerald Transformer
Emerald Transformer Mississippi LLC
Environmental Management Systems d/b/a Emerald Transformer

3.0 FACILITY DESIGN

3.1 Facility Storage Area and Design Qualifications

Please note that PCB articles come a variety of configurations and sizes (including transformers, capacitors and other odd-sized containers). To account for the liquid volumes, capacity will be evaluated in 55-gallon equivalents (i.e. permitted storage volume is 120,340 gallons which is equivalent to 2,188 55-gallon containers). PCB storage capacity will not exceed maximum authorized volume (including liquid contents of transformers, drums, capacitors, tanks, etc) and adequate aisle space will be maintained.

Also note, any non-PCB items stored within the permitted space will be counted as if they were PCB items so as to ensure the berm containment capacity is not exceeded.

To establish the maximum authorized capacity for the PCB storage area, container and tank volumes are both considered since they reside within a common secondary containment area. Container and tank volumes will be addressed separately; however, the combined volumes will not exceed 120,340 gallons (103,840 gallons for containers and 16,500 gallons for tanks). See Table 3-1 for permitted material breakdown. Floor plans for the area are shown in Figure 3-1).

Table 3-1: Permitted Material Breakdown

Material	Drum (and equivalents)	Tank Volume	Gallons
PCB Empty Containers	360		19,800
PCB Debris	473		26,015
PCB Wash Water (non-treatable)	100		5,500
Treatable Liquid (less than or equal to 10,000 ppm)	284		15,620
		5,500	5,500
Non-Treatable Liquid (less than or equal to 10,000 ppm)	50		2,750
		5,500	5,500
		5,500	5,500
PCB Capacitors	97		5,335
PCB Transformers (full)	270		14,850
PCB Transformers (drained)	254		13,970
Total	1,888	16,500	120,340

The PCB container storage layout is based on palletized 55-gallon equivalent containers stacked 3 high (arrangements are illustrative). Also, it should be noted that a strict interpretation of PCB articles, stacked 3 high, would be equivalent to ~630 drums at floor level (or ~157 pallets, 4 drums to a pallet). However, to allow for flexibility in the

working environment, a more conservative number of pallets at floor level (200) was used to evaluate container displacement in conjunction with the secondary containment requirements.

The floor plans establish an arrangement and maximum total count of 55-gallon equivalent containers that will be stored in the container storage area. Based on the arrangements illustrated, and upon the assumption that all of the containers are full of liquid, a total authorized PCB storage volume is established for the container area. Table 3-2 lists the maximum authorized storage for the PCB storage area and available containment volume.

The storage area containment volume is adequate to contain at least 25 percent of the total volume of liquid in PCB containers or at least two times the internal volume of the largest PCB Container, whichever is greater. The facility's total available containment volume is documented in Appendix D. A sample warehouse configuration is provided in Figure 3-1.

3.1.1 Roof and Walls

The roof is designed with 1 1/2" metal deck plating, topped with 0.045" Firestone Rubberguard and a single layer of round stone. There is also a 2' 4" layer of rigid insulation below the metal deck. The underside of the roof is an impervious surface.

The walls are constructed of 8' color impregnated and weather sealed Masonry Wainscot with an additional 10 to 13 feet of finish painted corrugated steel. The walls are an impervious surface.

Access to the warehouse is provided by four (4) 7'x 3' man-doors, one 16' x 10' and one 20' x 10'overhead dock doors. All of these doors are kept locked during non-business hours. All material stored in the PCB containment area has adequate roof and walls to prevent rainwater from reaching PCBs

3.1.2 Floor and Curbing

Floors and berms were originally sealed and coated with epoxy coating prior to the commencement of any operations. The current coating utilized is a 2-part epoxy. The floor was last fully coated in January 2012. Maintenance coatings are applied as needed (see Appendix E).

The curbing perimeter around the containment berm was constructed in the following manner. A 6" deep hole was drilled every 12-inches, and a 10" long by ½-inch diameter rod was placed into each. A prefabricated mold was placed around the rods, and an adhesive was applied before the concrete was poured. After the concrete set, forming a minimum 6" inch high by 6"inch wide curb, the same 2-part epoxy compound that coated the containment floor was applied to the berm, creating a continuous smooth and impervious surface. Ramps over the

berm were also sealed and coated with a 2-part epoxy coating prior to the commencement of any operations.

3.1.3 Containment Volume

To establish the maximum authorized capacity for the PCB storage area, container and tank volumes are both considered since they reside within a common secondary containment area. Container and tank volumes will be addressed separately; however, the combined volumes will not exceed 120,340 gallons (103,840 gallons for containers and 16,500 gallons for tanks). A floor plan of the area is shown in Figure 3-1).

The PCB container storage layout is based on palletized 55-gallon drum equivalent containers stacked 3 high (arrangements are illustrative). Also, it should be noted that a strict interpretation of 1,888 drums, stacked 3 high, would be equivalent to ~630 drums at floor level (or ~157 pallets, 4 drums to a pallet). However, to allow for flexibility in the working environment a more conservative number of pallets at floor level (200) was used to evaluate container displacement in conjunction with the secondary containment requirements.

The containment volume available for the permitted PCB storage area (less displacement) is 48,672 gallons (see Table 3-2), which stores PCB containers, tanks and/or other articles. This exceeds containment volume requirement of at least two times the internal volume of the largest PCB Container or 25 percent of the total internal volume of all PCB Containers stored there, whichever is greater.

For the Twinsburg facility, the estimated maximum PCB waste inventory for the permitted PCB storage area is 120,340 gallons. The forms this waste will take are as follows:

PCB Containers:
- Empty Containers
- Debris
- Wash Water (non-treatable)

PCB Tanks
- Treatable Liquid (less than or equal to 10,000 ppm)
- Non-Treatable Liquid (greater than 10,000 ppm)

PCB Capacitors
PCB Contaminated Transformers (full)
PCB Contaminated Transformers (drained)

As previously mentioned, transformers come in all sizes and shapes, so all liquid capacity is calculated in gallons. Capacitors follow the same calculation. Drums and containers used for PCB storage will be in accordance with the requirements set forth in 40 CFR 761.65(c)(6) and (c)7(i).

For the Twinsburg facility, the estimated maximum PCB waste inventory for Tank Storage is 16,500 gallons. The forms this waste will take are as follows:

PCB Treatable Oil
PCB Non-Treatable Oil

Table 3-2: Containment Design Capacities for the PCB Storage Area

Location	Maximum Allowed PCB Storage (Gallons)	Containment Volume Required (Gallons)	Containment Volume Available (Gallons)
PCB Storage Area (container)	103,840	25,960	48,672
PCB Storage Area (tanks)	16,500	11,000	48,672
Total	120,340	30,085	48,672

Containment volumes calculations are summarized for the permitted storage area in Appendix D. The combined total of PCBs stored will not exceed 120,340 gallons.

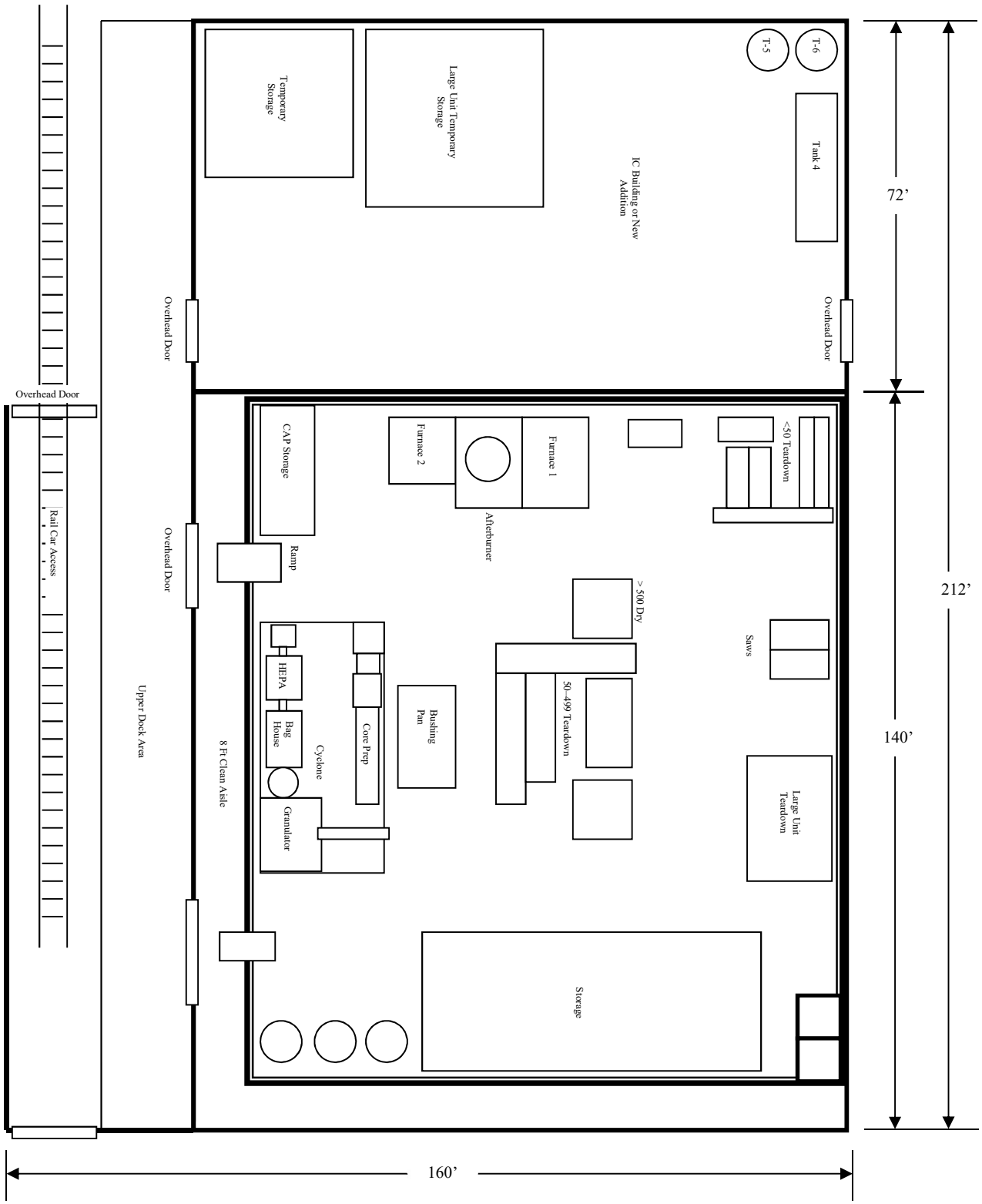

T-5
T-6
Tank 4
Temporary Storage
Large Unit Temporary Storage
IC Building or New Addition
72'
212'
140'
160'
Overhead Door
Overhead Door
Overhead Door
Overhead Door
Rail Car Access
Upper Dock Area
8 Ft Clean Aisle
CAP Storage
Ramp
Furnace 2
Furnace 1
Afterburner
<50 Teardown
> 500 Dry
Saws
50 -499 Teardown
Large Unit Teardown
HEPA
Bag House
Cyclone
Granulator
Core Prep
Bushing Pan
Storage

Figure 3-1

3.1.4 Drain Valves, Floor Drains, and Expansion Joints

The PCB container storage area floors were constructed in accordance with the federal regulations at 40 CFR Section 761.65(b). The existing floor has expansion joints, but no floor drains or any other openings of any type. The expansion joints were sealed by cleaning out loose debris, placing a foam backing rod at the bottom of the joint, and then pouring in an epoxy sealant that filled the joint to above the floor surface. The joints were sealed with a semi-flexible grout sealant, prior to epoxy coating. The two-part epoxy sealant was then heavily applied and cured over the top of the joint. All existing cracks were sealed according to the same procedures.

3.1.5 Flooring Construction

The PCB container storage area floors were constructed in accordance with the federal regulations at 40 CFR Section 761.65(b). A concrete floor with an impervious surface coating has been provided for all PCB storage areas. The warehouse floors consist of 7" thick, 4000 psi (minimum) concrete with 6"x 6" x 6" steel mesh reinforcement. The entire floor surface is coated with a two-part epoxy compound.

The floor is poured concrete with saw cut expansion joints and a perimeter berm that was installed concurrently. The joints were sealed by cleaning out loose debris, placing a foam backing rod at the bottom of the joint, and then pouring in an epoxy sealant that filled the joint to above the floor surface. The floor was then cleaned and prepared for coating using an epoxy grout, applied by toweling, to a thickness of 1/4". The original flexible two-part epoxy sealant was Permagile Uniweld.

3.1.6 100 Year Flood Water Elevation

The Twinsburg facility is not located in a 100-year flood water plain. The Army Corps of Engineers designates the area where the facility is located as Zone X, an area of minimal flooding (see Figure 3-2).

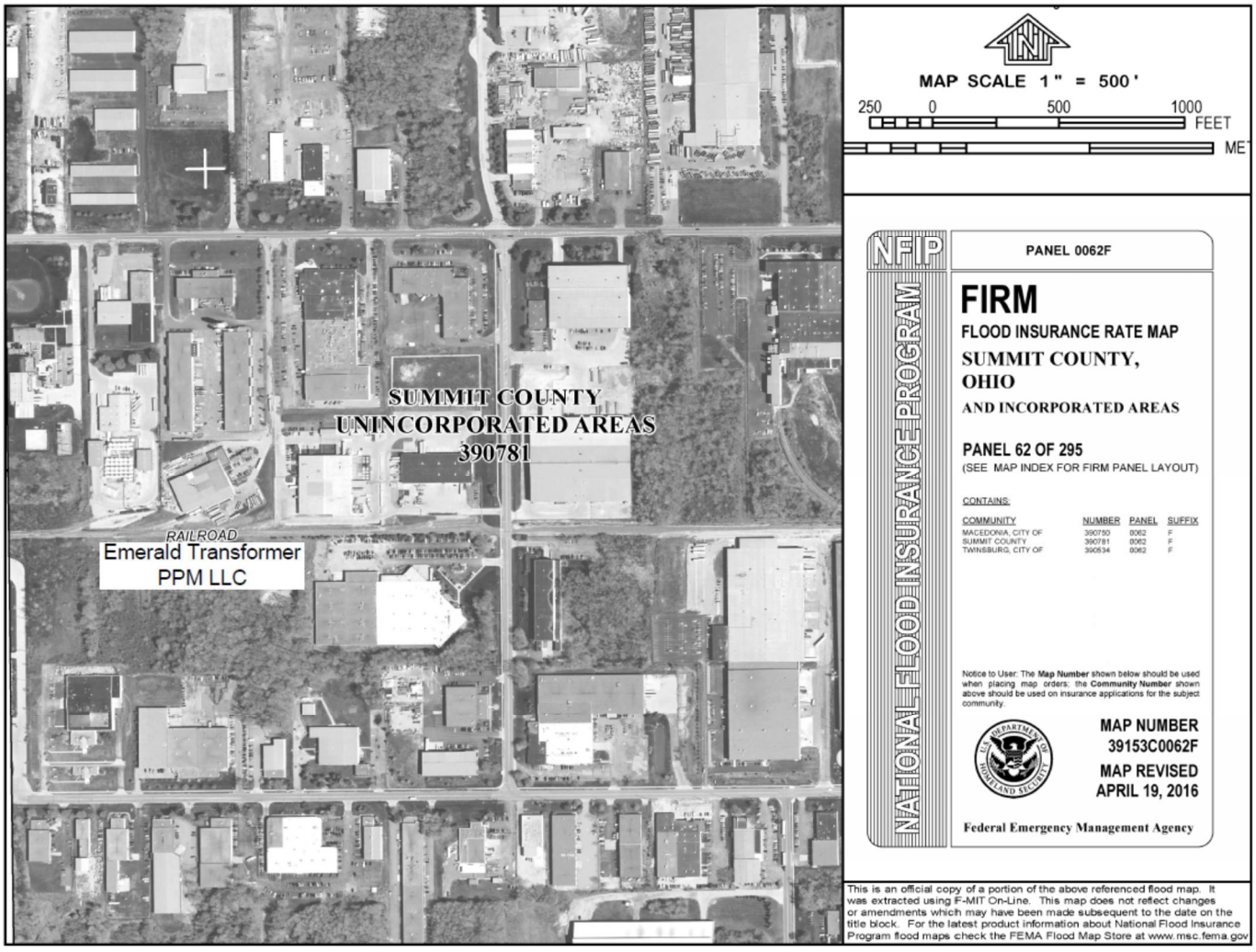
3.1.7 Tanks and Drums

Tanks: The facility has three (3), PCB dedicated, 5,500-gallon, above ground, vertical storage tanks located within the PCB storage secondary containment area. These tanks are used for the storage of PCB and PCB-contaminated dielectric oils.

Drums: A typical drum has a 55-gallon capacity. Transformers may contain a few to hundreds of gallons of oil. Transformers, containers, and drums with a capacity of other than 55 gallons are considered in terms of 55 gallon drum equivalents so,

for example, a 110-gallon transformer would count as two (2) 55-gallon drum equivalents. Storage containers conform to federal regulations governing the management of hazardous wastes and PCBs.

Figure 3-2 Flood Insurance Rate (FIR) Map



3.1.8 Spill Prevention, Control, and Countermeasure Plan

Pursuant to 40 CFR 761.65(c)(7)(ii), the facility has prepared and implemented a Spill Prevention, Control, and Countermeasures Plan (SPCC). The plan was prepared in accordance with 40 CFR 112. This plan includes all of the TSCA containers and non-TSCA liquid in tanks and containers that are also present at the facility. A copy of the plan is included in Appendix F of this application.

3.1.9 PCB Articles and Equipment

PCB articles and PCB article containers may be temporarily stored outside the permitted containment area in the IC section of the warehouse (formally designated as “M. Area”, "New Addition", or "Cold Storage Area") this includes:

> The storage for disposal of PCB-contaminated Articles from which all free-flowing liquids have been removed is not regulated under 40 CFR 76l.65(c)(2).
>
> "PCB-contaminated Electrical Equipment that have not been drained of free flowing dielectric fluid may be stored on pallets next to a storage facility that meets the requirements of 40 CFR 761.65(b). Storage will be permitted only when the storage facility has immediately available unfilled storage space equal to 10 percent of the volume of capacitors and equipment stored outside the facility." The items temporary stored outside will be checked weekly per the requirements of 40 CFR 761.65(c)(2).

Pursuant to the questions and answers for the new 1998 rules, "Draining and flushing PCB liquids from electrical equipment is processing for disposal that primarily facilitates storage or transportation of the liquids for disposal and does not require an approval" [See 40 CFR 761.20(c)(2)(i)]. This rule states: "Processing activities which are primarily associated with and facilitate storage or transportation for disposal do not require a TSCA PCB storage or disposal approval."

These activities will be conducted in this area as described above. This area is fully bermed with a 6" cement berm and it has watertight roof and metal walls. The floor is sealed with two coats of epoxy-type sealer of different colors coated over the finished cement. It has no drain valves, floor drains, expansion joints or other openings that would allow liquids to flow.

This area has storage designated for PCB-contaminated electrical equipment on pallets or rollers, primarily drained ones, however some units may sit full until the operation drains the liquid into the storage tanks, which are located in the permitted area. The area is also used for processing non-regulated equipment in addition to the storage of unregulated, non-leaking equipment.

Finally, the facility also utilizes railcars for transportation for bulk liquids and solids. This area is also contained. This activity does not impact PCB storage levels.

3.1.10 Unfilled Storage Space Immediately Available

For details of storage capacity calculations see Appendix D.

The maximum number of 55-gallon drums (or drum equivalents), that can be stored in the bermed area equals (The Storage Capacity)/55. In the case of containers larger than 55 gallons, to obtain an corresponding number of drum equivalents divide the volumes. For example, a 110-gallon transformer would equal two 55-gallon drums. This is in compliance with the standards in 40 CFR 761.65 for containment capacity.

3.1.11 Location and Number of Existing or Planned Bulk Tanks

Bulk tanks are currently utilized to store regulated PCBs for transfer. These tanks include Tanks 1, 2, and 3. Please note that the facility has an additional 3 tanks on-site that store non-TSCA liquids (Tanks 4, 5, and 6).

3.1.12 Description of Tanks

Table 3-3 below summarizes some of the relevant aspects of each tank in the facility.

Table 3-3

Bulk Tank Descriptions - Tank Farm

Tank ID	1	2	3	4*	5*	6*
Height/Length (ft)	11'-1"	11'-1"	11'-1"	33'**	13'-5"	13'-5"
Diameter (ft)	8'	8'	8'	8'**	8'	8'
Capacity (gal)	5,500	5,500	5,500	12,000	5,000	5,000

*Non-TSCA oil stored outside the permitted TSCA area
** Horizontal Tank

The total of the TSCA tank capacities is 16,500 gallons. (see Appendix G – Facility Drawings (63-TW-3600-202, 63-TW-3600-203, and 63-TW-3600-204)).

Each tank is of all steel construction, and is used to contain mineral oil and/or PCBs. These tanks meet UL 142 Aboveground Flammable Liquid Tanks and meet ASTM (American Society for Testing and Materials) standards for carbon steel construction.

Tanks 1, 2, and 3 have the following spill prevention controls:

Float type level gauge

Before pumping into a tank, the level is checked to determine the amount of material that may be pumped without possibility of spill. The normal procedure for determining the freeboard space is to use the gauge reading.

High Level Alarm

An auditory and visual electronic alarm system triggered by sensing the dielectric content of liquid versus air in the tank.

Emergency Vent

The vent is designed to remain closed until a predetermined internal tank pressure is exceeded. It is meant to open if the tank requires additional venting capabilities, and to provide additional protection against tank rupture.

Normal breathing vent

This vent provides for the normal venting of the tank during operation. This vent is normally closed, but opens at predetermined set points for pressure or vacuum. Tanks are vented to discharge vapors outside the building.

Manual valving

Each tank, in addition to the internal emergency valve, has a manual ball valve that can be visually checked to determine its open or closed status.

Physical binding of quick connect couplings

This procedure ensures that all quick connect coupling are wired or otherwise physically bound together to prevent accidental line decoupling during PCB transfer.

3.1.13 Estimate of Maximum Inventory

The estimated maximum inventory has been determined by adding the maximum drum equivalents for container storage area to the tank capacities for all PCB storage tanks. This maximum inventory will be used in the worst case scenario of PCBs in inventory at the beginning of facility closure. The contributions to the total inventory from each waste type are shown in section 4.3 of the facility closure plan.

3.2 Facility Design Certification

The facility complies with the design and construction standards in 40 CFR 761.65.

The following certification is made for compliance of the existing PCB facilities with facility design standards currently in effect:

Under the civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate, and complete.

Signature: _____

Printed Name: James R. DelPuppo

Date: 2-5-2018

3.3 Jurisdiction in Which Facility is Located

This facility is located on approximately 4 acres of land in an industrial park in the City of Twinsburg, Ohio, in the County of Summit. This facility is currently regulated by and/or files reports with the following public agencies, committees, commissions and/or departments:

City of Twinsburg Fire Department, Twinsburg, OH
City of Twinsburg Police Department, Twinsburg, OH
Summit County Emergency Management Agency, Akron, OH
Akron Regional Air Quality Management District, Akron, OH
Ohio Emergency Management, Columbus, OH
Ohio Environmental Protection Agency, Columbus, OH
U.S. Environmental Protection Agency, Region 5, Chicago, IL
U. S. Environmental Protection Agency, HQ, Washington, D.C.
Other public agencies at the federal and state level including DOT, OSHA, DOL, and the NRC.

3.4 Written Description and Topography

3.4.1 General Description

PCB operations at the Twinsburg Facility:

(1) Storage Operations:
PCB wastes are received, stored, treated or consolidated for shipment or treatment. Storage is in tanks and containers. The PCB storage is shown in the drawings located in Figure 3-1 and Appendix G - Facility Drawings).

(2) Metals Recovery
The facility uses decontamination processes allowed under 40 CFR 761.79(b) such as stripping of insulation, scarification or use of abrasives for the disassembled parts of fully drained PCB-contaminated electrical equipment. Transformer carcasses with a capacity of less than 100-gallons are cleaned using fuller's earth.

In addition to the decontamination process described above, the facility uses its AL-JON scrap metal recovery oven to decontaminate PCB-contaminated electrical equipment from which all free flowing liquid has been removed as allowed under 40 CFR 761.72(a).

The facility petitioned EPA for approval to operate the AL-JON scrap metal oven at different operation conditions other than what is required in 40 CFR 761.71 (a)(2) and (3). Following submission of test burn data and a demonstration to EPA, it was determined that the "different operating conditions" did not affect the overall ability of the scrap metal recovery oven to destroy residual PCBs on the dismantled parts of the fully drained PCB-contaminated electrical equipment and that it did not pose a unreasonable risk to the health and environment. Final EPA approval was granted on June 19, 2002 (see Section 7.0).

Typical metals reclaimed at this facility include copper, carbon steel, silicon steel, brass, and aluminum.

The facility conducts laboratory analysis from samples taken after the aforementioned abrasive cleaning process. An alternative sampling procedure was demonstrated to verify decontamination to USEPA and was approved by on June 19, 2002 (for further information see Section 8.0).

3.4.2 PCB Storage Facilities

PCB operations are limited to one warehouse, at 1672 East Highland Road, Twinsburg, Ohio. This warehouse is segregated into a bermed PCB storage area and a non-PCB storage area. The facility encloses 25,000 square feet of area and is located on 4 acres of land in an industrial park. The building consists of a

storage area, office areas, a lunchroom and a shower/change rooms. All site drawings are in Appendix G – Facility Drawings.

3.4.3 Sampling Plan for Monitoring Surface Contamination Outside of Permitted Storage Area

The facility routinely samples areas outside the permitted storage area to measure PCB surface contamination. Results will be compared with the USEPA cleanup standard of 10 $\mu g/100cm^2$ for wipe samples. In the event that any measurement exceeds this criterion, an action plan for correction will be implemented as described in Appendix H.

The standard wipe test, as defined in 40 CFR 761.123 will be utilized to sample the surfaces of non-porous solids. Hexane will be the solvent used to wet the swab. Extreme care is taken to avoid cross-contamination. The sampler will wear gloves. Gloves will be changed after every sample.

3.4.4 Hazardous Waste Management Units

There are no current or historical Hazardous Waste Management Units on this site.

3.4.5 Flood Plain Concerns

The Twinsburg facility is not located in a 100-year flood plain. See Figure 3-2.

3.4.6 Adjacent Surface Waters or Wetlands

There are no adjacent surface waters or wetlands. The closest navigable surface water is the Cuyahoga River which is approximately 10 miles west of the facility.

3.4.7 Surrounding Land Uses

The surrounding land use is heavy industrial. There are no residential areas within ½ mile of the facility. There are no known grazing nor agricultural uses of the land immediately surrounding the facility. The location of the Twinsburg facility is zoned I-2 (Industrial).

3.4.8 Traffic Patterns

The facility owns the common access drive shared with Montage, Inc. from Highland Road. Traffic enters the parking lot and/or proceeds to the south loading/unloading area.

3.4.9 Underground Storage Tanks

There are no underground storage tanks at this facility.

3.4.10 Security/Surveillance Systems

The facility meets the requirements of 40 CFR 264.14 Security. The facility has an 8-foot security fence with an additional two feet of barbed wire on top, surrounding the loading dock area of the facility. The fence is marked with warning signs such as, "Danger, Unauthorized Personnel Keep Out", "Notice Authorized Personnel Only", and other similar warnings. The facility also has a

motion detection electronic security system that is monitored when set during off-hours by a third-party security firm.

The warehouse areas have walls and a roof in good repair that form a complete barrier around it. This barrier is inspected regularly to ensure that it is maintained in good repair.

There are a three (3) gated entrances and two (2) entrance doors outside of the gated area. All gates are secured with a chain and lock when the facility is closed. All doors are locked and the entrance alarm is set when the facility is not in use.

3.4.11 Warning Signs

There are warning signs posted at the facility. All signs meet the requirements prescribed in 40 CFR 264.14(c). These signs read: "Danger-Unauthorized Personnel Keep Out". Additional warning signs are also posted at each entrance that meet the requirements of 40 CFR 761.45(a). These signs read: "Caution contains PCBs (Polychlorinated Biphenyls). A toxic environmental contaminant requiring special handling and disposal in accordance with U.S. Environmental Protection Agency Regulations 40 CFR 761-For disposal iuformation contact the nearest US EPA Office. In case of accident or spill, call toll free the US Coast Guard National Response Center 800-424-8802. Also Contact: _____ at Telephone No. _____."

3.4.12 Closed PCB Units

There are no closed PCB Units or hazardous waste management units at the facility.

3.5 Environmental Conditions

3.5.1 Surface Water Proximity

The closest navigable surface water is the Cuyahoga River which is approximately 10 miles west of the facility. There are no known wetlands within proximity of the facility.

3.5.2 Drinking Water Proximity

Drinking water, water for sanitary needs, and water for fire control are supplied by the local municipality.

3.5.3 Sewers

The locations of the catch basins on the property are noted on the drawings in Appendix G. There are no drains or catch basins inside the facility process or storage areas. There is no process water released to the POTW.

3.5.4 Ground Water Location Issues

There are no known injection or withdrawal wells either on or off-site within 1,000 feet of the facility. There are no known intermittent streams within 1,000 feet of the facility. There are no other known sources of ground water that would be affected by potential contamination.

3.5.5 Grazing Lands

The facility is in an industrial area and there are no nearby animal grazing lands, farms, agricultural lands or vegetable gardens.

4.0 CLOSURE PLAN

Pursuant to 40 CFR 761.65(e), the facility has developed a written closure plan that identifies the steps that Emerald Transformer will take to close the facility in a manner that eliminates the potential for post closure releases of PCBs which may present an unreasonable risk to human health or the environment. This closure plan covers the processes and their associated storage areas.

4.1 Facility Description

4.1.1 General Description

PCB storage and reclamation operations at the Twinsburg Facility are threefold:

(1) PCB Reclamation Equipment
The reclamation equipment includes, but is not limited to, the scrap metal recovery oven.

(2) Storage Operations
PCB wastes are received, stored, and consolidated for shipment or treatment. PCB storage may be conducted in tanks or containers. Material handling includes: bulk oil, transformers, capacitors, containerized oil for treatment or for incineration, containerized water for treatment or incineration, containerized debris for disposal, and other PCB items and containers for disposal. Preparation for shipment includes: draining of the equipment, repackaging for shipment, and pumping of containerized liquids into tanker trucks.

(3) Laboratory
PCB lab wastes consisting of PCB samples, GC vials, sample cleanup liquids, and related materials. They are packaged in EPA approved containers which are stored within the bermed containment area.

4.1.2 Facility Location

The Emerald Transformer LLC facility located at 1672 East Highland Road Twinsburg, OH is a fully operational commercial PCB treatment and storage facility. The facility consists of one main structure on approximately four acres. The building is constructed of masonry block and steel and is approximately 25,000 square feet.

4.1.3 Site Specific Information

The facility is located in an industrialized area of the city. Means of access is controlled by buildings, fences, and gates. Operations are limited to one warehouse, segregated into a bermed PCB storage area and a bermed non-PCB

storage area. The building consists of the storage area, the office area, the lunchroom and the shower/change/bath rooms.

4.1.4 Environmental Conditions for the Site

Surface waters from rainfall generally run in a southern direction. Rainfall from the south lot is collected and tested prior to discharge under an NPDES permit issued by the Ohio EPA. PCB storage facilities are located indoors within bermed areas.

The closest navigable surface water is the Cuyahoga River which is approximately 10 miles west of the facility. There are no known wetlands within proximity of the facility. The site is located above the 100-year flood plain.

4.1.5 PCB Waste Storage Facility Design

The permitted PCB storage area consists of a concrete slab surrounded by a containment berm, all of which were coated with a 2-part epoxy coating prior to commencing any operations. PCBs may be stored in any section of the containment area. Detailed calculations, including displacement, can be found in Appendix D.

Table 4-1: Permitted PCB Storage Area – Dimensions and Capacities

Container/Tank Storage Area	Dimensions And Capacities
Overall Interior Dimensions Floor Area	130 Feet x 112 Feet 14,560 Square Feet
Containment Berm Height	6 Inches
Gross Containment Volume	54,454 Gallons
Permitted Storage Capacity – PCB Maximum Liquid Volume – PCB	120,340 Gallons
Required Containment Volume PCB Requirements at 25%	30,085 Gallons
Net Containment Volume Available *	48,672 Gallons

*Net available area and volume after correction for displacements.

There are three (3) – 5,500 gallon bulk tanks permitted to hold regulated PCBs for storage. These tanks are located within the existing secondary containment area and are included in the secondary containment calculations (identified as Tanks 1, 2, and 3). Please note that the facility has an additional 3 tanks on-site that store non-TSCA liquids and they are also located within a secondary containment.

4.2 Environmentally Sound Closure Plan

The plan enumerated in Section 4 of this application accounts for the planned closure steps of the facility and the costs associated with them. These general steps will allow the closure to take place safely whether as a part of a planned or unplanned closure-triggering event.

4.3 Disposal of PCB Waste Inventory

4.3.1 Maximum Inventory

As specified in 40 CFR 761.65, the PCB Closure Plan is based on the disposal of the maximum PCB storage capacity of the facility. This section will describe the maximum storage capacity of various types of PCB items and the disposal methods for the different types of PCB items.

The quantities utilized in the closure cost estimate calculation of Section 5 (also see Appendix I) are assumed to be the maximum inventory levels. Please see Table 4-2 below:

Table 4-2: Maximum Inventory

Material	Drum (and equivalents)	Tank Volume (Gallons)	Gallons	Pounds
PCB Empty Containers	360		19,800	216,018.00
PCB Debris	473		26,015	283,823.65
PCB Wash Water (non-treatable)	100		5,500	54,780.00
Treatable Liquid (less than or equal to 10,000 ppm)	284		15,620	155,575.20
		5,500	5,500	54,780.00
* Non-Treatable Liquid (less than or equal to 10,000 ppm)	50		2,750	27,390.00
		5,500	5,500	54,780.00
		5,500	5,500	54,780.00
PCB Capacitors	97		5,335	53,136.60
PCB Transformers (full)	270		14,850	162,013.50
PCB Transformers (drained)	254		13,970	152,412.70
Total	1,888	16,500	120,340	1,269,489.65

*** Note:** Treatable vs. Non-Treatable PCBs on site will vary. Site was originally permitted for more "Non-Treatable" than "Treatable PCBs Tank Storage. However, over time, PCB concentrations have decreased. As a result, the facility receives more Treatable PCBs (<10,000 ppm) than Non-Treatable. Therefore, concentrations may vary, but site capacities will not.

4.3.2 Disposal of Inventory

Disposal of all PCB items will follow the guidelines set forth in 40 CFR 761.60. The maximum volume of waste as described in Section 4.3.1 will be disposed.

Methods of disposal and processing procedures required for closure are discussed below. The facilities, on which third party disposal costs were based, are as follows:

- Veolia Environmental Services, Inc. - Port Arthur, TX
- Trans-Cycle Industries - Pell City, AL
- Cleanlights, Recycling, Inc. - Cincinnati, OH
- Wayne Disposal, Inc. - Belleville, MI

PCB liquids will be transported off-site to an approved treatment or incineration facility. Any pallets used for transportation purposes will become the responsibility of the disposal company and is so reflected in the closure cost estimate.

Any miscellaneous equipment (e.g. pumps, hoses, decontamination wastes, etc.) contaminated with PCB will be disposed at closure. Larger equipment (such as, a forklift) will be decontaminated by swabbing surfaces in accordance with 40 CFR 761.79(c) to a concentration of <10 µg/100cm^2 as measured by standard wipe test (examples of these types of equipment are listed in Table 4-3 below).

Table 4-3 Examples of Miscellaneous Equipment

Description	Treatment
Saws	Decontaminate
Forklifts	Decontaminate
Barrel Grabbers	Decontaminate
Slings	Landfill
Portable Scales	Decontaminate
Hand Trucks	Decontaminate
Pallet Grabbers	Decontaminate
Trucks Tools	Landfill
Cranes	Decontaminate
Steam Cleaner	Decontaminate
Plasma Arc Cutter	Decontaminate
Hoses	Landfill
Pumps	Landfill
Pipe Fittings	Landfill
Buckets	Landfill
Drip Pans	Landfill
Spill Pans	Landfill
Brooms	Landfill
Shovels	Landfill
Vacuums	Landfill
Drums Crusher	Decontaminate

4.4 PCB Closure Plan Sampling, Decontamination, and Spill Cleanup Policy

A detailed description of the activities that will be carried out to identify, remove or decontaminate PCB-contaminated containment system components is provided in this subsection. It is the responsibility of the Project Manager to initiate facility closure, assign tasks, review and validate sample data, delegate responsibilities, and otherwise coordinate closure activities. Specific items to be addressed are:

- Area Classifications
- Numerical Cleanup Levels
- Statistical Sampling Program
- Decontamination Procedures
- Post Cleanup Verification Procedures

4.4.1 Area Classifications

The facility will pursue cleanup standards designated for High Occupancy Areas for the closure of TSCA management units and other potentially affected areas of the facility. A High Occupancy Area means any area where PCB remediation waste has been disposed of on-site and where occupancy for any individual not wearing dermal and respiratory protection for a calendar year is: 840 hours or more (an average of 16.8 hours or more per week) for non-porous surfaces and 335 hours or more (an average of 6.7 hours or more per week) for bulk PCB remediation waste. Examples could include a residence, school, day care center, sleeping quarters, a single or multiple occupancy 40 hours per week work station, a school class room, a cafeteria in an industrial facility, a control room, and a work station at an assembly line.

Building Areas Porous Surfaces

Indoor solid surfaces which are porous will be sampled by means of chip and core and cleaned to a level of 1 ppm or less for high occupancy areas without further restrictions. This is based on the regulatory standard set forth in 40 CFR 761.61(a)(4), *Cleanup Levels for PCB Remediation Waste.*

Prior to core sampling of the "porous" concrete, the epoxy coating will be removed by means of scarification. This will ensure that the facility can accurately evaluate and measure potential contamination.

Building Areas Non-Porous Surfaces

Indoor solid surfaces which are non-porous or, porous surfaces covered with a non-porous surface will be cleaned to a concentration of 10 µg/100 cm^2 or less as measured by standard wipe tests. This is based on the regulatory standard in 40

CFR 761.125(c)(4), *Requirements for decontaminating spills in nonrestricted access areas.*

Tanks, Piping & Associated Equipment

Emerald Transformer anticipates applying the following standards to tanks and piping, at its discretion, based on the circumstances associated with each unit at its time of closure.

a) Equipment such as pumps may undergo decontamination for reuse to remove free liquids and/or friable constituents and put in PCB service at other Emerald Transformer facilities. Alternatively, this equipment may be decontaminated in accordance with 40 CFR 761.79(c)(2).
b) Tanks and piping may be triple rinsed in accordance with 40 CFR 761.79(c)(1). Containers having been subject to this technology based standard will be considered non-PCB and may be disposed of as scrap steel or left in place.
c) Alternatively, the tanks may be cleaned to the standards in 40 CFR 761.79(b)(3) where the surface is less than or equal to 10 $\mu g/100cm^2$ as measured by a standard wipe test at locations selected in accordance with 40 CFR 761, Subpart P. Tanks meeting this standard will be considered non-PCB.
d) Emerald Transformer may choose, at its discretion, to dispose of the tanks and appurtenant equipment as PCB waste.
e) Cleaning residues such as flushing fluid or wash water will be captured for re-use, decontamination, or disposal.

4.4.1.1 Facility Structure Components

The PCB container storage area consists of a totally enclosed concrete containment area inside a concrete block building. Interior walls and doors below 6 feet can be classified as "high contact solid surfaces" according to 40 CFR 761.123. Interior walls within the warehouse above 6 feet will not be sampled, because there are no splash hazards at this facility, and PCBs do not readily volatilize, thus there is no reason to expect that PCBs will be present above 6 feet.

4.4.1.2 Containment System

The containment system at this facility consists of epoxy coated concrete berms and slabs. The concrete berms and slabs can be classified as "low contact indoor impervious solid surfaces" according to 40 CFR 761.123 but will be sampled and evaluated, at closure, with the porous surface standard.

4.4.1.3 AL-JON Scrap Metal Recovery Oven

In the process of reclaiming metals from non- regulated electrical equipment, the oven thermally treats PCB-contaminated oils inside the primary and afterburner chambers. Although the oven should be self-

decontaminated after each batch, the facility will utilize wipe sampling to determine the PCB concentration of the non-porous surfaces. If needed, they will be cleaned to a concentration of 10 µg/100 cm^2 or less. Chip and core sampling will be utilized to evaluate the refractory brick of the primary and afterburner chambers. The brick will be evaluated to the regulatory standard of 1 ppm (based on 40 CFR 761.125(c)(4)) to determine regulatory status at the time of closure.

4.4.2 Numerical Standards

In the previous subsection, the various tank components and equipment at the Emerald Transformer facility that performed PCB service were classified according to the criteria in 40 CFR 761.125(c)(3). Table 4-1 describes the various building component classifications and the corresponding cleanup levels specified in 40 CFR 761.125(c)(3).

Table 4-4: Component Classifications and Specified Cleanup Levels

Cleanup Category Per 40 CFR 761.61(a)(4) and 761.125 (c)(4)	Building Components in this Category	Cleanup Criteria
Porous Surfaces	Any surface that allows PCBs to penetrate or pass into itself	<1 ppm
Non-Porous Surfaces	smooth un-corroded metal; smooth glass	<10µg/100 cm^2

4.4.3 Statistical Sampling Program

A statistical sampling program will be initiated as part of the closure of this facility in order to ensure that the facility will be properly decontaminated upon closure. Specific topics to be addressed in the statistical sampling program are:

- Safety Plan
- Initial Facility Inspection
- Field Sampling Plan.

4.4.3.1 Safety Plan

According to 40 CFR 1910.120(b), a site specific safety plan shall be prepared for all work to be performed at a site that has the potential for employee exposure to a hazardous or toxic substance. Since employee

exposure to such substances is possible during PCB closure activities at this facility, a safety plan conforming to the requirements set forth in 40 CFR 1910.120 (b), shall be prepared for the PCB closure activities at the time of closure. This safety plan will be prepared by the contractors at the time of closure and will be contractor specific.

A safety plan conforming to the requirements set forth in 40 CFR 1910.120(b) has been prepared for PCB activities occurring at this site currently and is available in Appendix J.

4.4.3.2 Initial Facility Inspection

The purpose of the Initial Facility Inspection is to gather data that will assist in deciding where to collect samples from and to provide an overall assessment of the site. The inspection will include locating areas of potential PCB contamination, identifying any potential hazards or items causing a safety concern, and assessing the overall structural integrity of the facility. The Project Manager will primarily coordinate these activities. The following areas will be addressed when performing the Initial Facility Inspection:

- Review of Plant and Regulatory Agency Records
- Interviews with Site Personnel
- Visual Site Inspection.

Review of Plant and Regulatory Agency Records

The purpose for reviewing plant and regulatory agency records will be to gather any data that may exist concerning previous PCB spills, accident, or clean up actions. Plant records will be reviewed first, followed by regulatory agency records.

Interviews with Site Personnel

Available employees of the current owner, and any employees of previous owners that can be readily located, will be interviewed as part of the Initial Facility Inspection. The purpose of the interviews will be to determine if any PCB spills occurred at the facility that were not reported, or that may have occurred in a location that was outside the normal operating areas.

Visual Site Inspection

The Visual Site Inspection will involve a survey of the PCB storage area, including the immediately adjacent roads and surrounding land. The area where PCBs were stored will be entered and will be observed for any obvious spills, coating degradation, cracks in containment, and any building materials that might require special sampling, and any apparent structural defects or potential hazards.

4.4.3.3 Field Sampling Plan

This Field Sampling Plan presents a description of the activities planned for the pre-cleanup sampling at the facility. The sampling plan includes the following items:

- Field Investigation Objective
- Sampling Locations and Rationale
- Decontamination Procedures
- Sample Handling and Documentation
- QA/QC Procedures

Field Investigation Objective

The overall objective of the Field Investigation is to determine if there is PCB contamination at the facility in order to develop a cleanup plan so the PCB treatment/storage areas can be effectively remediated and closed.

Sampling Locations and Rationale

As described in Section 4.4.1 Area Classifications, all PCB storage will be conducted in areas surrounded with containment berms. For this reason, unless the Initial Facility Inspection reveals any potential PCB spill areas outside of the areas identified in Section 4.4.1, no groundwater samples will be collected during the Field Investigation. Sampling will be performed, however, in "other" areas where PCBs might be expected as described in Section 4.4.1. In each location, two sampling methodologies will be used: judgmental and systematic sampling.

Judgmental sampling will involve collecting samples in places where the Initial Facility Inspection found evidence of a release, or where use patterns indicate the possibility of PCB contamination. Judgmental sampling will incorporate chip, core and wipe sampling (depending on the particular area) as a means of evaluation. A minimum of one judgmental sample will be collected from the concrete of each containment area and will be collected from a low point or sump.

Systematic sampling (chip, core or wipe) will be performed on each wall and floor area in accordance with the standards set forth in 40 CFR 761, Subparts N and P (depending on the sample type obtained). This will involve establishing a grid system for each affected wall and floor area, and collecting samples at the grid nodes. Typical sampling grids for walls are shown in Figure 4-1 and typical sampling grid for floors are shown in Figure 4-2. Sampling grids will be laid out in the field and sample

locations and will be marked with masking tape or other suitable marking device. Accordingly, this will account for approximately 304 floor samples (2 meter grid) inside the bermed area and 73 wall samples (1 meter separation below 6 feet). Note: Only two walls will be sampled since they abut the storage area.

Cracks in the flooring or distressed areas within secondary containment will be evaluated to determine the likelihood for residual contamination. Cracks in the flooring will be evaluated by coring to determine the potential for the crack to have penetrated the entire depth of the floor. In those cases where a crack does penetrate the floor, the sub-base will be tested for PCBs. Otherwise, the depth of the distress plus one inch will be tested for PCBs. If no penetration beyond the surface is apparent then core samples will be taken in these areas at a depth of up to 1.25cm and a diameter of 2 to 3 cm.

Finally, considering the large quantity of samples, it is felt that the number of samples available for analysis is more than adequate to address quality control. However, field blanks will be taken for each of the two sample types being utilized (concrete core and wipe) to establish background.

Sampling Activities and Analytical Requirements

Samples collected will include chip, core and wipe samples (depending on the surface sampled). Samples will be collected to evaluate "other" areas of potential impact at the facility such as loading/unloading areas and areas where spill have been noted in the past.

Wipe Samples will be taken in accordance with the requirements outlined in 40 CFR 761, Subpart P.

Core samples (if no penetration beyond the surface is apparent) will be taken at a depth of up to 1.25 cm and a diameter of 2 to 3 cm.

All samples collected will be analyzed using EPA SW-846 Method 8082 or the current equivalent method. Samples will be analyzed upon receipt so the proper decision can be made regarding any additional decontamination activities. In that regard, holding times for the samples will not be an issue since PCBs are very stable and holding times are up to one year.

Prior to collecting the pre-cleanup samples, individual sampling grid maps will be prepared for each wall and floor. The maps for the walls will be as described in Figure 4-1 and will depict all necessary dimensions and sampling locations needed to lay out the sampling grid. These maps will also be used as part of the sample documentation. The map for the floor shall use those shown in Figure 4-2.

Decontamination Procedures

All sampling equipment that is not disposable shall be decontaminated after each sample by washing twice with hexane and allowing to air dry. Disposable sampling equipment, decontaminations fluids, and PPE will be appropriately packaged and disposed. Personnel decontamination is addressed in the Site Safety Plan.

Figure 1

Example Sampling Grid for Wall

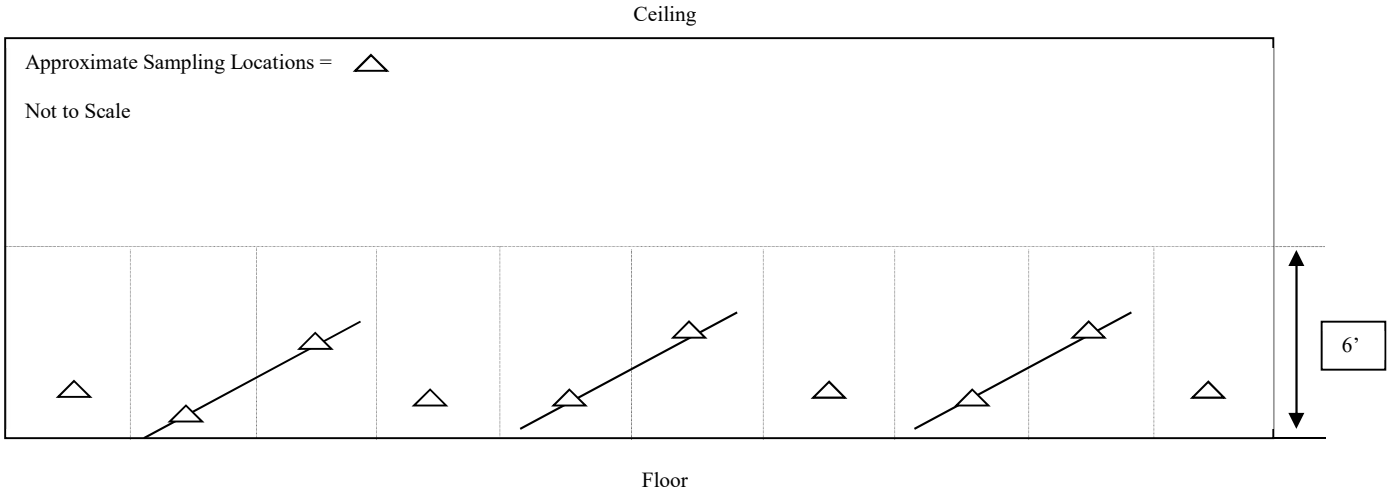
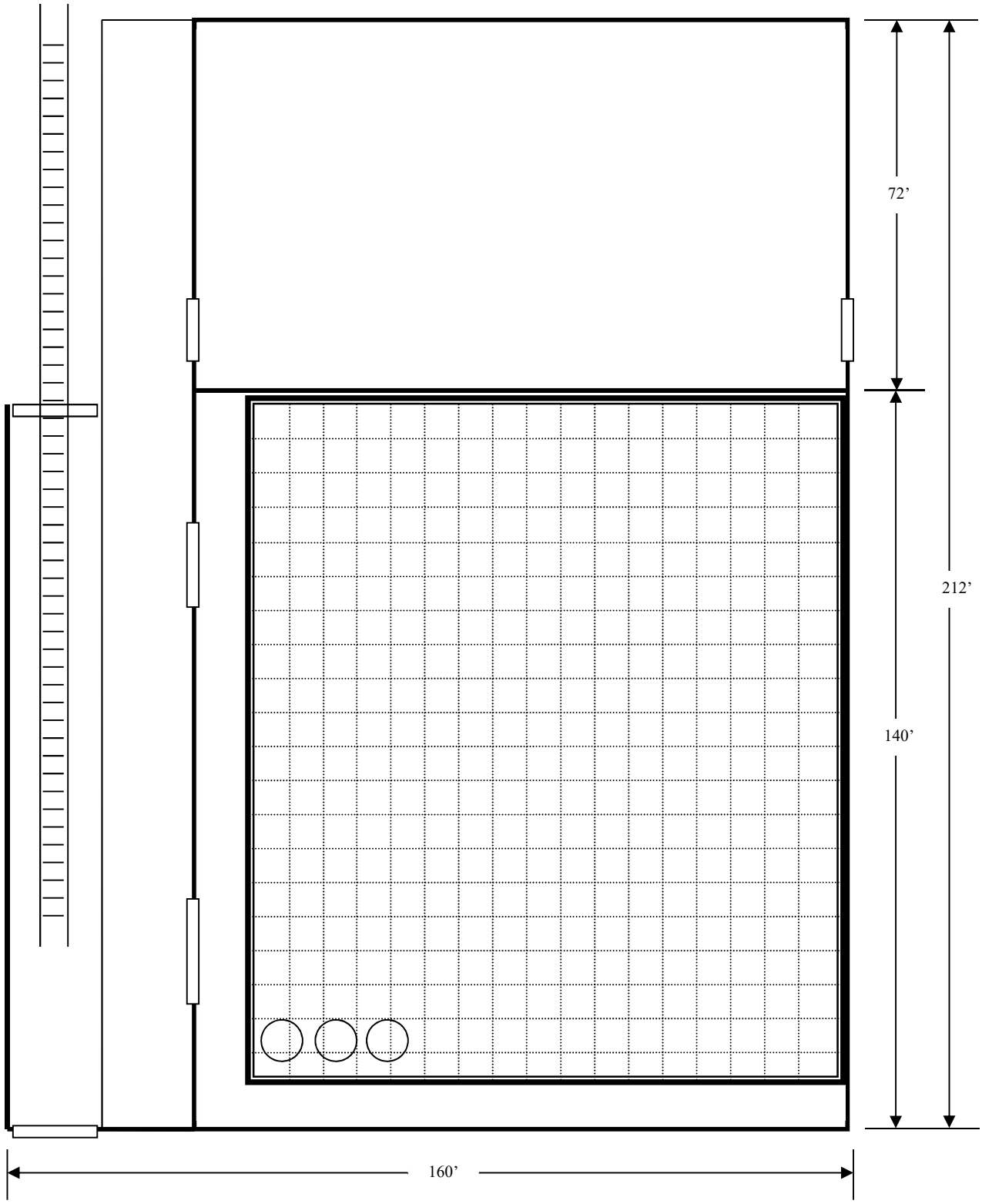


Figure 4-2: Example Grid Sampling Locations – PCB Storage Area



Sample Handling and Documentation

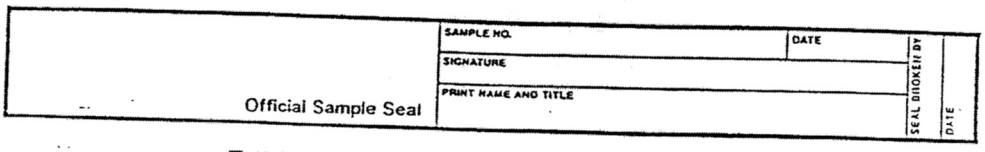
Proper handling and documentation of samples is important to assure that the data will be legally defensible and reproducible. Field logs will be used to record information concerning sample identification, evacuation, field analysis, and other aspects of the sampling effort for each sample. Specifically, the field log will provide the following information:

- Sample location
- Sampling date and time
- Name of samplers
- Time of sampling
- A description of the material sampled and the presence of any unusual odors or visible contamination
- Types of samples collected
- Field analysis data
- Weather conditions
- Any other field observations, such as problem with equipment, or any other aspect of sampling conditions that might have an effect on the outcome of sampling results.

These procedures are expected to be followed at all times. Deviations from the plan should be noted on the field log.

A sample jar label as shown in Figure 4-3 will be completed and placed on each sample jar. The lid will then be taped shut and custody seal as shown in Figure 4-3 will be placed around the lid. Each jar will be individually wrapped in bubble wrap plastic and placed in a cooler. The cooler shall be lined with Styrofoam packing material to protect the samples. Enough room will be left in the coolers to allow ice packs to be placed in the cooler to preserve the samples at or near 4 degrees C. Once a cooler is full, a Chain-of-Custody form as shown in Figure 4-4 will be completed in triplicate. The Chain-of-Custody will assure samples are always under the supervision of a qualified individual or organization. One copy of the Chain-of-Custody will be retained and the other two copies will be sealed in the cooler with the samples. The cooler will then be taped shut using strapping tape, sealed on three sides with custody seals, and transported to the lab by express shipment or the Project Manager/designee.

Figure 4-3: Example Jar Label and Sample Seal



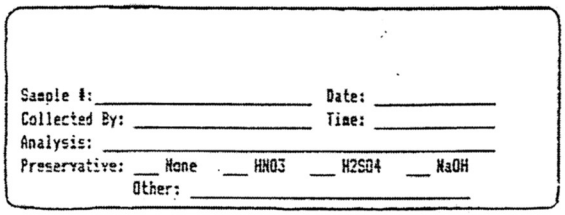
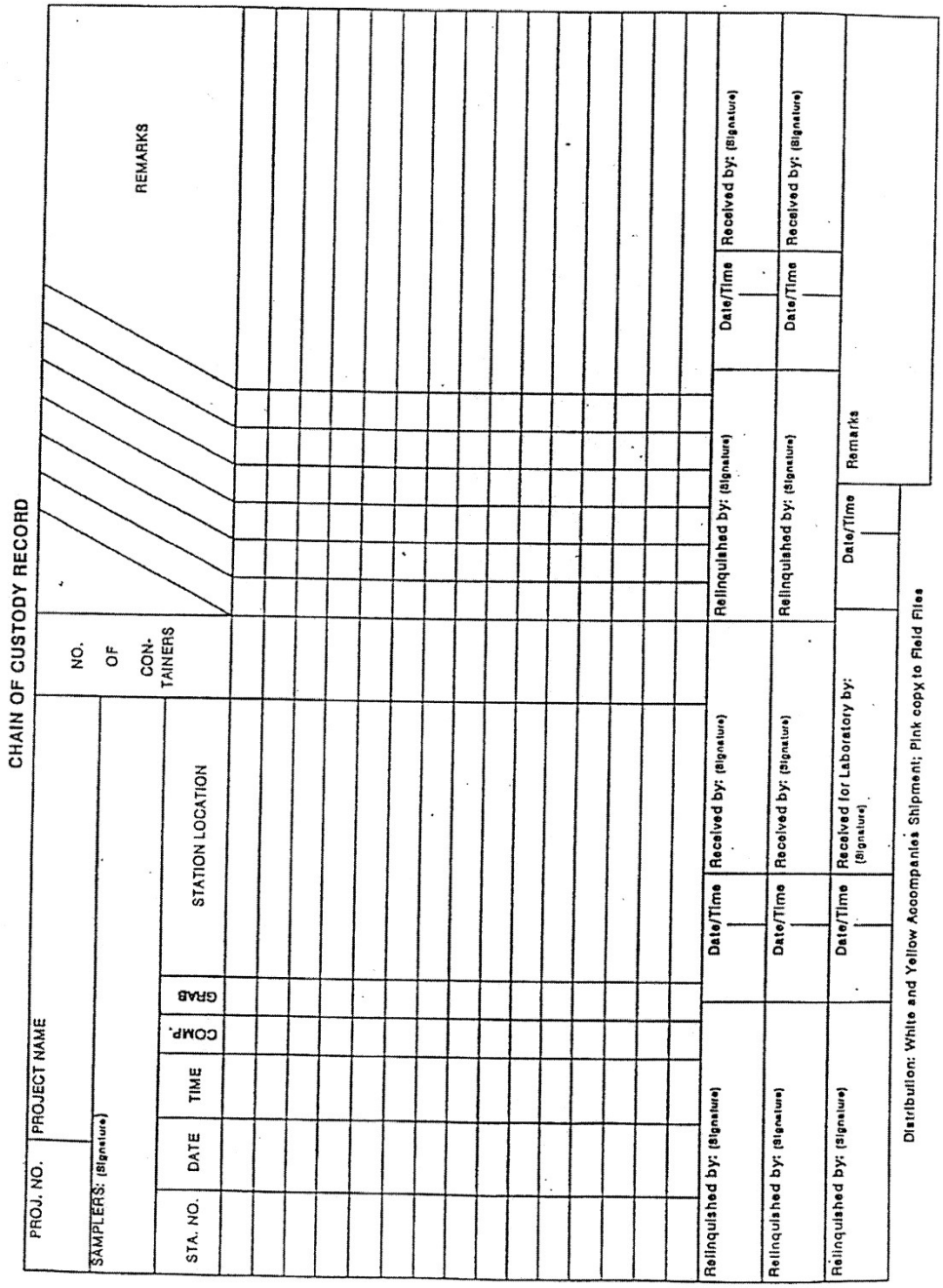


Figure 4-4: Example Chain of Custody Form



4.4.3.4 QA/QC Procedures

Data Management

Certified data received from the laboratory will be evaluated by the Project Manager with regard to sample integrity and concentrations. Samples that are at or above the clean-up levels (> 1 mg/kg for porous surfaces or >10µg/100cm^2 for non-porous surfaces) described in Table 4-4 will be noted and the corresponding areas, where the samples were taken, will be identified and designated for further decontamination and sampling in accordance with section 4.4.4.

It is anticipated that data from certain samples may not be usable (e.g. lost samples, broken bottles, instrument failure, lab mistakes, etc.). In that event, the data set will be evaluated to ensure that a minimum of 90% of the data is complete so that determinations of contaminates can be evaluated. Based on this criterion, the Project Manager will then decide if additional samples are warranted.

Laboratory Selection and Validation

Although the facility has an on-site laboratory, for the purpose of this closure plan, it is assumed that an off-site lab will be utilized for sample analysis. The sample cost for closure was based on third party pricing.

Prior to data validation at closure, the Project Manager will work with the outside lab to define performance criteria for the following QA/QC samples:

- Method blanks
- Surrogate recoveries
- Matrix spikes
- Laboratory spikes
- Laboratory or matrix spike duplicates
- Retention time window
- Method detection limits

The Project Manager will then ensure following information is provided for data validation:

- Case narrative
- Chain-of-custody documentation
- Summary of results (listing samples with quantitation limits including dilutions and re-analyses, and reported in dry weight)
    - QA/QC results summaries including initial calibration, continuing calibration, method blanks, surrogate recoveries, matrix spike, laboratory spike, laboratory duplicate or matrix spike duplicates, and laboratory QC check samples (as applicable).

The Project Manager will assess the laboratory's analytical data package for completeness of data, compliance of the sample conditions (adherence of field sampling activities to appropriate sampling procedures), and QC results with acceptance criteria.

Detection Limits

In order to determine whether a sample is contaminated above the levels specified in 40 CFR 761.125 (c)(3), it will be necessary for the laboratory to detect PCBs at levels below the specified cleanup levels in Table 4-4. Therefore, it will be necessary for the laboratory to detect PCBs at concentrations in the range of 1 µg/100 cm² for wipe samples and 33 µg/kg for solids (e.g. core samples).

PCBs-8082 (wipe)

Compound	RL	Units	MDL	Units	LCL	UCL	RPD
Aroclor 1016	1	µg/wipe	0.25	µg/wipe	45	107	50
Aroclor 1221	1	µg/wipe	0.33	µg/wipe			
Aroclor 1232	1	µg/wipe	0.25	µg/wipe			
Aroclor 1242	1	µg/wipe	0.25	µg/wipe			
Aroclor 1248	1	µg/wipe	0.25	µg/wipe			
Aroclor 1254	1	µg/wipe	0.25	µg/wipe			
Aroclor 1260	1	µg/wipe	0.25	µg/wipe	50	127	43
Surrogates							
Decachlorobiphenyl					65	137	NA
Tetrachloro-m-xylene					54	126	NA

PCBs-8082 (solids)

Compound	RL	Units	MDL	Units	LCL	UCL	RPD
Aroclor 1016	33	µg/kg	3.4	µg/kg	81	114	20
Aroclor 1221	33	µg/kg	5.2	µg/kg			
Aroclor 1232	33	µg/kg	6.4	µg/kg			
Aroclor 1242	33	µg/kg	7.4	µg/kg			
Aroclor 1248	33	µg/kg	5.7	µg/kg			
Aroclor 1254	33	µg/kg	2.7	µg/kg			
Aroclor 1260	33	µg/kg	2.9	µg/kg	85	123	30
Surrogtes							
Decachlorobiphenyl					77	123	
Tetrachloro-m-xylene					64	139	

4.4.4 Decontamination

After all the data has been validated, and the areas of PCB contamination above cleanup levels have been identified, cleanup of these areas can be initiated. As part of this PCB closure plan, the cleanup methods listed below will be selected, as appropriate, for the various items to be decontaminated. Areas that will

potentially need to be decontaminated may include facility structure components and containment systems.

Since the closure plan specifies a Subpart N grid for determining initial sampling points; a one grid square (half-way between the contaminated sample location, and the next 'clean' sampling point'), as specified in 40 CFR 761, Subpart O (40 CFR 761.283(d)) will be utilized, for the purpose of decontamination, if contaminates are found above the action level.

Items to be discussed in this section include:

- Evaluation of Cleanup Methods
- Description of Selected Cleanup Methods
- Decontamination of Cleanup Equipment
- Health and Safety Considerations
- Disposal of Cleanup Derived Waste

4.4.4.1 Evaluation of Cleanup Methods

Currently, there are several methods in use for cleanup of PCBs. For porous surfaces, such as concrete, contamination will be removed by scarification, if the contaminate is localized, or by cutting and removal of the concrete, if contamination has shown penetration. For contaminated non-porous surfaces, the solvent clean method or various proprietary aqueous solvents or foam methods are available.

Scarification/Cutting and Removal

For porous surfaces, the facility will concentrate on removal of contaminates. Since these areas have been coated (and maintained) with a 2-part epoxy, it is anticipated that there is a low likelihood of contamination. However, if contamination is discovered, the area will be evaluated to determine what method would be most effective for contaminate removal. Surface contamination (e.g. no apparent gaps or cracks) will be scarified to remove the top layer of concrete and core samples of the affected area will be utilized to verify contaminate removal. If gaps or cracks are discovered, the cleanup coordinator may alternately select cutting and removal of the affected concrete followed by verification sampling of the underlying material.

Equipment and support facilities needed for the Scarification/Cutting process are a Scarifier and Concrete saw. Additionally, rags, solvents, wire brushes, buckets, pumps, and other small items will be used to

decontaminate the scarification unit using the solvent clean method described below.

Solvent Clean Method

This method can be used to decontaminate both exposed surfaces and PCB containers as specified in 40 CFR 761.79. Acceptable solvents include, but are not limited to, isopropyl alcohol, kerosene, hexane and #2 diesel fuel. For exposed surfaces, sufficient volume of solvent is applied to cover the entire contaminated surface, the excess solvent is absorbed with rags, and the contaminated area is wiped with a clean rag. If the surface is porous, scrubbing may be required using a wire brush. The process is then repeated and all solvent is absorbed with rags and granular absorbent.

The Solvent Clean Method is the most common cleanup method for PCBs. This method has been proven to be effective on most types of materials. It does not work as well on porous surfaces because the solvent tends to increase the mobility of the PCBs and allow them to penetrate further into the porous surface.

Equipment and support facilities needed for the solvent clean method are minimal. The only equipment needed is: rags, solvents, wire brushes, buckets, pumps, and other small items.

The solvent clean method is a simple procedure to implement and should not require any special time requirements. Since this method can involve the use of flammable solvents, special precautions would need to be taken to prevent ignition of the solvents.

The relative cost of the Solvent Clean Method is expected to be low. As mentioned previously, this method does not involve any sophisticated equipment, so the main costs will be for labor, solvent, rags, and other miscellaneous equipment.

Health and Safety Considerations

Persons performing closure operations will be trained in proper chemical handling and safety procedures. They will be under the direct supervision of persons who are familiar with the process and understand the hazard potential of the material. Management personnel in conjunction with an independent engineer will oversee closure, will be familiar with this closure plan, and will ensure that all closure personnel are properly trained to safely perform the cleaning operation. The Project Manager will have documented health and safety training.

During the cleaning process, personnel will be equipped with the appropriate protective equipment. They will also utilize head protection and chemical resistant gloves and boots. The clothing will be designed so

that both sleeves and pant legs can be taped at the wrists and ankles respectively, to protect against an upward or inward splash during cleaning.

Additionally, when utilizing scarification or cutting equipment of concrete, personnel will wear respirators and the area will be wetted with water to minimize dust generation.

Additional health and safety considerations during the cleanup of the facility are further addressed in Appendix J.

Disposal of Cleanup Derived Waste

Waste material generated during the PCB closure activities will fall into two categories.

Contaminated material will include liquid waste from the solvent cleaning process, miscellaneous sampling equipment, personnel protective equipment, and other items. These items will be segregated into liquids and solids and stored in DOT-approved containers. Both liquids and solids will be transported, in accordance with applicable regulatory requirements, to an approved disposal facility.

Non-contaminated material generated during closure activities will be disposed at the local sanitary landfill.

4.4.5 Post Cleanup Verification Procedures

In order to verify that cleanup has been effective in reducing PCB contamination below acceptable levels and to satisfy the requirements of 40 CFR 761.125 (c)(5)(viii), post cleanup sampling will be performed as described below. Sample collection, analysis, and management will be in accordance with the standards previously outlined in section 4.4.3.3.

4.4.5.1 Sampling Methods, Locations, and Rationale

The methods used for post cleanup sampling will be the same as those used for the pre-cleanup sampling. This will consist of chip, core, and wipe samples as described in section 4.4.3.3.

Before any post cleanup sampling begins, the records from the previous sampling will be reviewed to identify areas where elevated levels of PCBs were found. Samples will be taken, based on this review in accordance in a 1.5 meter spacing grid, reorienting it, and collecting a sample at each point were the grid falls in the cleanup area (see Figure 4-5).

4.4.5.2 Analytical Procedures

Samples collected during post cleanup sampling will be analyzed using the same analytical methods described in the pre-cleanup analytical

procedures. After the results are returned and validated as described previously, any sampling locations with PCB concentrations above the established cleanup levels will be decontaminated again using the same procedures as previously specified.

4.4.5.3 Waste Collection

All waste generated during the post cleanup sampling will be collected, containerized, and disposed in accordance with all Federal (e.g. 40 CFR 761.65(e)(7)), State, and Local regulations.

4.5 Steps for Decontamination and Sampling

This topic is covered extensively in the previous section (Section 4.4).

4.6 Post Closure Activities

The activities at this site are all contained. There are no PCB activities taking place outside these areas. Therefore ground water monitoring, run-off control and related matters should not require any post-closure work. Facility security will be carried out in the same manner as it was while in operation.

4.7 Schedule of Closure Activities

The basic closure plan schedule is as follows:

Week 1 through Week 2	Inventory Removal
Week 3 through Week 6	Tank/Furnace Decontamination and Sampling
Week 6 through Week 8	Container storage area decontamination and sampling
Week 8 through Week 9	Lab cleanup and sampling
Week 9 through Week 11	Auxiliary equipment cleanup, soil sampling
Week 11 through Week 13	Closure verification sampling
Week 13 through Week 16	Closure Certification Report Preparation and submittal

As with any such plan, it is subject to change as circumstances demand.

4.8 Modifications to the PCB Closure Plan

This PCB Closure Plan will be amended and resubmitted to the U.S. Environmental Protection Agency for approval when certain specified events or conditions occur. These items are listed below.

4.8.1 Operation and /or Design Changes

When a change in operation or in facility design affect the PCB Closure Plan, an amended plan will be prepared and submitted to the U.S. EPA for approval. Examples of specific items, which are considered under this subsection, include:

- Increases in facility size or capacity.
- Increases in the estimate of maximum inventory.
- Changes in the regulatory requirements that affect closure activities.
- Changes in the surrounding land use.

4.8.2 Unexpected Events During Final Closure

If during final closure, unexpected events occur which could affect the existing PCB Closure Plan; an amended PCB Closure Plan will be prepared and submitted to the U.S. EPA for approval. Unexpected events would include a release during closure activities, unavailability of planned disposal facilities or other occurrences, which were not anticipated.

4.8.3 Change in Expected Year of Closure

The year 2065 was selected as the closure year for this Plan. If closure is expected to occur at a different time, an amended PCB Closure Plan will be prepared and submitted to the U.S. EPA for approval.

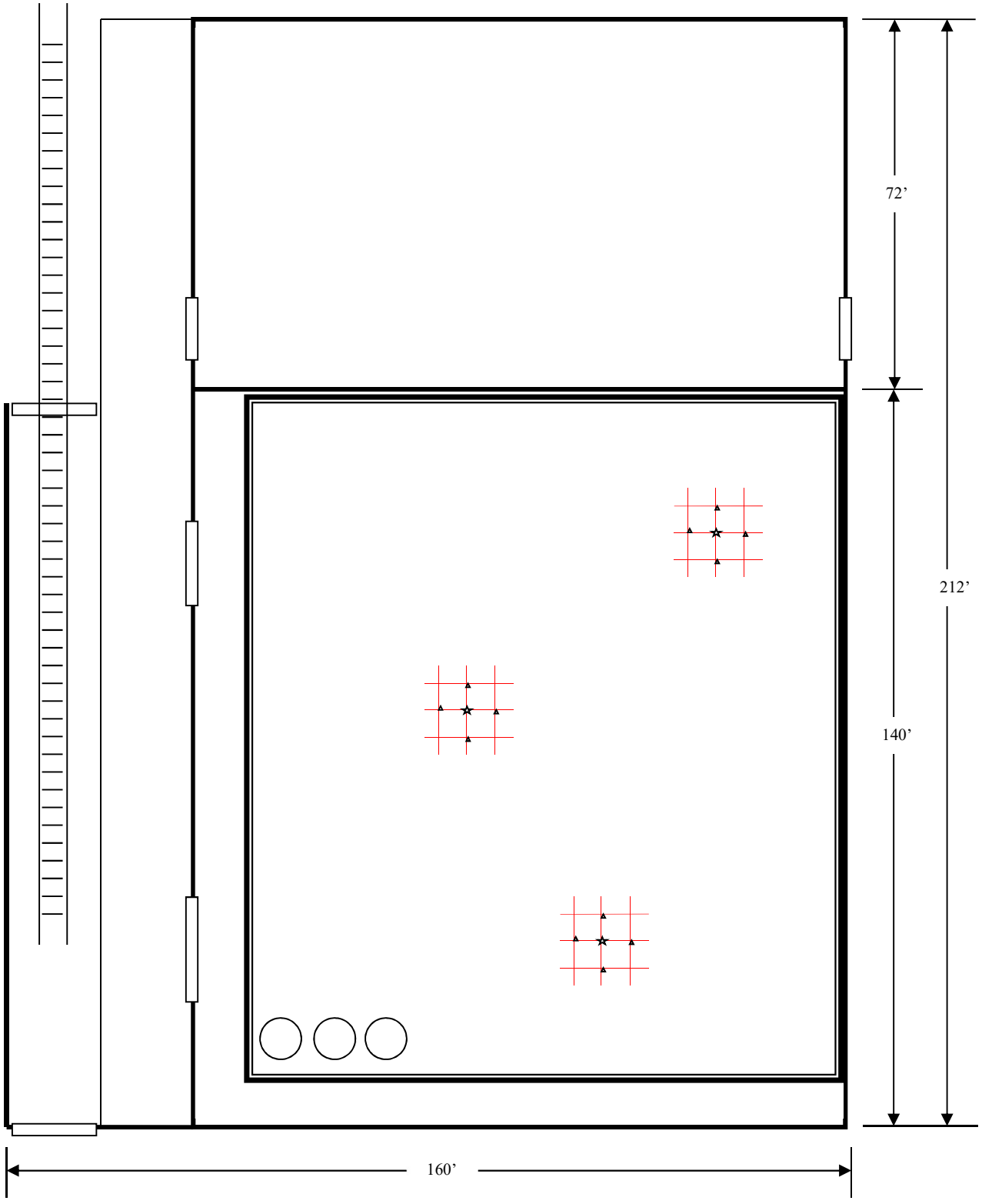
4.8.4 Change in Financial Status

If a change in the facility's financial status occurs which may result in the inability to adequately pay for closure, an amended PCB Closure Plan will be submitted to the U.S. EPA for approval.

Figure 4-5: Sample Verification Grid Sampling Locations

☆ - Hypothetical contamination location

Δ - Clean-up verification sample location



5.0 CLOSURE COST ESTIMATE

This Closure Cost Estimate is developed assuming maximum inventory and third party costs. This closure scenario would involve the disposal of the waste items and materials as well as decontamination of the storage area and equipment. All costs are based on current dollars.

5.1 Annual Review of the Initial Cost Estimate

This section includes the estimated cost of closure activities including the sampling, disposal, and labor costs involved in such activities. The cost used for closure reflects hiring a third party to conduct the closure activities in the current year the plan was prepared. Various pricing sources are utilized as the basis for estimating disposal and other costs at closure, including contract pricing already in place with third party disposal outlets and recent similar closure management costs.

Annual adjustment to the closure cost estimate will be made in accordance with the regulatory requirements.

5.2 Initial Closure Cost Estimate

The cost breakdown for disposal of inventory, sampling and testing, remediation costs and professional services are as follows based on current dollars listed in Appendix I. Costs are illustrated by separate areas. The basis of the various costs is summarized below.

5.2.1 PCB Tanks

5.2.1.1 PCB Oil in Tanks

Oil will be removed from tanks and pumped into tankers for transportation to the nearest authorized PCB oil treatment facility for detoxification or incineration. Assuming all PCB oil tanks are full at closure, this necessitates the transportation and disposal of 16,500 gallons. The process of removal will take one supervisor 2 days, with an approximately 4 tanker trucks.

5.2.1.2 Bulk Tank Decontamination

Triple rinse PCB oil tanks with 10% volume rinsate. Assuming that no rinsate can be reused (all above 50 ppm PCB), total disposal of rinsate will be 1,395 gallons. It is anticipated that this will take two technicians 10 days to accomplish.

5.2.1.3 Sampling and Analysis

Rinsate will be sampled and analyzed after each rinse to determine eligibility for reuse under 40 CFR 761.79(c) or the rinsate will be managed for disposal at approved disposal facility.

5.2.1.4 Area Decontamination

The PCB Tanks at the facility are located within the container storage area. Details for decontamination of that area are found in section 5.2.2.

5.2.2 Container Storage Areas

5.2.2.1 Container Removal

All containers will be removed and disposed of properly from the PCB storage area. This is expected to take approximately 10 days for two technicians.

5.2.2.2 Decontamination of PCB Storage Area

All floors and walls will be surface cleaned using wipe and rinse, steam cleaning, hot water and detergent, etc. Samples will be taken pursuant to 40 CFR 761 Subpart N to characterize the areas. The applicable cleanup levels will be the standards outlined in 40 CFR 761.61(a)(4)(i)(A). Post cleanup sampling will be conducted according to 40 CFR 761 Subpart O. This is expected to take two technicians and one supervisor approximately 20 working days to complete.

5.2.2.3 Sampling and Analysis

All sampling and analysis, not addressed above will be conducted according to the appropriate regulations found in 40 CFR 761 or according to good engineering and laboratory practice.

5.2.3 Laboratory

5.2.3.1 Liquids Removal

All liquids will be packaged pursuant to DOT requirements for transportation to an appropriate disposal facility. This is expected to generate only a minimal amount of liquids for disposal and to take one technician 1 day to accomplish.

5.2.3.2 Area Decontamination

All floors will be washed and cleaned to remove surface grime and tested using wipe sampling. It is not expected to find significant levels of contamination in this area. All counters and walls will be cleaned and tested also. This is expected to take one technician 3 days to complete.

5.2.3.2 Lab Equipment Decontamination

Procedures for decontamination found in 40 CFR 761.79(c)(2) will be utilized.

5.2.3.2 Sampling and Analysis

Verification sampling will be conducted according to 40 CFR 761 Subpart P and/or approved alternative sampling approaches.

5.2.4 Auxiliary Equipment

5.2.4.1 Disposal or Decontamination

As with any PCB operation, it is anticipated that certain auxiliary equipment will be able to be decontaminated (those with solely non-porous surfaces) and certain equipment will not. Equipment that cannot be decontaminated will be consolidated in rolloffs and sent to an approved chemical landfill. This will be an ongoing activity throughout the closure process, howeve,r the total time allocated for these activities will be 7 days for two technicians.

5.2.5 Other Closure Activities

5.2.5.1 Other sampling activities

It is anticipated that from time to time, the Project Manager, the independent, professional engineer and/or various regulatory officials may require additional sampling and/or remediation activities. The allowance for this will be one technician for 5 days.

5.2.6 Administrative and Supervisory

5.2.6.1 Closure Supervision

The entire closure process is scheduled to last for 16 weeks. It is assumed that a project manager will be on site 50% of the time or 60 days. Costs will be allocated for this activity.

5.2.6.2 Closure Certification

The 16 weeks of closure require independent, professional engineering oversight a minimum of 25% of the activity time or 30 days. Costs will be so allocated for this activity.

5.2.6.3 Cost Basis

The costs presented have been calculated by utilizing current cost estimates from outside vendors, contractors, and service agencies. Labor rates include provisions for contractor overhead and profit and are based on the use of third-party cleanup contractors. Costs include the certification of closure by an independent, professional engineer. Disposal rates are those currently charged by the disposal sites listed in the PCB Closure Plan. The costs include a factored transportation rate based upon a full load trip rate of $4.50 per loaded mile. Costs also include a 10% contingency.

See Appendix I for the Closure Cost Estimate.

5.3 Review of Closure Cost Estimates

5.3.1 Adjustments for Closure Plan Modifications

A revised closure cost estimate is required to be prepared within 30 days of approval by the Regional Administrator of a closure plan modification. The revised cost estimate will be requested by the U.S. EPA when notification of approval of a closure plan modification is made.

The following changes in facility conditions or activities could increase closure cost estimates:

- An increase in facility size or capacity
- An increase in the estimate of maximum inventory
- Changes in regulatory requirements affecting the cost of closure
- Contingencies over the facility life that may affect future closure costs
- Changes in surrounding land use that may affect closure activities

Changes in facility conditions may also be the basis for a reduction in the closure cost estimate. A request for a reduction may be made as long as the closure activities continue to meet regulatory requirements.

5.3.2 Annual Inflation Adjustments

Closure cost estimates must be adjusted annually to account for inflation. This adjustment must be made prior to the anniversary date of the financial assurance instrument.

Annual inflation adjustments to the closure cost estimate may be made by either recalculating the closure cost using the current year's costs, or by multiplying the previous estimate by an inflation factor that measures the general trend in prices in the economy.

Use of the inflation factor will require regulatory review of only the inflation factor calculation. Re-estimating the closure costs will require a level of review similar to an initial closure cost estimate.

The source for inflation factor data is based upon standard practices accepted by the U.S. Department of Commerce.

The inflation factor used in the revision of the closure cost estimate is obtained by dividing the most recent annual deflator by the previous year's deflator factor.

The previous closure cost estimate is then multiplied by this quotient to derive the new closure cost estimate.

5.3.3 PCB Closure Cost Estimate Certification

The following certification is made by the person responsible for preparation of the PCB Closure Cost Estimate presented in Appendix I.

Under the civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate, and complete.

Signature: _____

Printed Name: Bonnie C. Martin

Date: 2-5-18

6.0 FINANCIAL RESPONSIBILITY DEMONSTRATION

40 CFR 761.65(d)(3)(x) specifies that a PCB storage application must include a demonstration of financial assurance for facility closure. This demonstration is provided in Appendix K. Please note that the financial assurance referenced is for the existing closure of the facility. The financial assurance may be adjusted to the current value following approval of the permit and closure plan.

The Closure Plan for the TSCA portions of this facility is contained in Section 4 of the application. The Cost Estimate is contained Appendix I. The estimated cost for closure is $ 733,619.

7.0 SCRAP METAL RECOVERY OVEN

The facility petitioned USEPA for approval to operate the AL-JON scrap metal recovery oven at different operating conditions other than what is required in 40 CFR 761.71(a)(2) and (3). Following submission of test burn data and a demonstration to EPA, it was determined that the different operating conditions did not affect the overall ability of the scrap metal recovery oven to destroy the residual PCBs on the dismantled parts of the

fully drained PCB-contaminated electrical equipment and it did not pose a unreasonable risk to the health and environment. Final USEPA approval was granted on June 19, 2002.

7.1 Technical Description

The scrap metal recovery oven shall be the natural gas-fired, AL-JON multiple chamber oven, equipped with an afterburner, as described in the application submitted on November 20, 2000. The two primary chambers are designated as Furnace #1 (OHMR-1), which has a maximum charging capacity of 3,200 pounds per hour (lbs/hr) and Furnace #2 (G-466), which has a maximum charging capacity of 1,400 lbs/hr. The two primary chambers shall have a total batch maximum charging capacity of 4,600 lbs/hr of salvageable materials. The afterburner (secondary chamber) shall be interconnected to the two primary chambers.

7.2 Operating conditions for the Scrap Metal Recovery Oven

(1) The AL-JON scrap metal recovery oven shall be restricted to the disposal of residual PCBs associated with PCB-contaminated articles regulated for disposal under 40 CFR 761.60(b) and metal surfaces in PCB bulk product waste regulated for disposal under 761.62(a)(6) and 761.79(c)(6) from which all free-flowing liquids have been removed. The scrap metal recovery oven shall not be used to dispose of any of the drained PCB-contaminated liquid.

(2) The AL-JON scrap metal recovery oven shall have at least two enclosed inter-connected chambers (i.e., primary chamber(s), and secondary chamber). The primary chambers and secondary chamber must maintain a negative draft to prevent any fugitive emission.

(3) Heating of the primary chambers shall not start until the secondary chamber has reached a temperature of 1,200 ± 100°C (2,192°F ± 180°F).

(4) The facility shall place salvageable materials, with all free-flowing liquid removed, in each of the primary chambers, during which time the primary chambers shall operate under a negative draft and the secondary chamber shall have reached a temperature of 1,200 ± 100°C (2,192°F ± 180°F) and operating in accordance with sections (6) and (7) below.

Salvageable materials shall include: PCB-contaminated transformer carcasses; laminations, copper and aluminum wires from dismantled PCB-contaminated transformers; lighting ballast components; other PCB-contaminated electrical equipment cases (carcasses) and metals; and PCB bulk product metal surfaces.

(5) The primary chambers shall operate at a minimum temperature of 350°C (662°F) for a minimum of 2 1/2 hours during the heating cycle of each batch of salvageable materials, which have been drained of all free-flowing liquid.

(6) Heated gases from the primary chambers shall feed directly into the secondary chamber (i.e., afterburner) which must operate at a minimum temperature of 1,200 ± 100^0C (2, l92°F ± l80°F) with at least 3 percent excess oxygen and a retention time of 2.0 seconds and with a minimum combustion efficiency of 99.9 percent computed as follows:

Combustion efficiency = $\{Cco_2 / [Cco_2 + Co]\}100$ where:
Cco_2 = concentration of carbon dioxide
Cco = concentration of carbon monoxide.

(7) The secondary chamber shall operate in accordance with section (6) above prior to and during the introduction of electrical equipment into the primary chambers and during each heating cycle.

(8) Continuous emission monitors and recorders for carbon dioxide, carbon monoxide, and excess oxygen in the secondary chamber and continuous temperature recorders in the primary and secondary chambers shall be installed and operated while the primary and secondary chambers are in operation to assure that the two chambers are within the operating parameters as specified in sections(5), (6), and (7) above.

(9) Emissions from the secondary chamber shall be vented through an exhaust gas stack in accordance with the Ohio EPA's Final Permit to Install P0103532 and local air regulations and permits, which include a standard for PCBs.

(10) Personnel introducing a charge of salvageable materials, which have been drained of free-flowing liquid, into the primary chamber shall wear protective clothing and a respirator.

7.3 Record Keeping

Operating records including the weight of the charge per primary chamber, temperature measurements in the secondary chamber and primary chambers, and readings from the continuous emission monitors, shall be maintained for 3 years from the date each charge is introduced into the primary chamber.

7.4 Approval Process Modification

(1) The facility must notify U.S. EPA in writing of any intended modification of this Approval. A "major modification" is defined as any change to the operating conditions of AL-JON scrap metal recovery oven or any changes affecting overall performance or environmental impact. A major modification to this Approval shall be made only upon written approval of the Director of the Wastes, Pesticides and Toxics Division, U.S. EPA, Region 5.

(2) A "minor modification" is defined as administrative and informational changes, correction to typographical errors, changes to conform with Agency guidance or regulations, or any change which does not affect overall performance or environmental impact. A minor modification to this Approval shall be made only upon the written concurrence of the Chief of the Pesticides and Toxics Branch, U.S. EPA, Region 5.

7.5 Waste Acceptance

Generic facility profiles are utilized for waste acceptance. Generators are not obligated under TSCA to give exact concentrations, however, the PCB status (<50ppm, 50-499ppm, or >500ppm) of all equipment received into the Twinsburg facility must be determined prior to shipment. There is an on-site laboratory which is capable of determining an exact PCB concentration should it be requested by a generator using EPA Method 8082A.

All documents are retained in hardcopies and as electronic copies. Examples of these documents include: receiving manifest and PCB continuation pages, material check-in forms, sample results, manifest return letters, treatment records, process sample results, certificates of disposal, outbound shipping documents and corresponding certificates of disposal.

7.6 PCB-contaminated Electrical Equipment Decommissioning Process

PCB-contaminated electrical equipment such as transformers and other electrical components were being disposed of in EPA approved landfills. This practice resulted in the loss of recyclable metals such as copper, aluminum, and steel. Therefore, the facility provides generators an approved recycling option for the management of PCB-contaminated electrical equipment. The decommissioning process reduces the amount of PCB waste, which is landfilled, recovers valuable resources, and reduces a generator's future legal liabilities.

7.6.1 Process Description

The decommissioning process consists of five major components:

- Receiving
- Oil Removal
- Dismantling
- Scrap Metal Recovery
- Clean Metal Staging

The Receiving Area consists of a bermed storage area constructed in accordance with 40 CFR 761.65. The articles are unloaded utilizing overhead cranes and/or forklifts. The articles are staged in this area prior to processing.

The Oil Removal Area consists of pumps and storage tanks equipment. This area is used to drain any dielectric fluid from articles. The drained dielectric fluid is bulked into storage tanks. Drained components are moved to the Dismantling Area.

The Dismantling Area is also inside the bermed storage area where the articles are dismantled prior to the Scrap Metal Recovery operation.

The Scrap Metal Recovery operation consists of an abrasive cleaning of electrical equipment carcasses that are 100-gallons or less in size utilizing Fuller's Earth and/or a scrap metal recovery oven used to oxidize combustibles on wire, electrical equipment, motors, and other salvageable materials.

The Clean Metal Staging Area is used to temporarily store clean metal waiting sample analysis verification prior to shipment off site for recycling.

After the process equipment has been determined to be safe and operable, the operators begin the decommissioning process by transferring any PCB articles that had been awaiting sample verification into the bermed area. The transfers are made using cranes, forklifts, or other appropriate equipment.

7.6.1.1 Drain Operation

Dielectric fluid is drained from the article and pumped into a storage tank. The transfer pumps utilized are dedicated for specific PCB concentration ranges.

7.6.1.2 Cutting Operation

The article is transferred to the cutting stations where welded tops are cut open along the top welding line, if needed. Cuts are made with an abrasive blade. If the item being decommissioned is bolted on, the operators remove the bolts and grind off the gasket material.

7.6.1.3 Dismantling Operations

The dismantling station is also inside the Main Process Building. Cores from transformers are removed and are then taken to a shear where the core is dismantled. Disassembled components such as core sheets, debris, etc. are segregated for further recovery or disposal.

Workers are required to wear personal protective equipment, in accordance with OSHA requirements. Ear protection is required if operated machinery exceeds OSHA standards for noise.

7.6.1.4 Cleaning

If the electrical equipment's carcass is less than 100-gallons in capacity, it will be abrasively cleaned using fuller's earth. Components from the dismantled electrical equipment are burned in the scrap metal recovery oven. Electrical equipment carcasses that are not conducive to abrasive cleaning are burned in the scrap metal recovery oven.

Disassembled components to be burned in the oven are placed in burn trays. The burn trays are placed in the oven and burned according to our TSCA permit.

After the metals have been thoroughly burned in the oven, the trays are allowed to cool.

7.6.1.5 Clean Metal Staging

Once components have been cleaned by abrasive cleaning, they are held in the bermed area until sampling and confirmatory analysis can be performed. Metal components meeting the applicable permit conditions are recycled. Metal components, which do not meet the permit conditions, are re-cleaned. All non-recoverable components, such as, wood and debris, are managed as PCB waste.

7.6.2 Record keeping Documents

The facility has devised a system of record keeping documents to identify, track, and certify decontaminated PCB components. Both hardcopies and electronic copies of records are kept. Computers with waste tracking software are used to manage all data and to produce operational reports such as, tracking items based on out of service date, pick lists so plant technicians know which items to work in a particular shift, and a breakdown of inventory based on PCB level.

The documents and labels used are listed below.

a) Identification Label
This adhesive label is attached to PCB articles upon check-in. The label contains generator identification information, out of service date, and additional pertinent data such as PCB concentration, weight, etc.

b) Generators List
This list identifies the generator of each article in process and other important information such as manifest number, location, serial number, type of unit, weight, and out of service date.

c) Certificate of Disposal
The Certificate of Disposal (CD) is issued after the metals on a particular batch number and manifest are cleaned and certified as non-PCB or disposed of as PCB waste. The CD is sent to the generator and a copy is retained by the facility.

d) Bill of Lading
A standard Bill of Lading is used to document non-PCB recycled metals shipped to off-site recycling facilities.

e) Hazardous Waste Manifest
Non-metal PCB items (wood, plastic, paper) are disposed of as PCB waste. The hazardous waste manifest is used to document the transfer of these items from the facility to the disposal facility.

f) Decommissioning/Recovery Process Log
This log sheet documents the various tasks performed and quantities generated during the decommissioning/recovery process for each batch of metals processed.

Required written record keeping is transcribed in ink and any changes or corrections are initialed and dated by the operator. Records, documentation, and information relating to sampling, sampling analysis, and quality assurance activities are retained at the facility.

7.6.3 Reporting

Reports required by the EPA will be submitted as required by 40 CFR 761 and/or as required in the conditions of approval. Copies are kept on file at the facility.

In addition to reports required by this permit application, the facility will prepare an annual document in accordance with 40 CFR 761.180 and this document will also be retained at the facility.

7.6.4 Records Retention and Storage

PCB records and reports are kept at the facility as required. If the facility ceases operation, EPA will be notified and a location of the records will be identified.

8.0 ALTERNATIVE SAMPLING

In January 2000, the facility submitted an application to USEPA to conduct alternative sampling under 40 CFR 761.79(h). The alternative sampling procedure was intended for verification of the decontamination of disassembled parts of PCB contaminated electrical equipment by abrasive cleaning. On August 24, 2000, the facility demonstrated the alternative sampling procedure and samples were split with USEPA during the demonstration. Final USEPA approval for the alternative sampling was granted on June 19, 2002.

8.1 Abrasive Cleaning Description

The facility's abrasive cleaning decontamination process relies on physical abrasion to accomplish PCB removal. No chemical reactions occur to remove the PCB material.

The facility uses fuller's earth as the cleaning reagent. Fuller's earth is an absorbent commonly used in oil filtration and spill clean-up applications. It has low toxicity, is non-flammable, and is inherently stable. Fuller's earth has no flashpoint and no fire point. It is completely miscible with PCBs and mineral oil dielectric fluid. It is excellent for abrasive cleaning because no vapors are emitted as a result of this process.

Plant technicians will place a fully drained PCB-contaminated transformer carcass, that has a capacity of 100-gallons or less, into the Earth Pit, also known as, the SandBox. The transformer carcass is placed on its side. A plant technician will partially fill the transformer carcass with fuller's earth. The plant technician then reaches into the transformer carcass and grabs a handful of fuller's earth and begins scrubbing the inside surface of the transformer carcass. This process is repeated until the entire interior surface of the transformer carcass has been scrubbed. The plant technician will then empty the transformer carcass of the fuller's earth. The plant technician will grab the top and the bottom of the transformer carcass and will rotate the transformer carcass so that the outside of the transformer carcass is scrubbed as it comes in physical contact with the fuller's earth in the Earth Pit.

After each transformer carcass that has been cleaned, any excess fuller's earth is removed while still within the Earth Pit. The clean transformer carcass is placed on a pallet. Once there are 10 clean transformer carcasses, one is randomly selected and a wipe test of its interior surface is taken in accordance with 40 CFR 761.123. The grouping of 10 transformers is isolated and identified as awaiting sample analysis.

8.2 Sampling Procedures

(1) A wipe sample of 100 cm^2 shall be taken from one of every ten cases (carcasses) of fully drained PCB-contaminated transformers which have been decontaminated by the abrasive cleaning process. The carcass shall be randomly selected. If the result of the wipe sample is $\geq 10\mu g/ 100cm^2$, then all 10 cases shall be reprocessed.

8.3 Allowable PCB Limits

(1) The surfaces of cases (carcasses) of fully drained PCB-contaminated electrical equipment which have been cleaned by the use of abrasives, shall not have a residual PCB concentration greater than that shown below. Emerald Transformer shall maintain analytical data to demonstrate that the residual PCB levels do not exceed the levels below. The limits shall be as follows:

a. Surface contamination based on wipe sampling:

<10 µg/100 cm2 - acceptable for unrestricted use.

APPENDIX A – QUALITY ASSURANCE PLAN

Quality Assurance Plan for the Laboratory

Effective Date: 07/24/2007

Emerald Transformer PPM LLC
1672 East Highland Road
Twinsburg, OH 44087

Table of Contents

TITLE: Quality Assurance Plan for the Laboratory			
Facility: Twinsburg Facility	**Prepared by: Grigoriy Nudel**		
Reviewed By: Grigoriy Nudel	**Title: Laboratory Supervisor**	**Issue Date: 07/24/2007**	
Approved By: Jim DelPuppo	**Title: General Manager**		

1.0 INTRODUCTION

Emerald Transformer PPM LLC - Twinsburg maintains a fully equipped laboratory for the analysis of PCBs relevant to its compliant and safe operation. The laboratory is the integral part of Emerald Transformer PPM LLC.

All of the procedures in the laboratory are designed to ensure the highest possible degree of precision, accuracy, and completeness in a production facility. To accomplish this, the analytical program, sampling procedures, chain of custody and quality assurance monitoring are designed to conform to United States Environmental Protection Agency Guidelines.

This document will describe the organization and structure of the laboratory, including the qualifications and responsibilities of its personnel. The details of equipment calibration, maintenance, and the methods used for quality control in each section of the laboratory will be discussed.

Calculation procedures used for precision, accuracy and completeness will be given and reporting methods described. An outline of the analytical procedures used at the facility, including methods of proper sample collection, data reduction, validation, external validation, performance audits, preventive maintenance and data checking procedures, with their frequency of occurrence are detailed within. Procedures for corrective actions is also discussed. Finally, the type of data included in the quality assurance report to management and the frequency of this report, will be given.

1.1 Organization

The Twinsburg laboratory is organized to provide single shift support for plant operations. The Laboratory Supervisor monitors and reports to management on the status of the laboratory. The laboratory chemist(s) is/are responsible for the day-to-day analysis and record keeping in the laboratory and reports to the Laboratory Supervisor.

1.2 Management Responsibilities

Laboratory Supervisor

Name: Grigoriy Nudel

Contact telephones:

Office: (330) 425-3825 ext. 244
Home: (440) 473-9959
Mobile: (216) 536-3762

- Checks records of samples coming into the laboratory.
- Maintains all records of samples in the laboratory.
- Prepares and analyzes samples.
- Operates analytical equipment.
- Completes paperwork.
- Prepares the quality control data.
  .
- Reviews laboratory quality control data for precision, accuracy, and completeness.
- Communicates and provides copies immediately to the General Manager of all written correspondences received by outside agencies or customers and documentation submitted.
- Ensures any corrective actions are implemented in a timely manner.
- Maintains a high degree of quality in the analytical results reported from the laboratory.
- Designs and maintains the paperwork system of the laboratory.
- Plans and implements improvements in procedures, equipment, and personnel.
- Personnel management.
- Orders supplies for the laboratory.

Quality Assurance Officer (QAO)

- Implements the laboratory's Quality Assurance Program (QAP)
- The QAO is also responsible for updating the laboratory's quality documents.
- The QAO reviews laboratory quality control data. The QAO ensures any corrective actions are implemented in a timely manner.
- The QAO is free from internal and external influences when evaluating data and conducting audits.
- The QAO has training and experience, or both in quality assurance/quality control procedures and knowledgeable of the approved analytical methods and quality assurance program requirements.

Laboratory Chemist

- Checks records of samples coming into the laboratory.
- Maintains all records of samples in the laboratory.
- Prepares and analyzes samples.
- Operates analytical equipment.
- Completes paperwork.
- Prepares the quality control data.
- Orders replacement supplies for the laboratory.
- Prepares the quality control data.
- Maintains the laboratory as a clean and safe workplace.

2.0 SAMPLING

This section describes the equipment needed for obtaining a representative sample. The information in this section is general in nature. Because each specific sampling situation is unique, the equipment described must be modified to the actual use situation to ensure that representative samples are collected. It is the responsibility of those persons conducting sampling programs to make the appropriate modifications.

2.1 Standard Wipe Test

The standard wipe test, as defined in 40 CFR 761.123 will be utilized to sample the surfaces of solids, hexane will be the solvent used to wet the swab. Extreme care is taken to avoid cross-contamination. The sampler will wear gloves. Gloves will be changed after every sample.

3.0 CHAIN-OF-CUSTODY PROCEDURES

3.1 The Chain-of-Custody Form

The chain-of-custody form is a document for recording the possession and handling of a sample from the time of collection through receipt for analysis. The chain-of-custody form is necessary if there is any possibility that analytical data or conclusions based upon analytical data will be used in litigation. In cases where litigation is not involved, the chain-of-custody procedure is used for control of sample flow. A sample is considered to be under a person's custody if: (1) it is in a person's physical possession, (2) in view of the person after he has taken possession, (3) secured by that person so that no one can tamper with the sample, or (4) secured by that person in an area which is restricted to authorized personnel. A person who has samples under his custody must comply with the procedures described in the following sections.

3.2 Sample Labels

Sample labels contain the following information:

1. Sample number.
2. Name of collector.
3. Date and time of collection.

Sample labels are affixed to sample containers prior to, or at the time of sampling. Sample labels should be filled out at the time of collection.

3.3 Chain-of-Custody Record

The chain-of-custody form must contain the following minimum sample information for acceptance:

1. Sample identification number.
2. Name of collector.
3. Date and time of collection.
4. Sample Matrix.

5. Signature of persons involved in the chain of possession.
6. Inclusive dates of possession.
7. # of samples.

The person taking the samples signs the chain-of-custody form.

3.4 Receipt and Logging of Samples

A sample must be accompanied by the chain-of-custody record. The sample must be delivered to the laboratory for analysis as soon as possible after collection. In the laboratory, the personnel will receive the sample and inspect the sample for the following items:

1. Appropriate container and closure.
2. Proper volume.
3. Adequate cooling, if required.
4. pH adjustment, if required.
5. Adequate information on the label.
6. Proper preservation, if required.

The personnel will assign the sample a number, log the sample in the laboratory log book, and store the sample. The personnel will inspect the sample for any leakage from the container. A leaky container containing a multiphase sample will not be accepted for analysis since it will no longer be a representative sample. If necessary, samples will be preserved according to EPA requirements and thus recorded.

Any discrepancies between the information on the sample label and the information that is on the chain-of-custody form must be resolved before the sample is accepted for analysis. Any discrepancies in the inspection will be noted in the laboratory sample log book.

4.0 SAMPLE CONTAINERS AND PRESERVATION

The objective of sampling is to collect a representative sample of a material. One of the most important factors in this process is the sample container. When choosing a container for a sample, sample compatibility, resistance to breakage, and necessary quantities must be considered. Containers must not distort, rupture, or leak as a result of chemical reactions with constituents in the samples. Thus, it is important to have some idea of the properties and composition of the sample. Containers must have adequate wall thickness to withstand handling during sample collection and transport to the laboratory. Also, the containers must be large enough to contain the optimum sample volume.

Containers for the collection and storage of samples are usually made of plastic or glass. To prevent possible cross contamination, containers are only used once.

4.1 Glass

Glass containers are relatively inert to most chemicals and can be used to collect and store all samples except those that contain strong alkali and hydrofluoric acid. Glass containers are usually supplied with rigid plastic screw caps. Teflon liners may be purchased from plastic specialty supply houses. All wipe samples and liquid samples will be contained in glass.

4.2 Preservation

Once a sample has been collected, steps must be taken to preserve the chemical and physical integrity of the sample during transport and storage prior to analysis. The type of sample preservation required will vary according to the sample type and the parameter to be measured. Methods may include sealed containers and refrigeration of samples. Analytical time requirements are dictated by production and consequently the time between sampling and analysis is expected to be less than one hour.

Immediate refrigeration or chemical preservation methods will not be utilized due to the following facts:

a) PCBs are not volatile,
b) Sealed containers are used, and
c) Extraction is immediate.

4.3. Time Interval between Collection and Analysis

In general, the shorter the elapsed time between collection of a sample and its analysis, the more reliable the analytical results will be. When the interval between sample collection and analysis is long enough to produce changes in the concentration or the physical state of the constituent to be measured, preservation practices are followed and the analysis is performed within the holding times provided in EPA protocols. According to EPA-305-X-04-002, the maximum holding time for samples to be analyzed for PCBs is seven days until extraction and 40 days after extraction.

5.0 QUALITY CONTROL QUALITY ASSURANCE

The objective of the laboratory is to provide information that is factual, accurate, reliable, and adequate for its use. Quality Control (QC) and Quality Assurance (QA) procedures are used to ensure the achievement of the laboratory objective. Quality assurance is the system for ensuring that all information, data and resulting decisions are valid and properly documented. Quality control is the mechanism through which quality assurance achieves its goals. Quality control programs define the frequency and methods of checks, audits, and reviews to identify problems and dictate corrective action, thus verifying product quality.

5.1 Analytical Procedures

The use of written procedures is essential to the systematic performance of operations. The laboratory has established a methods manual which contains the method or methods used to detect each analyte. The method descriptions include:

1. Analysis name.
2. Analysis qualifier (a work phrase or number that identifies the method used, such as EPA Method 8082).
3. Applicable matrix or matrices.
4. Detection limit.
5. Summary of methods.
6. Sample handling and preservation.
7. Interferences.
8. Equipment required.
9. Reagents required, including preparation and expiration dates for each.
10. Procedure.
11. Calculations.
12. Citation of approved method references.

A Methods Manual can be written in an unabridged or abridged fashion. In an unabridged Methods Manual, sections of the approved methods are transcribed, word for word. In an abridged Methods Manual, the reader is instructed to read a cited paragraph in a standard reference work. In this case, the reference work must also be available.

The Twinsburg laboratory has an unabridged Methods Manuals that contains methods from EPA, ASTM, and/or current scientific literature. The Analytical Methods are described in Standard Operation Procedures (SOP). Refer to Appendix A-Methods Manuals and Appendix B-Supplemental Method Information.

Modifications of the methods may be needed periodically and they shall be noted. Such notation shall be explicit, dated, and signed by the person responsible for the change.

The Laboratory Supervisor has authority to depart from laboratory method policies and procedures when needed. All changes must be properly documented by generating and filing a note of departure from the method. Also, departure from the laboratory method must be reflected in the analytical report.

If a departure from established procedure or improper practice is needed, Corrective Actions must be taken (refer to SOP-TW-8.01. Corrective Actions).

5.2 Instrument Calibration and Corrective Action

All major instrumentation has periodic preventive maintenance performed. Twinsburg uses all of the appropriate quality control checks, as required by the United States

Environmental Protection Agency in its daily analysis. For example, equipment is calibrated with a minimum of three standards. Before and after each set of samples, the instrument calibration is checked with an independently prepared quality control check sample. Each set of 20 samples includes a minimum of one spiked sample. Additional quality control checks include internal quality control tests with prepared samples obtained from the United States Environmental Protection Agency and/or standards prepared and tested by a certified reference laboratory.

If any problems are discovered during the above procedure, corrective action is taken (refer to SOP-TW-8.01. Corrective Actions; SOP-TW-5.00 PCBs in Oil; SOP-TW-5.11 PCBs in Solids (General)). The procedure and equipment is tested with standards to isolate the problem. If the problem is in the procedure or experimental error, this is corrected immediately and the sample set is re-run with full quality control checks. No results for any sample set in question are released until the problem is corrected and verified through the use of standard samples. The sample set(s) in question are then re-run. Individual calibration procedures for each test are included in the Laboratory Methods Manuals and Standard Operation Procedures and are available upon request.

5.3 Major Equipment on Site (Typical)

- The facility currently maintains the following major equipment on site:
- ER18OA Analytical Balance
- Class A Volumetric and Extractive Glassware
- Refrigerator
- Ultra Sonic Sonicator
- Perkin-Elmer Clarus 680 GCs with integrated auto samplers

5.4 Materials

5.4.1 Reagents

The laboratory uses chemical reagents of the best quality commonly available. These chemicals include "analytical reagents grade", "ACS grade", and "Residue-Analysis Grade". Reagent grade chemicals are ordered in quantities such that the supply will be consumed within the manufacturer's expiration date or three (3) years, whichever is first. Any reagents that have deteriorated will not be used for analysis. "Date of Receipt" is recorded on each reagent container.

5.4.2 Bench or Shelf Reagents

Bench or shelf reagents are prepared by the laboratory, but they may also be purchased. In-laboratory prepared reagents are recorded in a bound notebook and noted on the reagent's label. The expiration date of prepared reagent is written on

reagent's label. It is 90 days since date of preparation or stock manufacturer's expiration date whichever is first.

5.4.3 Standard Curves

Standard curves must be prepared as specified in the method. All standard curves should be dated and labeled with method, analysis, standard concentrations, and instrument responses. A best fit straight line should be drawn on graphed curves and labeled. The least squares equation for the line should be calculated as well as the correlation coefficient. An acceptable correlation coefficient is 0.99 or greater. Instrument responses for samples should be less than the highest standard limit.

5.5 Statistically Valid Data /Documentation.

5.5.1 Statistically Valid Data Procedures

A quality control chart is generated for each analysis. Twenty data points are used to compute acceptance limits. A new tabulation with freshly computed limits is begun annually. A chart is constructed as follows:

1. The measured values and dates of analysis of the reference standard sample are tabulated.
2. When at least 20 reference standard samples have been tabulated, the mean is computed.
3. Using the mean, the standard deviation, SD (see section 5.5.2) is computed.

5.5.2 Quality Control Charts

The applicability of control chart techniques is based on the assumption that the laboratory data approximates a normal distribution. Measured values are accumulated as part of a day-to-day operation. When at least 20 (reference standard) samples have been tabulated, the mean (X) is computed. Using the mean, the standard deviation (SD) is calculated using the following formula below:

$$SD = \sqrt{\left(\sum_{i=1}^{i=n}(xi - X)\right)^2/(n-1)}$$

where:

SD = standard deviation
x_i = the value of an individual reference standard
X = the mean of the measured values
n = the number of data points

The upper and lower control limits (UCL and LCL) are +3 and -3 standard deviations from the mean, respectively, and the upper and lower warning limits are (UWL and LWL) at+2 and -2 standard deviations.

A control chart is constructed and the measured values of the reference standard samples are than plotted on the chart.

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X+3SD = UCL
X+2SD = UWL
X = Mean
X-2SD = LWL
X-3 SD = LCL

Should a result fall outside the control limits, the analysis is out of control and immediate action will be taken to determine the cause of the outlying result. Data generated in the same set as the outlying result is regarded as unreliable and the entire set is repeated after corrective action has been taken in order to return procedure back in control.

5.5.3 Calculation of Percent Recovery

A qualitative estimate of the presence or absence of interfering substances in a particular determination that may be made by means of a recovery procedure. The percent recovery P, is calculated as follows:

$$P=100*(M-B)/T$$

where:

T = the target value, i.e. the known concentration of analyte spiked into the sample aliquot.
M = the concentration of analyte in the spiked sample aliquot
B = the background concentration of the un-spiked sample aliquot

The analysis date and percent recoveries of the spiked samples are recorded. When a minimum of five (5) percent recoveries have been tabulated, the percent recovery (p) is computed. The standard deviation and warning limits are computed (see section 5.5.2) and recorded. The tabulation must include the analysis date, the percent recovery, and the control limits for P. Quality control is used to monitor the precision and accuracy of laboratory measurements and the sampling process. Internal quality control is established by routinely analyzing control samples such as laboratory blanks, field blanks, reference standards, spiked environmental samples, surrogate standards, and duplicate analysis.

5.6 Data Handling and Reporting

The following sections discuss the proper procedure for the processing of actual values in addition to the recording and reporting of data,

5.6.1 Analytical Value

The results of measurements are expressed so that their meaning is not distorted by the reporting process. This is accomplished by the use of significant figures. Proper use of significant figures give an indication of the reliability of the analytical method used. A significant figure is a digit that denotes the amount of quantity in the particular decimal place in which it stands. Reported analytical values should contain only significant figures. A value is made up of significant figures when it contains all digits known to be true and one last digit in doubt.

The following discussion describes the process of retention of significant figures.

Round off by dropping digits that are not significant.

1. If the digit 5,6,7,8 or 9 is dropped, increase preceding digit by unit.
2. If the digit 0,1,2,3, or 4 is dropped, do not alter preceding digit. The number zero may or may not be a significant figure depending on the situation.

3. Final zeros after a decimal point are always meant to be significant figures.

4. Zeroes before a decimal point with non-zero digits preceding them are significant. Zeroes without a preceding non-zero digit before the decimals is not significant.

5. If there are no non-zero digits preceding the decimal point, the zeroes after the decimal point but preceding other non-zero only indicates the position of the decimal point.

6. Final zeros in a whole number may or may not be significant. A good measure of the significance of one or more zeros interspersed in a number is to determine whether the zeros can be dropped by expressing the number in exponential form. If they can, the zeros may not be significant.

5.6.2 Data Recording

The laboratory keeps records of submitted samples and completed analyses in a manner that provides for the retrievably of information on the sample preservation, the tractability of the sample source, the procedures, and the person(s) responsible for the sampling and analysis.

Laboratory data is recorded in a bound notebook, on laboratory work sheets, and/or electronically. When the data is generated by the use of an automated or semi-automated system the data is generally displayed by means of a strip chart recorder or printed tape. The analyst supplies his/her signature, the date, the sample identification, and the operational parameters of the instrument. Chart paper and tapes are retained as part of the permanent record.

The laboratory records are kept at least at least for 5 years. In case of termination, laboratory operations transfer ownership, the laboratory records have to be kept at least 5 years after the date of termination of operation or transfer ownership.

For documents stored electronically the laboratory utilizes electronic signatures and initials. In case of issuing any hardcopy documents, initials and signatures have to be hand-written. The examples of hand signatures and initials of laboratory personal are on file.

5.7 Internal Quality Control

5.7.1 Laboratory Blank

A laboratory blank is processed and analyzed as if it were a sample. A laboratory blank is run daily with each batch of samples. The blank results for each analyte with the data run and the acceptance limit of a laboratory blank is equal to a result of less than detection limit.

5.7.2 Sampling Duplicates

Sampling duplicates area taken at least once in 20 samples. Due to the high variability of some sampling techniques (i.e. wipe samples, solids), statistically analysis and control charts are maintained by the type of matrix analyzed.

5.7.3 Quality Control Check Standards

Quality control standards are standards which are composed of PCBs in iso-octane or hexane. These are used to monitor the accuracy and condition of the primary concentrations of the PCB working standards.

5.7.4 Spiked Recovery

A spiked sample should be analyzed, when appropriate, at a frequency of one spiked sample for every 20 samples. Spiked recovery date, sample date, and/or batch identifier shall be recorded.

5.7.5 Duplicate Analysis

The difference (range) between duplicate analyses is determined. Alternatively, replicate analyses can be evaluated by calculating a percent recovery using the average concentration of the two analyses as the true value. When this method is used, standard deviations and control limits are calculated in the same manner as with spiked samples.

5.7.6 Confirmation

Confirmation testing is necessary for the following cases:

- If a sample from a new customer is analyzed and its PCBs content was determined over 1 µg/g.
- If PCBs content over 1 µg/g are present in a sample that waste generator claims to be under 1 µg/g.

The laboratory is utilizing, as confirmatory techniques, gas chromatography analysis with a dissimilar column. For results received utilizing RTX-1 column, the confirmation will be performed utilizing RXI-5MS column. For results received utilizing RXI-5MS column, the confirmation will be performed utilizing RTX-1 column.

It is necessary to check an agreement between the quantitative results on both columns once the identification has been confirmed.

For more details refer to SW-846 Method 8082a and SW-846 Method 8000.

6.0 SOLID MATERIALS TEST METHODS

The methods employed for the extraction and analysis of PCBs in a solid material are found in EPA Publication SW-846 "Test Methods for Evaluating Solid Waste". The established detection limits are determined by the matrix of the solid material being analyzed. Detection limits will be established for each new matrix. The analysis is performed according to EPA protocol as stipulated in EPA Method 8082.

The cleanup method routinely is as follows: after extraction, the extract is transferred to a 20-mL vial and treated with 2 mL of concentrated sulfuric acid. After vigorous shaking of the slurry, and subsequent phase separation, the extract is decanted. Analysis is then performed by gas chromatography. Refer to SOP-TW-5.11 Polychlorinated Biphenyls (PCBs) in Solid (General).

7.0 SWAB MATRIX ANALYSIS

The method employed for the determination of PCBs within the matrix of a swab used to wipe test a surface is a modification of the method found in EPA Publication SW-846 "Test Method for Evaluating Solid Waste". The analysis is performed according to EPA protocol as stipulated in EPA Method 8082 with the following modifications:

- Section 5.1.2: The sulfuric acid utilized is concentrated.
- Section 7.0: Sample Preparation

The following modifications to the Wrist Action Method are noted.

1. Iso-Octane is used in lieu of hexane as the swab solvent.
2. Units are expressed in µg per 100 square centimeters PCB.
3. Concentrated sulfuric acid procedure may be used for dirty sample extracts by adding 2 mL of concentrated sulfuric acid to the extract solutions.
4. 4 mL of iso-octane added to the sample swab rather than 60 mL of hexane.

All other pertinent steps in the analysis of PCBs in swab matrices have been retained with no modifications. Refer to SOP-TW-5.10 Polychlorinated Biphenyls (PCBs) in Wipes.

8.0 PCB IN OIL ANALYSIS

This section details the procedure used at the Twinsburg laboratory in the analysis of mineral oil for PCB concentration in the parts per million range. Included are sections on safety, QA/QC procedures, and definitions of terms used. It is the policy of this facility to generate the most accurate and precise data possible through the use of well documented standard operating procedures and quality assurance programs.

8.1 Safety

The procedure involves the use of equipment glassware, and chemicals which pose both physical and chemical hazards to the user. All personnel using this procedure must be aware of these hazards, and the safety procedures used to minimize the risks to our safety and health presented by these hazards.

Because petroleum electrical insulating oil (such as Univolt 60), PCBs, iso-octane, and sulfuric acid are used in this procedure, proper PPE must be utilized by laboratory personnel. Laboratory coats, safety glasses with side shields, and nitrile gloves must be worn to minimize skin or eye contact.

The use of glassware, such as glass vials and pipettes, in this procedure necessitate caution by laboratory personnel to prevent cuts and puncture wounds caused by broken glass. Visual inspection of vials and pipettes prior to use minimizes the occurrence of breakage during use.

Vortexer, wrist shaker and manual vial crimpers are used in this procedure. To minimize risk of injury during use of these devices, it is important for laboratory personnel to be observant. Vials must be capped tightly and the vials securely. Crimpers used to cap auto-sample vials can pinch or cut if not used properly.

Hands must be clear of the crimper jaws before crimping to avoid injury.

By observing these safety precautions and following the procedures at all times, the risks from physical and chemical hazards can be minimized. This will ensure the maximum protection of the safety and health all laboratory personnel.

8.2 QA/QC Procedures Summary

Mineral oil samples are prepared in groups of analytical batches. In each batch of up to 20 samples, a reagent blank is prepared from virgin mineral oil using the same reagents and procedures as the samples in the batch' A matrix spike and matrix spike duplicate sample are also prepared for each analytical batch. The reagent blank assures the absence of contamination in the system and the matrix spike/duplicate samples assess the methodology in terms of recovery and the precision of the analyst. OCN is added as a surrogate standard to assess the effectiveness of the methodology and analytical instrumentation.

8.3 Analytical Procedures

Refer to SOP-TW-5.00 Polychlorinated Biphenyls (PCBs) in Oil.

List of revisions

Revision#9 02/02/2018 by Bonnie Martin
Revision#8 07/14/2014 by Greg Nudel
Revision#7 06/02/2014 by Greg Nudel
Revision#6 04/22/2013 by Greg Nudel
Revision#5 06/22/2012 by Greg Nudel
Revision#4 06/13/2011 by Greg Nudel
Revision#3 06/03/2010 by Greg Nudel
Revision#2 07/10/2009 by Greg Nudel
Revision#1 08/12/2008 by Greg Nudel

APPENDIX B – RESUMES

James (Jim) DelPuppo
PROFESSIONAL RESUME

a.	**Name, Title & Local Company Address:**				
	James (Jim) DelPuppo Plant Manager Emerald Transformer PPM LLC 1672 E. Highland Road Twinsburg, OH 44087				
b.	**Corporate Address:**				
	Emerald Transformer Western States LLC 4509 State Hwy 83 North DeFuniak Springs, FL 32435				
c.	**Years Experience – With This Firm:**	10	**With Other Firms:**	19	
d.	**Education: Degree(s) / Specialization & Licenses / Registrations**				
	• B.S., Natural Resources – Hocking Tech • 40-Hour OSHA • CPR | First Aid Certified				
e.	**Other Experience and Qualifications:**				
	• As Plant Manager, Jim Delpuppo is primarily responsible for overseeing plant, personnel, and field operations for Emerald Transformer in the eastern US. These projects typically involve transformer and electrical equipment disassembly at customer sites. This includes associated cutting of transformer cases, crane rigging and loading of transformers or transformer components, draining or pumping of transformer oil, confined space entry related to electrical bushing disconnection, and transformer retrofills/maintenance. In addition to productivity and profit/loss, Mr. Delpuppo manages health and safety, compliance, and overall customer service. He ensures that each project performed has an operating plan; and enforces crew compliance. • Prior to his current title, Mr. Delpuppo was a Field Operations Manager and Coordinator for Transformer Services. This involved the receiving of oil filled electrical equipment and PCB material at the TSCA permitted Twinsburg, OH plant. In addition to scheduling trucks, his duties included reconciling manifests, inspecting loads, and ensuring regulatory compliance with PCB handling. • Mr. Delpuppo entered the hazardous material transportation industry in 1988 as a dispatcher for trucking operation. As such Mr. Delpuppo received formal training in DOT compliance to include hazardous waste manifesting.				
f.	**Environmental & Health and Safety Training:**				
	• 40-Hour OSHA HAZWOPER • 8-Hour OSHA HAZWOPER Annual Refresher • 10-Hour OSHA HAZWOPER Site Supervisor Training • Annual RCRA Training • Annual Respirator Fit Test • DOT Training for Hazardous Materials Employees (w/triennial refreshers) • Confined Space Entry Training • Emergency Response Training • 10 hr OSHA Contruction Training				

Michael Burns
PROFESSIONAL RESUME

a.	**Name, Title & Local Company Address:**				
	Michael Burns EVP - Operations Emerald Transformer 7850 Collin McKinney Pkwy, Suite 130 McKinney TX, 78050				
b.	**Corporate Address:**				
	SAME				
c.	**Years Experience – With This Firm:**	4	**With Other Firms:**	18	
d.	**Education: Degree(s) / Specialization & Licenses / Registrations**				
	• Black Belt – Lean Six Sigma • 30-Hour OSHA • CPR | First Aid Certified				
e.	**Other Experience and Qualifications:**				
	• Mike Burns is the EVP of Operations for Emerald Transformer, the largest transformer services company in the US. Mike believes that driving value and customer satisfaction comes only through a philosophy of continuous improvement. With 18 years of experience in project management, team building, and operations management in the manufacturing, production, and repair settings, Mike has a proven track record of success and strong relationship building skills. • Mike is also the principal designer and architect of Emerald Transformer's proprietary software, created to increase efficiency, streamline processes, track metrics, and provide operational insight to assist in strategic decision making throughout the company. In his first year at Emerald Mike implemented a Lean Flow approach, which increased overall production at Florida Transformer by 17% by identifying inefficiencies in the plant layout and employee steps taken to retrieve items needed on their line. • Prior to his time at Emerald Transformer, Mike worked in the orthopedic manufacturing industry. His accomplishments include developing new production lines, improving efficiency in production by implementing ideals emanated from the Toyota Production System, such as Lean Flow, Just-in-Time manufacturing, and a Kanban system for inventory, and helping to establish new major overseas accounts.				

MICHAEL L. PLANK II

2368 Woods Edge Drive
Madison, IN 47250
Phone: (972) 841-8250
molank076@gmail.com

OBJECTIVE:

To obtain a position in a dynamic company that is both challenging and rewarding. This position should likely include the opportunity to use my supervisory, time-management, and ethical skills I have acquired through my military and professional experience.

ACCOMPLISHMENTS:

Honorable Discharge - United States Marine Corp
Two Navy Achievement Medals - United States Marine Corp
Zero Injury Award 2012 - Metro Indianapolis Coalition for Construction Safety, Inc.
Zero Injury Award 2013 - Metro Indianapolis Coalition for Construction Safety, Inc.

EXPERIENCE:

11/2012 – Present Emerald Transformer
Nabb, IN

11/2014 – 7/2017 Emerald Transformer
Phoenix, AZ

7/2017 – Present Emerald Transformer
Twinsburg, OH

General Manager

- Manage P&L for both locations
- Set and monitor monthly, quarterly, annual budgets
- Oversee accounting functions specifically to month end reporting
- Oversee daily functions of plant and project managers
- Manage contract labor for contractors and utility customers
- Bid contract labor for contractors and utility customers
- Interview, hire, and promote managers
- Manage field crews from 2 different entities
- Manage field crews with nationwide coverage

- Provide support to nationwide sales group consisting of 6 different entities
- Attend nationwide trade-shows
- Assist major utilities with their internal bid documents as well as asset recovery documents.

5/2010 – 11/2012 Transformer Decommissioning / Versatile Processing Group
Nabb, IN

Plant Manager

- Overseen daily plant operations
- Ensured profitability on both plant and project production
- Managed contract labor for utility customers
- Bid contract labor for utility customers
- Ensured plant was operating under strict OSHA and environmental guidelines
- Managed 35 employees both in a warehouse and off-site environment
- Interviewed and hired new employees that meet requirements of various positions
- Ensured material is tracked properly and customers are reimbursed accurately at every level
- Ensured material is hauled and handled properly and safely from cradle to grave
- Provided support to sales and other companies within Versatile Processing Groups corporate umbrella
- Provided a safe hazard free environment for the employees, neighbors, customers, and guests

1/2007 – 5/2010 Utility Recycling Services / Versatile Processing Group
Wills Point, TX

Project Supervisor

- Managed contract labor for utility customers
- Bid contract labor for utility customers
- Provided production reports for contract labor
- Dispatched drivers to different locations based on customer and production needs
- Managed 25 employees in a warehouse environment and properly scheduled production and maintained employee time records

- Interviewed and hired new employees that meet the requirements of various positions.
- Stocked and inventoried supplies
- Maintained familiarity of safety and environmental requirements for all on-site work at multiple utility customers' locations

10/2006 – 1/2007 Duke Trucking Artesia, NM

Co-Owner

- Dispatched trucks to different locations on a daily basis
- Operated dump trucks with auto or manual transmissions
- Operated dump trucks with 12yd and 16yd dumps
- Billed five different companies on a monthly basis for work hours
- Maintained employee time records as well as payroll
- Maintained accounts for parts and services performed
- Stocked and inventoried supplies

1/2000 – 9/2006 United States Postal Service Westminster, CA

City Letter Carrier

- Sorted and Delivered mail to over 400 homes on a daily basis
- Maintained forwarding records for over 1000 customers
- Walked an average of eight miles per day
- Interacted with customers of all different ages and origins daily

11/1994 – 4/2000 United States Marine Corps Camp Pendleton, CA

Sergeant

- Welding Shop Supervisor
- Graduated from Non Commissioned Officers Training
- Maintained Physical Fitness
- Relocated worldwide interacting with all different cultures.

EDUCATION:

2008 - 2012	University of Phoenix 96 Completed Credit Hours Bachelor of Science in Business/Project Management	Phoenix, AZ
1995	Hobart School of Welding Certificate	Camp Lejuene, NC
1994	Artesia High School Diploma General Studies	Artesia, NM

REFERENCES:

Brian Craig (Project Manager)	Gaylor, Inc	(317) 225-5010
Dave Campbell (Sourcing Leader)	LGE / KU	(502) 627-3581
Melissa Berling (Asset Recovery)	Duke Energy	(513) 287-1548

APPENDIX C – EXAMPLE INSPECTION FORMS

EMERALD TRANSFORMER

EXAMPLE

CO Management Inspection

Weekly

Landlord Header	
Inspector Name	
Area of Inspection	
Inspection Date and Time	
CO Management Inspection Instructions	
Instructions: Note condition of inspection items. If item does not apply to an area, mark N/A. All unsatisfactory findings must be explained below. Include any repairs, changes or other remedial actions required or performed.	
Container Storage Areas	
The housekeeping meets Emerald Transformer's standards. [Clean floors, clean walls, no trash, clean equipment, tools in proper storage locations, no odors or spills]	
There are no visible stains in the containment or other plant areas.	
The containers do not have waste/staining on the outside which would require cleaning or over-packing	
The Containers are in good condition, (not crushed, pinched or damaged), properly closed, with legible labels that are facing the aisle.	
Containers are stored in an organized fashion that allows for easy inspection; aisle space meets regulatory/permit requirements, and is clear and free of obstructions	
The containers have labels that are completed properly with no missing information (i.e. accumulation start date, hazard identification, etc.)	
There are no cracks or gaps in containment that need to be caulked/sealed. Any areas of	

older cracks that have been previously repaired are still in good condition.	
If concrete is sealed, sealant is in good condition with no cracks, gaps or areas needing repairs.	
Any sumps in containment are empty and clean.	
Satellite or accumulation containers are properly marked and closed.	
There are no observed safety issues (trips/slips/fall hazards, damaged equipment).	
Tanks	
Housekeeping meets Emerald Transformer's standards.. There is no debris, plant matter, accumulated rain water or other material accumulated within containment.	
There are no visible stains in the containment area.	
Any small containers within the containment are properly marked and closed (unless adding or removing material).	
Sumps are clean and empty.	
If the tanks store hazardous waste they are marked with the words Hazardous Waste, have a NFPA diamond and appropriate “confined space” markings at entrances, and any other registration or permit required markings.	
If the tanks are out of service, they are marked with the words Out of Service and properly documented in the system.	
Satellite or accumulation containers are properly marked and closed.	
Level indicators are functional and do not indicate any potential overflow condition.	

There are no observed safety issues.	
PCB Storage	
Any spills or visible stains have had a proper decon and wipe test	
All pumps and equipment associated with PCBs have PCB labeling.	
Out of Service dates and PCB marks are properly placed on containers	
Tanks have PCB mark	
Containment areas used to store PCB’s are coated and the coatings are free of cracks, gaps, and damage.	
Entrances to the storage area are marked with the PCB Label as well as all access points into the facility. These marking requirements are also followed in the laboratory (if applicable).	
Housekeeping meets Emerald Transformer's standards [Clean floors, clean walls, no trash, clean equipment, tools in proper storage locations, no odors or spills]	
There are no observed safety issues.	
Process Areas	
Process areas are free of heavy residues (accumulated solids, sludges or other process residues) that indicate a spill or equipment leak has occurred.	
Satellite or accumulation containers are labeled properly and remain closed.	
No visible staining on floors	
Housekeeping meets Emerald Transformer's standards.	
There are no observed safety issues.	
Yard/General	
There are no incoming loads sitting in the yard that exceed the allowed time limit.	

There are no outgoing loads sitting in the yard for more than the allowed time limit (10 days in most cases).	
Trucks in staging or storage areas containing hazardous waste have the manifest attached to the truck or in close proximity.	
Truck landing gear is supported and is not sinking into the ground.	
There are no visible stains on the surfaces outside the facility.	
There are no vehicles parked in the yard that are leaking.	
Housekeeping meets Emerald Transformer's standards.	
Facility signage is in good order and legible, including all required perimeter signs.	
Security fencing is not damaged or compromised; gates are closed and locked when facility is not manned, or if required to be closed and locked due to permit conditions during normal operations.	
Security cameras (if required) are operational.	
Yard lights are all operational.	
Spare or excess equipment storage area (Boneyard) is organized and neat.	
There are no observed safety issues.	
Permit or SOP Requirements	
All operations are compliant with permit requirements	
All operations are compliant with SOP or BMP requirements	
Inspections are properly done and findings are documented on work tickets	
All pending work tickets are promptly managed to completion.	

Landlord Footer	
Inspector Signature	
Attach Photo	
Inspection Overall Assessment	

EXAMPLE

CO PCB Inspection

Daily

Compliance Header	
Inspector Name	
Inspection Date	
Area of Inspection	
CO PCB Inspection Instructions	
Note condition of inspection items. If item does not apply to an area mark N/A. All unsatisfactory findings must be explained below. Include any repairs, changes or other remedial actions required or performed.	
CO PCB Inspection Items	
Are all PCB Articles and PCB Containers properly marked with storage date and PCB label?	
Are all PCB Articles and PCB Conatiners stored in approved bermed areas?	
Are the roof and walls in god condition to prevent rainwater from reaching PCBs (i.e., not leaking)?	
Are the floors and berms in good condition where PCB's are stored (i.e. no cracks)?	
Are all moveable pieces of equipment that are used for handling PCB's in the storage area?	
Have all pieces of equipment that have been removed from the PCB storage area been decontaminated per 40 CFR 761.79?	
Are all PCB Articles and PCB Containers free from leaks?	
Do all containers holding liquid PCB's meet 40 CFR 761.65 criteria?	
Do all containers holding non-liquid PCB's meet 40 CFR 761.65?	

Is there enough aisle space to allow movement of personnel, fire protection, spill control, and decontamination equipment?	
Are all containers of PCB waste closed except for the ones being processed?	
Do all PCB articles and PCB containers have unique Clean Harbors numbers assigned to them?	
Compliance Footer	
Inspector Signature	
Attach Photo	
On Demand Work Ticket	

APPENDIX D – CONTAINMENT CALCULATIONS

Permitted PCB Storage Containment Calculations

Volume Equivalent Calculations

Length (Ft.)	Width (Ft.)	Square Feet
130.00	112.00	14,560.00
Total Square Feet		**14,560.00**

Total Area	Berm Height	Conversion gal/cubic ft.	Total Gallons Available
14,560.00	0.50	7.48	**54,454.40**

Net Volume Calculations

Total Volume Available (gal)	Displacement Volume (gal) *	Net Volume Available (gal)
54,454.40	5,782.77	**48,671.63**

*** See Displacement Volume calculations below**

Secondary Containment Requirement

Location	Maximum Allowed PCB Storage (Gallons)	Containment Volume Required (Gallons) *	Containment Volume Available (Gallons)
PCB Storage Area (container)	103,840	25,960	48,672
PCB Storage Area (tanks) **	16,500	11,000	48,672
Total	120,340	30,085	48,672

*** Exceeds containment volume requirement of at least two times the internal volume of the largest PCB Container or 25 percent of the total internal volume of all PCB Containers stored there, whichever is greater.**

**** Largest Container**

Displacement Volume

TSCA Pallet Displacement - A (all assumed to be 4'X4'X4.75" per averaging)

Structure	Number of Boards	Length (ft)	Height (ft)	Width (ft)	Volume (cu.ft.)
Top	5.00	4.00	0.052	0.44	0.46
Bottom	5.00	4.00	0.052	0.29	0.30
Support	3.00	4.00	0.292	0.10	0.36
			Cubic feet per		**1.13**

Total TSCA Pallets on Floor	Displacement for One Pallet	Conversion (gal/cubic ft)	Total Gallons Pallet Displacement
200.00	1.13	7.48	**1,684.05**

TSCA Drums on Pallets Displacement - B

TSCA Pallets on Floor	Drums/Pallet (base level)	Total Drums (base level)
200.00	4.00	800.00

Pi	R squared	Height (ft)*	Number of Drums	Conversion	Total Gallons TSCA Drum Displacement
3.14	0.92	0.10	800.00	7.48	**1,794.68**

*** Drum height is 1.25" or 0.104' inside the berm after subtracting the height of the pallets (ground level)**

Miscellaneous Items Displacement - C

Number of Items	Length (ft)	Width (ft)	Height (ft)	Conversion	Total Gallons Displaced	Unit
1.00	8.00	5.00	0.50	7.48	149.60	< 50 drain pan
1.00	8.00	8.00	0.50	7.48	239.36	Oil Dry Pan
1.00	13.30	6.66	0.50	7.48	331.28	Bushing Pan
1.00	6.00	8.00	0.50	7.48	179.52	> 50 Oil Dry Pan
1.00	5.33	5.58	0.50	7.48	111.23	Band Saw
4.00	0.33	0.33	0.50	7.48	1.63	Furnace 1 (on legs)
1.00	10.00	5.33	0.50	7.48	199.34	Furnace 2
1.00	12.50	7.75	0.50	7.48	362.31	Afterburner
1.00	44.00	0.67	0.50	7.48	110.26	Granulator Housing *
1.00	3.91	1.91	0.50	7.48	27.93	Granulator Blower
4.00	3.60	1.90	0.50	7.48	102.33	Cabinets and Shelves
1.00	3.00	1.25	0.50	7.48	14.03	Lockers
7.00	2.80	2.30	0.50	7.48	168.60	Rectangular Structure Bases
					1,997.41	**Total**

* Granulator length measured in leaner feet (2 sides, front).

Number of Columns	Pi	R squared	Height (ft)	Conversion	Total Gallons Displacement	Roof Supports
9.00	3.14	1.25	0.50	7.48	**132.12**	**Total**

Ramp Displacement - D

Length	Width	Height	Conversion and Correction for Slope	Total Gallons Ramp Displacement	Unit
5.50	6.50	0.50	7.48 * 0.5	66.85	Main Door Ramp
6.00	8.50	0.50	7.48 * 0.5	95.37	Alt. Dock Ramp
				162.22	**Total**

Tank Supports Displacement - E

Length	Width	Height	Number of Supports	Conversion	Total Gallons Displaced
0.83	0.33	0.50	12.00	7.48	12.29
				Total	**12.29**

Note: All heights are calculated to the top of the berm

Total Gallons Displacement
Total (A+B+C (2 items)+D+E) = 5,782.77

APPENDIX E – EXAMPLE SAFETY DATA SHEETS FOR EPOXY COATINGS

Protective & Marine Coatings

GENERAL POLYMERS® 3746
HIGH PERFORMANCE EPOXY

PART A GP3746
PART B GP3746B01
SERIES HARDENER

Revised: March 17, 2017

PRODUCT INFORMATION

PRODUCT DESCRIPTION

GENERAL POLYMERS 3746 High Performance Epoxy is a two-component, recoatable epoxy and binder resin. It may be used directly over primed substrates, or as a gloss seal coat over decorative slurry and mortar systems. GENERAL POLYMERS 3746 High Performance Epoxy is extremely hard wearing, chemical, impact and abrasion resistant.

ADVANTAGES

- Impact and abrasion resistant
- Durable, easy to clean
- Chemical resistant
- Suitable for use in USDA inspected facilities
- Acceptable for use in Canadian Food Processing facilities, categories: D2 (Confirm acceptance of specific part numbers/rexes with your SW Sales Representative)
- Available with an antimicrobial agent
- Tint bases can be tinted using Maxitoner @ 50% tint strength

TYPICAL USES

GENERAL POLYMERS 3746 High Performance Epoxy should be used in areas where maintenance of a high performance, aesthetically appealing and chemical resistant epoxy system is required. GENERAL POLYMERS 3746 High Performance Epoxy is suited for use in clean rooms, laboratories, workshops, and light assembly areas.

LIMITATIONS

- Slab on grade requires vapor/moisture barrier.
- Substrate must be structurally sound, dry and free of bond inhibiting contaminants.
- During installation and initial cure cycle substrate and ambient air temperature must be at a minimum of 50°F (10°C). Substrate temperature must be at least 5°F (3ºC) above the dew point (for lower temperature installation contact the Technical Service Department).
- Maximum dry surface temperature not to exceed 160°F (71°C).
- Strictly adhere to published coverage rates.
- Apply clear at only 10-15 mils (250-375 microns) maximum per coat.

SURFACE PREPARATION

Proper inspection and preparation of the substrate to receive resinous material is critical. Read and follow the "Instructions for Concrete Surface Preparation" (Form G-1) for complete details.

PRODUCT CHARACTERISTICS

Finish:	Gloss
Color:	Clear, Standard Colors Wide range of colors possible
Volume Solids:	98% ± 2%, mixed
Weight Solids:	98% ± 2%, mixed
Mix Ratio:	2:1

VOC (EPA Method 24): <100 g/L; .83 lbs/gal (as applied)

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns):	**6.0** (150)	**30.0** (750)
Coverage sq ft/gal (m^2/L):	**266** (6.8)	**50** (1.3)

PRODUCT CHARACTERISTICS (CONT'D)

Drying Schedule @ 10.0 mils (250 microns) wet:

	@ 55ºF (13ºC)	@ 72°F(22°C) 50% RH	@ 95°F(35°C)
Standard Hardener:			
To touch:	16-24 hours	6-12 hours	4-8 hours
To recoat:			
minimum	24 hours	8 hours	6 hours
maximum	48 hours	24 hours	24 hours
Foot traffic:	48 hours	24 hours	18 hours
Heavy traffic:	96 hours	72 hours	60 hours
Full cure:	7 days	7 days	7 days

If maximum recoat time is exceeded, abrade surface before recoating.

Drying time is temperature, humidity, and film thickness dependent.

Pot Life: gallon mass	60 minutes	40 minutes	20 minutes

Shelf Life: Part A: 18 months, unopened
Part B (Standard): 12 months, unopened
Store indoors at 40°F (4.5°C) to 100°F (38°C)

PERFORMANCE CHARACTERISTICS

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles	76 mg loss
Adhesion	ACI 503R	300 psi, concrete failure
Flammability		Self-extinguishing over concrete
Flexural Strength	ASTM D 790	~12,400 psi
Hardness, Shore D	ASTM D 2240	77
Impact Resistance	MIL-D-3134J	Direct: 160 in-lb Reverse: 20 in-lb
***Surface Burning**	ASTME84/ NFPA 255	Flame Spread Index 20; Smoke Development Index 90
Tensile Strength	ASTM D 638	3527.4 psi

*GENERAL POLYMERS 3477 at 1.5 mils (40 microns) DFT topcoated with GENERAL POLYMERS 3746 at 17.5 mils (438 microns) DFT

continued on back

Protective & Marine Coatings

GENERAL POLYMERS® 3746
HIGH PERFORMANCE EPOXY

PART A GP3746
PART B GP3746B01
SERIES HARDENER

Revised: March 17, 2017

PRODUCT INFORMATION

STORAGE / APPLICATION

- MATERIAL DELIVERY AND STORAGE

Store materials in accordance instructions, with seals and labels intact and legible. Keep resins, hardeners, and solvents separated from each other and away from sources of ignition. 18 months shelf life is expected for products stored between 40°F (4.5°C) - 100°F (38°C).

- APPLICATION INSTRUCTIONS

1. Premix GP3746 (resin) using a low speed drill and Jiffy blade. Mix for one minute and until uniform, exercising caution not to introduce air into the material.

2. Add 2 parts GP3746 (resin) to 1 part GP3746B (hardener) by volume. Mix with low speed drill and Jiffy blade for three minutes and until uniform. To insure proper system cure and performance, strictly follow mix ratio recommendations.

3. Apply GP3746 using a squeegee or trowel and back roll with a 3/8" nap roller at a spread rate of 50-160 square feet per gallon (1.3-4.0 meters squared per liter) to yield 10-30 mils (250-750 microns) WFT making sure of uniform coverage. Take care not to puddle materials and insure even coverage.

4. Allow to cure 24 hours minimum before opening to traffic and 72 hours before water exposure.

Note: Epoxy materials will appear to be cured and “dry to touch” prior to full chemical cross linking. Allow epoxy to cure a minimum of 3 days prior to exposure to water or other chemicals for best performance.

CHEMICAL RESISTANCE

For comprehensive chemical resistance information, consult the Chemical Resistant Guide and contact the Technical Service Department.

CLEANUP

Clean up mixing and application equipment immediately after use. Use toluene or xylene. Observe all fire and health precautions when handling or storing solvents.

SAFETY

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

MAINTENANCE

Occasional inspection of the installed material and spot repair can prolong system life. For specific information, contact the Technical Service Department.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

SAFETY DATA SHEET

GP3746A01

Section 1. Identification

Product name : GENERAL POLYMERS® 3746 High Performance Epoxy (Part A)
Clear

Product code : GP3746A01

Other means of identification : Not available.

CAS # : Not applicable.

Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Not applicable.

Manufacturer : THE SHERWIN-WILLIAMS COMPANY
101 W. Prospect Avenue
Cleveland, OH 44115

Emergency telephone number of the company : US / Canada: (216) 566-2917
Mexico: SETIQ 01-800-00-214-00 / D.F. 5559-1588 24 hours / 365 days a year

Product Information Telephone Number : US / Canada: Not Available
Mexico: Not Available

Regulatory Information Telephone Number : US / Canada: (216) 566-2902
Mexico: Not Available

Transportation Emergency Telephone Number : US / Canada: (800) 424-9300
Mexico: SETIQ 01-800-00-214-00 / D.F. 5559-1588 24 hours / 365 days a year

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : ACUTE TOXICITY (oral) - Category 4
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
SKIN SENSITIZATION - Category 1
TOXIC TO REPRODUCTION (Fertility) - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

Percentage of the mixture consisting of ingredient(s) of unknown acute toxicity: 93.9%

GHS label elements

Hazard pictograms :

Signal word : Warning

Section 2. Hazards identification

Hazard statements : Harmful if swallowed.
Causes serious eye irritation.
Causes skin irritation.
May cause an allergic skin reaction.
Suspected of damaging fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.

Response : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. FOR INDUSTRIAL USE ONLY. This product must be mixed with other components before use. Before opening the packages, READ AND FOLLOW WARNING LABELS ON ALL COMPONENTS.

Please refer to the SDS for additional information. Keep out of reach of children. Do not transfer contents to other containers for storage.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available.

CAS number/other identifiers

Ingredient name	% by weight	CAS number
Epoxy Polymer	84.53	25085-99-8
Epoxy Polymer	9.32	30499-70-8
Phenylmethanol	4.15	100-51-6
4-Nonylphenol	0.68	84852-15-3

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation. May cause an allergic skin reaction.

Ingestion : Harmful if swallowed.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Section 4. First aid measures

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits (OSHA United States)

Ingredient name	Exposure limits
Epoxy Polymer	None.
Epoxy Polymer	None.
Phenylmethanol	**AIHA WEEL (United States, 10/2011).** TWA: 10 ppm 8 hours.
4-Nonylphenol	None.

Occupational exposure limits (Canada)

Ingredient name	Exposure limits
Phenylmethanol	**AIHA WEEL (United States, 10/2011).** TWA: 10 ppm 8 hours.

Occupational exposure limits (Mexico)

Ingredient name	Exposure limits
None.	

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Section 8. Exposure controls/personal protection

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Not available.

Odor : Not available.

Odor threshold : Not available.

pH : Not available.

Melting point : Not available.

Boiling point : 202°C (395.6°F)

Flash point : Closed cup: 104°C (219.2°F) [Pensky-Martens Closed Cup]

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Lower: 1.3%
Upper: 13%

Vapor pressure : 0.02 kPa (0.15 mm Hg) [at 20°C]

Vapor density : 3.72 [Air = 1]

Relative density : 1.14

Solubility : Not available.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Kinematic (40°C (104°F)): >0.205 cm^2/s (>20.5 cSt)

Section 9. Physical and chemical properties

Molecular weight : Not applicable.

Aerosol product

Heat of combustion : 1.742 kJ/g

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Phenylmethanol	LD50 Dermal	Rabbit	2000 mg/kg	-
	LD50 Oral	Rat	1230 mg/kg	-
4-Nonylphenol	LD50 Oral	Rat	1300 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Phenylmethanol	Skin - Mild irritant	Man	-	48 hours 16 milligrams	-
	Skin - Moderate irritant	Pig	-	100 Percent	-
	Skin - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
4-Nonylphenol	Eyes - Severe irritant	Rabbit	-	100 milligrams	-
	Skin - Severe irritant	Rabbit	-	24 hours 500 milligrams	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Section 11. Toxicological information

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Phenylmethanol	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Phenylmethanol	Category 2	Not determined	Not determined

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation. May cause an allergic skin reaction.

Ingestion : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : Suspected of damaging the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : Suspected of damaging fertility.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral Dermal	1820.6 mg/kg 2960.3 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Phenylmethanol 4-Nonylphenol	Acute LC50 10000 µg/l Fresh water Acute EC50 0.03 mg/l Marine water Acute EC50 0.027 mg/l Marine water Acute EC50 137 µg/l Marine water Acute LC50 17 µg/l Marine water Chronic EC10 0.012 mg/l Marine water Chronic NOEC 5 µg/l Fresh water Chronic NOEC 7.4 µg/l Fresh water	Fish - Lepomis macrochirus Algae - Skeletonema costatum Algae - Skeletonema costatum Crustaceans - Eohaustorius estuarius - Adult Fish - Pleuronectes americanus - Larvae Algae - Skeletonema costatum Crustaceans - Gammarus fossarum - Adult Fish - Pimephales promelas - Embryo	96 hours 72 hours 96 hours 48 hours 96 hours 96 hours 21 days 33 days

Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Phenylmethanol	-	-	Readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
4-Nonylphenol	-	740	high

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IATA	IMDG
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.
Additional information	-	-	-	-	-

Special precautions for user : Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Proper shipping name : Not available.

Ship type : Not available.

Pollution category : Not available.

Section 15. Regulatory information

SARA 313

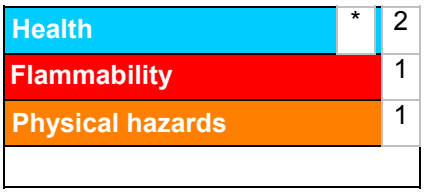
SARA 313 (40 CFR 372.45) supplier notification can be found on the Environmental Data Sheet.

California Prop. 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

Procedure used to derive the classification

Classification	Justification
ACUTE TOXICITY (oral) - Category 4	Calculation method
SKIN CORROSION/IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A	Calculation method
SKIN SENSITIZATION - Category 1	Calculation method
TOXIC TO REPRODUCTION (Fertility) - Category 2	Calculation method
TOXIC TO REPRODUCTION (Unborn child) - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2	Calculation method

History

Date of printing : 4/18/2017

Date of issue/Date of revision : 4/18/2017

Date of previous issue : 3/30/2017

Version : 2.01

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Notice to reader

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Products shall not be repackaged, modified, or tinted except as specifically instructed by Sherwin-Williams, including but not limited to the incorporation of non Sherwin-Williams products or the use

Section 16. Other information

or addition of products in proportions not specified by Sherwin-Williams. Regulatory requirements are subject to change and may differ between various locations and jurisdictions. The customer/buyer/user is responsible to ensure that his activities comply with all country, federal, state, provincial or local laws. The conditions for use of the product are not under the control of the manufacturer; the customer/buyer/user is responsible to determine the conditions necessary for the safe use of this product. The customer/buyer/user should not use the product for any purpose other than the purpose shown in the applicable section of this SDS without first referring to the supplier and obtaining written handling instructions. Due to the proliferation of sources for information such as manufacturer-specific SDS, the manufacturer cannot be responsible for SDSs obtained from any other source.

Protective & Marine Coatings

GENERAL POLYMERS® 3504
HIGH SOLIDS PRIMER / SEALER

PART A GP3504
PART B GP3504B01
SERIES HARDENER

Revised September 23, 2014

PRODUCT INFORMATION

PRODUCT DESCRIPTION

GENERAL POLYMERS 3504 HIGH SOLIDS PRIMER/SEALER is a two component, high solids, clear primer/sealer that provides a smooth, blush resistant surface under cool, high humidity conditions. GENERAL POLYMERS 3504 HIGH SOLIDS PRIMER/SEALER is tack free in 3.5 hours.

ADVANTAGES

- Cures at low temperatures (45ºF) (7ºC)
- Cures blush-free under high humidity (80%)
- Long recoat window
- Excellent metal, glass, wood and concrete sealer
- Acceptable for use in USDS inspected facilities

TYPICAL USES

GENERAL POLYMERS 3504 HIGH SOLIDS PRIMER/SEALER is used as a general service, moisture tolerant primer for urethane or epoxy topcoats.

GENERAL POLYMERS 3504 HIGH SOLIDS PRIMER/SEALER is used in combination with GENERAL POLYMERS 5531 **PRE-PRIMER / TACK COAT** as a moisture tolerant primer over properly prepared vitreous substrates such as ceramic tile, quarry tile, glass, polished granite, acid brick and furan grouts.

LIMITATIONS

- Substrate must be structurally sound and free of ponding water, bond inhibiting contaminants.
- During application and initial cure cycle substrate and ambient air temperature must be at a minimum of 45ºF (7ºC). Substrate temperature must be least 5ºF (3ºC) above the dew point (for lower temperature application contact the Technical Service Department).
- When required, adequate ventilation shall be provided and proper clothing and respirators worn.

SURFACE PREPARATION

Proper inspection and preparation of the substrate to receive resinous material is critical. Read and follow the "Instructions for Concrete Surface Preparation" (Form G-1) for complete details.

PRODUCT CHARACTERISTICS

Color:	White, Gray, Clear Amber
Mix Ratio:	1:1
Viscosity:	150 cps
Volume Solids:	69% ± 2%, mixed
Weight Solids:	72% ± 2%, mixed
VOC (EPA Method 24):	<100 g/L mixed; 0.83 lb/gal

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns):	4.5 (0.13)	5 (0.15)
~Coverage sq ft/gal (m^2/L):	355 (9.0)	320 (8.1)

Drying Schedule @ 4 mils (100 microns) wet:

@ 73°F (23ºC)

To touch:	6 hours
To recoat:	10-12 hours

If maximum recoat time is exceeded, abrade surface before recoating.
Drying time is temperature, humidity, and film thickness dependent.

Pot Life: gallon mass 45 minutes @ 73°F (23ºC)

Shelf Life: Part A: 36 months, unopened
Part B: 36 months, unopened

Store indoors at 50°F (10°C) to 90°F (32°C)

Flash Point: 48°F (8.9°C), ASTM D 93, mixed

PERFORMANCE CHARACTERISTICS

Test Name	Test Method	Results
Abrasion Resistance	ASTM D 4060, CS17 wheel, 1000 cycles	100 mg loss
Adhesion	ACI 503R	300 psi concrete failure
Flammability		Self-extinguishing over concrete
Impact Resistance	ASTM D 2794	Direct inch-pound greater than 160, passes Reverse, inch-pound greater than 80, passes
Resistance to Elevated Temperature	MIL-D-3134J Section 4.7.5	No slip or flow at required temperature of 158ºF (70ºC)

continued on back

Protective & Marine Coatings

GENERAL POLYMERS® 3504
HIGH SOLIDS PRIMER / SEALER

PART A	GP3504	SERIES
PART B	GP3504B01	HARDENER

Revised September 23, 2014

PRODUCT INFORMATION

APPLICATION

- **APPLICATION INSTRUCTIONS**

1. Premix (if pigmented) 3504B (hardener) using a low speed drill and Jiffy blade for one minute and until uniform, exercising caution not to whip air into the materials.

2. Add 1 part 3504A (resin) to 1 part 3504B (hardener) by volume. Mix with low speed drill and Jiffy blade for three minutes and until uniform.

3. Apply via brush, roller, or spray at a rate of 320-355 square feet per gallon, evenly, with no puddles.

ORDERING INFORMATION

Packaging:

Part A:	1 gallon (3.8L) and 5 gallon (18.9L) containers
Part B:	1 gallon (3.8L) and 5 gallon (18.9L) containers
Weight:	9.1 ± 0.2 lb/gal; 1.10 Kg/L mixed, may vary by color

CLEANUP

Clean up mixing and application equipment immediately after use. Use toluene or xylene. Observe all fire and health precautions when handling or storing solvents.

SAFETY

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

MAINTENANCE

Occasional inspection of the installed material and spot repair can prolong system life. For specific information, contact the Technical Service Department.

SHIPPING

- Destinations East of the Rocky Mountains are shipped F.O.B. Cincinnati, Ohio.

- Destinations West of the Rocky Mountains are shipped F.O.B. Victorville, California.

For specific information relating to international shipments, contact your local sales representative.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

MATERIAL SAFETY DATA SHEET

GP3504A01
12 00

DATE OF PREPARATION
Aug 12, 2016

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
GP3504A01

PRODUCT NAME
GENERAL POLYMERS® 3504 Primer/Sealer (Part A), Clear

MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
101 W. Prospect Avenue
Cleveland, OH 44115

Telephone Numbers and Websites

Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
6	**67-63-0**	**2-Propanol**		
		ACGIH TLV	200 PPM	33 mm
		ACGIH TLV	400 PPM STEL	
		OSHA PEL	400 PPM	
21	**67-64-1**	**Acetone**		
		ACGIH TLV	500 PPM	180 mm
		ACGIH TLV	750 PPM STEL	
		OSHA PEL	1000 PPM	
73	**25085-99-8**	**Epoxy Polymer**		
		ACGIH TLV	Not Available	
		OSHA PEL	Not Available	

SECTION 3 — HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE
INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.

HMIS Codes

Health	2*
Flammability	3
Reactivity	0

EFFECTS OF OVEREXPOSURE
EYES: Irritation.
SKIN: Prolonged or repeated exposure may cause irritation.
INHALATION: Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.

SIGNS AND SYMPTOMS OF OVEREXPOSURE
Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
May cause allergic skin reaction in susceptible persons.

CANCER INFORMATION
For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	FLAMMABILITY CLASSIFICATION
48 °F PMCC	2.0	12.8	RED LABEL -- Flammable, Flash below 100 °F (38 °C)

EXTINGUISHING MEDIA
Carbon Dioxide, Dry Chemical, Foam
UNUSUAL FIRE AND EXPLOSION HAZARDS
Closed containers may explode when exposed to extreme heat.
Application to hot surfaces requires special precautions.
During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.
SPECIAL FIRE FIGHTING PROCEDURES
Full protective equipment including self-contained breathing apparatus should be used.
Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Remove all sources of ignition. Ventilate the area.
Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY
DOL Storage Class IB
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
Contents are FLAMMABLE. Keep away from heat, sparks, and open flame.
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.
Consult NFPA Code. Use approved Bonding and Grounding procedures.
Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE
Use only with adequate ventilation.
Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.
Wash hands after using.
This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction).
VENTILATION
Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.
RESPIRATORY PROTECTION
If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.
When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.
PROTECTIVE GLOVES
Wear gloves which are recommended by glove supplier for protection against materials in Section 2.
EYE PROTECTION
Wear safety spectacles with unperforated sideshields.
OTHER PRECAUTIONS
This product must be mixed with other components before use. Before opening the packages, READ AND FOLLOW WARNING LABELS ON ALL COMPONENTS.
Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	8.56 lb/gal	1025 g/l
SPECIFIC GRAVITY	1.03	
BOILING POINT	132 - 181 °F	55 - 82 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	35%	
EVAPORATION RATE	Slower than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

0.71 lb/gal	85 g/l	Less Water and Federally Exempt Solvents
0.51 lb/gal	61 g/l	Emitted VOC

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

TOXICOLOGY DATA

CAS No.	Ingredient Name			
67-63-0	**2-Propanol**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		5045 mg/kg
67-64-1	**Acetone**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		5800 mg/kg
25085-99-8	**Epoxy Polymer**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.

Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. (PAINT OR RELATED).

Larger Containers are Regulated as:

UN1263, PAINT, 3, PG II, (ERG#128)

DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities

Acetone 5000 lb RQ

Bulk Containers may be Shipped as (check reportable quantities):

UN1263, PAINT, 3, PG II, (ERG#128)

Canada (TDG)

UN1263, PAINT, 3, PG II, LIMITED QUANTITY, (ERG#128)

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT, 3, PG II, (9 C c.c.), EmS F-E, S-E

IMO

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.
UN1263, PAINT, 3, PG II, (9 C c.c.), EmS F-E, S-E

IATA/ICAO

UN1263, PAINT, 3, PG II

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element

No ingredients in this product are subject to SARA 313 (40 CFR 372.65C) Supplier Notification.

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

APPENDIX F – SPCC PLAN

Spill Prevention, Control, and Countermeasures Plan (SPCC)

Facility: Emerald Transformer PPM LLC
1672 E. Highland Road
Twinsburg, OH 44087
(330) 425-3825

Owner: Emerald Transformer Western States LLC
4509 State Hwy 83 North
DeFuniak Springs, FL 32435
(800) 908-8800

CERTIFICATION [40 CFR Part 112.3(d)]: I hereby certify that I am familiar with the requirements of 40 CFR Part 112; that I or my designated agent have visited and examined the facility; that this SPCC Plan has been prepared in accordance with good engineering practices, including consideration of applicable industry standards, and in accordance with 40 CFR Part 112 requirements; that procedures for required inspections and testing have been established; and, that the plan is adequate for this facility.

Engineer: John W. Caldwell

Signature:

Date: Dec 10/2014

Registration Number: 20907

State: SC

Date: Dec 10/2014

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40 CFR Part 112, Subpart A – General Requirements for All Facilities and All Types of Oils

SPCC PLAN REVIEW – 40 CFR Part 112.5(b)

In accordance with 40 CFR Part 112.5(b), a review and evaluation of this SPCC Plan is conducted at least once every five years. As a result of this review and evaluation, Emerald Transformer PPM LLC will amend the SPCC Plan within six months of the review to include more effective prevention and control technology if: (1) such technology will significantly reduce the likelihood of a spill event from the facility, and (2) if such technology has been field-proven at the time of review.

By signing below, I have completed the review and evaluation of the SPCC plan for Emerald Transformer PPM LLC. The plan will/will not be amended as a result and is indicated below.

Review Dates	**Signature**	**Amend the Plan?**
1. August 31, 2007	Val Czomba	**will** / will not
2. June 22, 2011	Dale Walters	**will** / will not
3. Feb. 26, 2014	Shantanu Pahi	will **/ will not**
4. Feb. 2, 2018	Jim DelPuppo	**will** / will not (not a tech amendment)
5.		will / will not
6.		will / will not
7.		will / will not
8.		will / will not
9.		will / will not
10.		will / will not

TECHNICAL AMENDMENTS – 40 CFR Part 112.5(c)

Any technical amendment to the SPCC Plan shall be certified by a Professional Engineer in accordance with 40 CFR 112.3(d) within six months after a change in the facility design, construction, operation, or maintenance occurs which materially affects the facility's potential for the discharge of oil into or upon the navigable water of the United States or adjoining shorelines.

MANAGEMENT APPROVAL – 40 CFR 112.7

This SPCC plan is fully approved by the management of Emerald Transformer PPM LLC and has been implemented as described.

Plant Manager _____ Date _____

1. Statement of Facility Conformance – 40 CFR 112.7(a)(1)

Emerald Transformer PPM LLC is committed to the preservation of the environment and prevention of adverse environmental impact, which might result from our operations. Environmental protection encompasses air quality, water quality, and proper disposition of all waste products. Our PCB wastes are managed according to the U.S. Environmental Protection Agency's 40 CFR Part 761 regulations.

As a result, Emerald Transformer PPM LLC declares that is has fulfilled the requirements and obligations of U.S. EPA's revised SPCC regulations for oil pollution prevention.

A. Facility Owner and Operator

i. Facility Owner, Address, and Telephone:
Emerald Transformer Western States LLC
4509 State Hwy 83 North
DeFuniak Springs, FL 32435
(800) 908-8800

ii. Facility Operator, Address, and Telephone:
Emerald Transformer PPM LLC
1672 E. Highland Road
Twinsburg, OH 44087
(330) 425-3825

B. Facility Contacts(s)

Name	Title	Telephone
Jim DelPuppo	Plant Manager	(330) 425-3825x222
Todd Drenski	Plant Supervisor	(330) 425-3825x212
Paul DiCarro	Field Service Coordinator	(330) 425-3825x210

2. Facility Description – 40 CFR 112.7(a)(3)

A. Facility Layout

Emerald Transformer PPM LLC operates an EPA permitted TSCA facility in Twinsburg, OH (EPA# OHD 986975399). The facility handles and stores dielectric fluid (mineral oil), decommissions electrical equipment contaminated with polychlorinated biphenyls (PCBs), and operates a scrap metal recovery oven. The facility is located in an industrial park.

The operation consists of approximately a 34,000-square foot facility located on 4 acres. The facility has an 8-foot security fence with an additional two (2) feet of barbed wire on top. There are gates at specific locations throughout the facility that are designated as entrance/exit ways used by employees or visitors requiring access to the facility. All

other gates are secured by lock and chain and are only used in cases of emergency or maintenance. The facility also has a motion detection electronic security system that is monitored by a third-party security firm during off-hours. Exterior lights are located throughout the facility and are set up to automatically light at dusk. The facility is located within the Township of Twinsburg and the surrounding land use is heavy industrial.

The nearest surface water to the property is an unnamed, intermittent stormwater ditch, which runs in a southeasterly direction and is approximately 100 feet south of the facility at its nearest point. Figure 1 shows the facility boundaries and buildings on site. Figure 2 shows the storage locations, transfer stations, and connecting pipes for all types of oil product at the facility.

B. Facility Storage – 40 CFR 112.7(a)(3)(i)

A list of the container and tank storage capacities can be found in Table 1.

C. Discharge Prevention Measures – 40 CFR 112.7(a)(3)(ii)

All operations are conducted inside the Main Process Building or at the attached loading dock, both of which have secondary containment. All operations have walls and a roof and thus are protected from precipitation run-on. Containment berms are constructed with seamless concrete floors that are coated with chemically resistant coatings. The berms are either monolithic poured concrete with the floor or are constructed of welded metal segments that are bolted to the floor. Metal to concrete contact areas are sealed with chemically resistant caulking compounds to prevent seam leaks.

i. Container Storage Facilities

The container storage facilities are designed to safely store PCB Articles or Items. PCB contaminated oil is occasionally stored in non-bulk containers prior to pumping into storage tanks. All containers are kept on pallets. Pallets are arranged in rows to permit adequate access for emergency equipment and personnel and visual inspection of containers. These practices and procedures are also followed in the non-TSCA regulated storage area.

Prevention of spills in the container storage facilities is an established facility practice. Personnel assigned to these areas are expected to:

- Verify visually that containers placed into storage are not leaking.
- Overpack any leaking or heavily creased, dented, or corroded containers into a salvage drum or transfer the container contents into a new container prior to placing the material into the containment area.
- Maintain a minimum aisle space, which allows for quick access to any container in case a leak is detected.

- Ensure that inspections of the container storage facilities are carried out and documented.

- Report any detected leakage to the supervisor and then overpack or re-package the leaking containers.

- Operate forklift vehicles or handcarts in a safe responsible manner in accordance with facility safety regulations and maintenance schedules.

- Ensure that debris including discarded personal protective equipment (PPE), pallet scraps, dirt, broken glass, hydraulic oil, or any other material, which could cause an accident is picked up when discovered and placed into an approved container.

- Report any unsafe conditions not previously mentioned to the area supervisor.

ii. Transfer Operations

Standard practice is to pump PCB oil directly from PCB Articles or Items directly into storage tanks. Occasionally, these are pumped into storage drums or totes. These facilities are under roof and thus are protected from precipitation run-on. Facility personnel who work in these locations follow the standard company health and safety rules/regulations when handling waste materials.

Prevention of spills in the TSCA Commercial Storage Area is an established facility practice. Personnel assigned to these locations prevent spills by:

- Requiring truck drivers backing in trailers to check for and remove any obstacles in their path prior to moving the trailer.

- Requiring drivers to place wheel chocks on rear trailer wheels and extend landing legs properly for stable parking of the trailer on the floor.

- Checking the containers on the trailer for leaks and overpacking or re-packaging any leaking containers prior to storage.

- Inspecting the pallets on which containers are placed to ensure proper positioning prior to lifting on or off the trailer and to ensure that the pallet will maintain its integrity during transfer.

- Ensuring that the forklift truck lift bars are in operating condition.

- Keeping non-essential personnel and equipment out of the transfer zone when containers are being loaded to or unloaded from a trailer.

- Keeping the transfer zone free of debris including discarded personal protective equipment, pallet scraps, dirt, broken glass, empty containers, oil, or any other material, which could cause an accident.

- Report any unsafe conditions not previously mentioned to the area supervisor.

iii. Bulk Storage Facilities

The facility storage tanks were manufactured in accordance with good engineering practices. All storage tanks are located inside the Main Process Building and thus are protected from precipitation run-on. All storage tanks are aboveground and subject to annual integrity testing, taking into account the tank design (floating roof, etc.) and using such techniques as hydrostatic testing, visual inspection, or a system of non-destructive shell thickness testing. All inspections and record keeping are done under the supervision of the Plant Manager.

Valves to and from the storage tanks are operated manually and are kept in the closed position unless the tank is being filled or emptied. This practice prevents the unintentional release of tank contents through valves left open after a fluid transfer.

On an as-needed basis, the facility may utilize a portable frac tank for additional bulk storage capacity.

Facility personnel assigned to the bulk storage locations prevent spills by:

- Inspecting pipe transfer lines, valves, couplings, and pumps prior to transferring liquids for evidence of leakage, corrosion, or cracking.
- Determining whether or not the storage tank is full or near capacity by noting the level gauge location (tanks have high level alarms).
- Placing containment pans and plastic sheeting under the quick connect fitting manifold used to load or unload the storage tank.
- Double check that valves have been opened or closed correctly prior to turning on the transfer pumps.
- Checking fluid flow through the transfer line by observing tank filling/emptying by gauge movement.
- Shutting down the pump if a leak is noticed in the transfer line, or if the tank capacity will be exceeded if incoming fluid is transferred into the tank an automatic pump shut-off mechanism engages.
- Ensuring that tank valves are closed after transfer is complete and the retained fluid within the line is drained into an approved container before the manifold connection is opened using the drain valves provided for this purpose.
- Removing and capping the hoses and manifold connections used to transfer fluids.
- Storing the transfer hoses in a secure place within the storage berms.

iv. Rail Car Loading and Unloading Area

The rail car loading and unloading area is designed to facilitate transfer of PCB and non-PCB dielectric fluid from appropriate storage tanks into tank cars. The liquid loading/unloading procedure can be accomplished by transfer through hoses from a storage tank.

Facility personnel prevent spills in this location by:

- Keeping the track clean and free of debris that could de-rail a railcar being moved into or out of the rail area.
- Performing transfer operations during daylight hours only or supplying sufficient artificial light.
- Inspecting the railcar load/unload valves for leaking and/or damage to the valve stem before starting a transfer operation. Repairs are made if necessary.
- Reviewing the hoses prior to connecting the railcar and placing containment pans under both the load and unload valves prior to hose connection.
- Turning on the transfer pump after the correct valves have been opened and/or closed.
- Checking fluid flow through the transfer line by observing tank filling/emptying by gauge movement.
- Shutting down the pump if a leak is noticed in the transfer line.
- Ensuring that railcar valves are closed after transfer is complete and the retained fluid within the line is drained.
- Removing and capping the hoses and manifold connections used to transfer fluids.
- Storing the transfer hoses in a secure place.

v. Truck Trailer Approach Lanes and Parking Zones

Tank trucks and vans are required to travel on roadways designed to accommodate heavy loads and the turning space required for multi-axle trucks. Truck drivers are required to observe facility safety regulations including speed limits and communicate with the main office for directions prior to proceeding into the facility.

Spill prevention for independent operated waste hauling vehicles on facility property is addressed by:

- Inspecting incoming waste hauling vehicles at the unloading station by visually checking the discharge valves and undercarriage for signs of leakage.

- Immediately notifying the supervisor if a waste-hauling vehicle is suspected of leaking liquids or solids.

- Keeping docks and truck approach zones free of any debris that could cause a tanker to leak or a trailer to overturn.

- Inspecting the containers on van or flatbed trailers for leakage prior to unloading the material into a storage area.

- Checking the condition of approach roads and access lanes on facility property that trucks use; and repairing any ruts or cracks that may cause a vehicle to overturn.

- Parking waste hauling vehicles carrying waste solids or liquids on a flat and level surface with sufficient load bearing capacity to support a fully loaded trailer on its landing legs.

D. Discharge or Drainage Controls – 40 CFR 112.7(a)(3)(iii)

All operations are conducted inside the Main Process Building or at the attached loading dock, both of which have secondary containment. All operations have adequate roofs and walls to prevent rainwater from reaching any stored materials. Additionally, tankers and flatbeds containing full transformers may be parked outside in the South Lot. This area has a minimum 8-inch berm with a containment capacity of approximately 27,251 gallons. The storm water in this area is captured and managed. The facility is not located below the 100-year floodwater elevation. All tanks and containers are located within a secondary containment system consisting of continuous curbing with no drain valves, no floor drains, no expansion joints, no sewer lines, or other openings that would permit liquids to flow from the curbed area. All loading/unloading occurs within secondary containment, as well.

E. Discharge Discovery, Response, and Clean-Up – 40 CFR 112.7(a)(3)(iv)

Daily inspections are performed in each area of the facility in accordance with the facility's permits and approvals. Daily inspections are performed to discover any leaks or spills for a timely response.

On-site spill equipment includes oil spill absorbent, equipment for spill cleanup, personal protective gear, containers for storage of absorbed waste, containment booms, and pneumatic and hand pumps. The facility operations staff weekly inspects the stations to ensure adequate stocking of supplies.

In the event of a spill, facility operations personnel are trained to notify their supervisor(s) and then use the spill control equipment to contain and clean-up the spilled liquid or solid waste. Should a large spill occur, the facility has portable pumps and tank trucks equipped with vacuum pumps available to collect spilled liquids. The facility also has existing bulk storage containers where recovered liquids can be stored.

The facility has designated certain personnel as Emergency Coordinators. These persons are authorized to mobilize and direct available facility personnel and equipment in the task of spill cleanup. The Emergency Coordinator or his/her designee will notify the Compliance Manager of the spill event giving him/her detailed event information. The Compliance Manager or his/her designee will make the determination on which agencies or regulatory bodies must be notified of the spill event.

F. Methods of Disposal – 40 CFR 112.7(a)(3)(v)

As much as possible, contaminated oil from spills will be collected and stored in existing storage tanks or containers. The oil will be manifested for off-site shipment to for decontamination or incineration.

Any solids generated from spills will be collected and stored in approved containers. The spill residue will be properly labeled and manifested for off-site shipment to for landfill or incineration.

3. Contact List and Phone Numbers for Spills – 40 CFR 112.7(a)(3)(vi)

A. Emergency Coordinators for Emerald Transformer PPM LLC

NAME	WORK PHONE	CELL PHONE
1. Jim DelPuppo	(330) 425-3825 x 222	(330) 352-2864
2. Todd Drenski	(330) 425-3825 x 212	(216) 548-6561
3. Paul DiCarro	(330) 425-3825 x 210	(216) 346-1984

B. External Contacts

AGENCY	PHONE NUMBER
National Response Center	(800) 424-8802
U.S. EPA Region 5	(312) 353-2000
OEPA-Emergency Response Commission	(800) 282-9378
Summit County Emergency Management Coordinator (LEPC)	(330) 643-2558
Summit County Sewer District	(330) 643-2435
Twinsburg Fire Department	911
Twinsburg Police Department	911
Bedford Medical Center	(440) 735-3900

4. Reporting a Discharge – 40 CFR 112.7(a)(4)

If 1,000 U.S. gallons of oil are spilled at the facility, or if there are two spill events that are greater than 42 U.S. gallons each within a 12-month period, the facility must inform the U.S. EPA Regional Administrator.

If any oil leaves the secondary containment and reaches the storm drain or off-site soil and/or contains 1 pound or more of PCBs, it must be reported to the National Response Center, the U.S. EPA Regional Administrator, the Ohio Environmental Protection Agency, the Summit County Emergency Management Coordinator, and the Twinsburg Fire Department.

A release to the sanitary sewer should also be reported to the Summit County Sewer District.

List of information to provide a regulator when reporting a discharge:

- Exact address and phone number of the facility
- Date and time of the discharge
- Type of material discharged
- Estimate of total quantity discharged
- Source and cause of the spill
- Description of the areas affected by the spill
- Any damage or injuries, caused by the discharge
- Actions used to stop, remove, and mitigate the effects of the discharge
- Whether an evacuation may be needed
- Names of individuals and/or organizations who have also been contacted

5. Procedures to Use During a Spill – 40 CFR 112.7(a)(5)

In the event of a spill, facility operations personnel are trained to notify their supervisor(s) and then use the contents of the spill control station to contain and clean-up the spilled liquid or solid waste. The following steps are taken:

1. The leak is stopped by closing off a valve or plugging it.

2. The area is cordoned off by tape or rope to prevent the spill from being spread by traffic.

3. Other trained operators and plant personnel are called to help in the cleanup.

4. Spill cleanup starts by isolating the spillage area with absorbent material. The absorbent is applied directly to the spilled liquid and sufficient time is allowed for the absorbent to fully absorb the spill.

5. The absorbed liquid is transferred to an approved disposal container using scoops or shovels.

6. The spillage area is triple rinsed and washed or another appropriate method.

7. After the spill is removed from the surface, sampling and testing methodologies are determined to ensure that clean-up is within regulatory guidelines.

8. The source of the leak is repaired.

9. Equipment is decontaminated, if necessary.

10. Contaminated cleanup materials and protective clothing are containerized for shipment to an EPA approved disposal facility.

11. Normal operation is restored once the area is completely decontaminated.

If notification of the spill is required, the Emergency Coordinator will contact the National Response Center; the US EPA Regional Administrator; the Ohio Environmental Protection Agency; and the Summit County Emergency Management Coordinator immediately with the information listed in previous section.

6. Potential Discharge Volumes & Rates – 40 CFR 112.7(b)

Potential Event	Discharge Direction	Volume Released	Discharge Rate	Containment
Complete failure of a full tank	South to property line	11,315 gallons	Instantaneous	Secondary containment
Partial failure of a full tank	South to property line	1 to 11,315 gallons	Gradual to instantaneous	Secondary containment
Tank overfill	South to property line	1 to many gallons	Up to 1 gallon per minute	Secondary containment
Pipe failure	South to property line	Up to 11,315 gallons	150 gal/min	Secondary containment
Leaking pipe or valve packing	South to property line	Several ounces to to several gallons	Up to 1 gallon per minute	Secondary containment
Complete failure of a full railcar	South to property line	26,000 gallons	Instantaneous	Secondary containment
Partial failure of a full railcar	South to property line	1 to 26,000 gallons	Gradual to instantaneous	Secondary containment
Tank truck leak or failure	South to property line	1 to 6,000 gallons	Gradual to instantaneous	Secondary containment

Potential Event	Discharge Direction	Volume Released	Discharge Rate	Containment
Complete failure of a full frac tank	South to property line	20,000 gallons	Instantaneous	Secondary containment
Partial failure of a full frac tank	South to property line	1 to 20,000 gallons	Gradual to instantaneous	Secondary containment
Hose leak during loading or unloading	South to property line	1 to several gallons	150 gal/min	Secondary containment
Pump rupture or failure	South to property line	1 to several gallons	150 gal/min	Secondary containment
Complete container failure	South to property line	220 gallons	Instantaneous	Secondary containment
Partial failure of a full container	South to property line	1 to 220 gallons	Gradual to instantaneous	Secondary containment

7. Containment and Diversionary Structures – 40 CFR 112.7(c)

All operations are conducted inside the Main Process Building or at the attached loading dock, or in the south lot, all of which have secondary containment. All tanks and containers are located within a secondary containment system consisting of continuous curbing with no drain valves, no floor drains, no expansion joints, no sewer lines, or other openings that would permit liquids to flow from the curbed area. All loading/unloading occurs within secondary containment, as well. The containment berms are constructed with seamless concrete floors that are coated with chemically resistant coatings. The berms are either monolithic poured concrete with the floor or are constructed of welded metal segments that are bolted to the floor. Metal to concrete contact areas are sealed with chemically resistant caulking compounds to prevent seam leaks. Each secondary containment area provides a containment volume equal to at least two times the internal volume of the largest PCB Article or PCB Container or 25 percent of the total internal volume of all PCB Articles or PCB Containers stored there, whichever is greater.

On-site spill equipment includes oil spill absorbent, equipment for spill cleanup, personal protective gear, containers for storage of absorbed waste, containment booms, and pneumatic and hand pumps. The facility operations staff weekly inspects the stations to ensure adequate stocking of supplies.

8. Inspections, Tests, and Records – 40 CFR 112.7(e)

Daily visual inspections of the facility are conducted. This inspection includes a physical integrity check for all tanks, frac tanks, containers, PCB articles, PCB items, pumps and other processing equipment. Inspection logs are stored at least three years in the facility's operating record. In addition, emergency response equipment and security equipment are inspected and restocked as necessary every week. A weekly inspection log is stored for at least three years in the facility's operating record.

The facility storage tanks were manufactured in accordance with good engineering practices. All fixed storage tanks are located inside the Main Process Building and thus are protected from precipitation run-on. All fixed storage tanks are aboveground and subject to annual integrity testing, taking into account the tank design (floating roof, etc.) and using such techniques as hydrostatic testing, visual inspection, or a system of non-destructive shell thickness testing. All inspections and record keeping are done under the supervision of the Plant Manager.

9. Personnel, Training, and Discharge Prevention Procedures – 40 CFR 112.7(f)

A. Personnel and Training – 40 CFR 112.7(f)(1)

Facility operations personnel are trained in the operation and maintenance of equipment to prevent discharges, discharge procedure protocols, applicable pollution control laws, rules, and regulations, general facility operations, and the contents of the facility's SPCC Plan.

Operations personnel assigned to a particular plant location are required to attain a high level of familiarity with the containment design and the waste storage/treatment equipment located therein. Periodic maintenance of operating equipment is mandatory at the facility and helps ensure that waste transfer equipment is not operated when key systems are defective or failing.

B. Person Accountable for Spill Prevention – 40 CFR 112.7(f)(2)

The Plant Manager is accountable for discharge prevention at Emerald Transformer PPM LLC – Twinsburg, OH facility.

C. Discharge Prevention Briefings – 40 CFR 112.7(f)(3)

Employees are trained annually on the contents of the facility's SPCC plan to assure adequate understanding. Training includes oil discharge prevention, containment, and retrieval methods; highlight any past discharge events or failures, and recently developed precautionary measures. Operations personnel assigned to a particular plant location are required to attain a high level of familiarity with the containment design and the waste storage/treatment equipment located therein. Periodic maintenance of operating equipment is mandatory at the facility and helps ensure that waste transfer equipment is not operated when key systems are defective or failing. Record of this training is kept in each employee's training file.

10. Security – 40 CFR 112.7(g)

The facility is completely surrounded by an 8' chain link fence with three strands of barbwire along the top of the fence, surrounding the loading dock area. There are gates at specific locations throughout the facility that are designated as entrance/exit ways used by employees or visitors requiring access to the facility. All other gates are secured by lock and chain and are only used in cases of emergency or maintenance. The facility also has a motion detection electronic security system that is monitored by a third-party security firm during off-hours. Weekly inspections of the perimeter are performed to ensure that fences and gates are intact and secure. All buildings are individually secured with locks when they are not occupied. Selected or designated personnel are issued keys to access those areas where they have responsibility.

All persons, other than Emerald Transformer's employees, entering and exiting the facility are required to log in and wear an appropriately designated badge while on-site.

The facility has an internal paging system that is utilized both indoors and outdoors. A burglar/fire alarm system monitors the warehouse. Employees have been trained on how to use the methods of communication available at the facility.

Employees are trained to ensure that flow and drain valves remain in a closed position when not in service, that each pump is in the "off" position when not in service, and that loading/unloading connections are securely capped when not in service.

Exterior lights are located throughout the facility and are set up to automatically light at dusk to aid in the discovery of oil leaks during periods of darkness and to prevent acts of vandalism.

11. Facility Tank Car and Tank Truck Loading/Unloading Rack – 40 CFR 112.7(h)

All tank truck/frac tank loading/unloading occurs in the south lot or dock area adjacent to the Main Process Building within secondary containment. Curbing is installed and holds the single largest compartment of any truck used at the facility. Warning signs and chock blocks are provided to prevent premature vehicular departure. The lower most drain and all outlets on tank trucks are inspected and tightened prior to filling and disconnection of oil transfer lines, and prior to vehicle departures.

The rail spur at the Emerald Transformer Twinsburg facility is adjacent to the main warehouse. The rail spur is accessible by our vacuum tank trucks, any spill would flow into the South Lot which does have secondary containment, and a spill kit is located nearby. Warning signs and chock blocks are provided to prevent premature departure. The lower most drain and all outlets on tank cars are inspected and tightened prior to filling and disconnection of oil transfer lines, and prior to tank car departures.

12. Brittle Fracture Evaluation – 40 CFR 112.7(i)

All storage tanks at the facility are shop fabricated and hence brittle fracture evaluation of field-constructed tanks is NOT applicable.

13. Conformance to Applicable Guidelines – 40 CFR 112.7(j)

Communication with the Ohio Environmental Protection Agency, has indicated that the requirements of 40 CFR 112 are in conformance with all OEPA requirements and are the most stringent rules, regulations, and guidelines. This SPCC plan was written in conformance with the requirements of 40 CFR 112.

40 CFR Part 112, Subpart B – Spill Prevention, Control, and Countermeasures Plan requirements for onshore facilities

SPCC PLAN REQUIREMENTS – 40 CFR 112.8

1. General Requirements – 40 CFR 112.8(a)

The general requirements for the Plan under the regulation have been met.

2. Facility Requirements – 40 CFR Part 112.8(b)

A. Drainage from Diked Storage Areas – 40 CFR 112.8(b)(1) & (2)

All oil is stored within a secondary containment system. The secondary containment system does not have any valves or pumps, which could accidentally release oil into the environment.

B. Drainage from Undiked Storage Areas – 40 CFR 112.8(b)(3)

The facility does not have an undiked storage areas.

C. Drainage Engineering – 40 CFR 112.8(b)(4) & (5)

Facility drainage systems are adequately engineered to prevent oil from leaving the facility in the event of equipment failure or human error.

3. Bulk Storage Containers – 40 CFR Part 112.8(c)

A. Container Compatibility – 40 CFR 112.8(c)(1):

Each aboveground container is of UL-142 construction and is compatible with the oils they contain and conditions of storage.

B. Secondary Containment – 40 CFR 112.8(c)(2):

All aboveground containers have impervious dikes for secondary containment with a capacity to hold a discharge from the largest single container. All secondary containment systems are closed systems without any means for rainwater or oils to be accidentally released to the environment. In all cases, rainwater or spilled oil must be pumped from the containment areas using vacuum tank trucks or portable pumps.

C. Discharge of Uncontaminated Rainwater – 40 CFR 112.8(c)(3):

All operations are conducted within secondary containment. All oil is stored within a secondary containment system. The storm water is captured and managed to ensure that its presence would not cause a discharge as described in §112.1(b) if it were released. Drainage records would be kept and stored for at least three years in the facility's operating record.

D. Underground Storage – 40 CFR 112.8(c)(4) & (5):

The facility does not have any underground storage.

E. Integrity Testing – 40 CFR 112.8(c)(6):

All storage tanks are aboveground and subject to annual integrity testing using such techniques as hydrostatic testing, visual inspection, or a system of non-destructive shell thickness testing. Container supports and foundations are also inspected.

Daily inspections are performed in each area of the facility in accordance with the facility's permits and approvals. Daily inspections are performed to discover any leaks or spills for a timely response. All inspections are kept with the facility's operating record.

F. Integrity Testing – 40 CFR 112.8(c)(7):

There are no internal heating coils at this facility.

G. Tank Level Indicators – 40 CFR 112.8(c)(8):

Each storage tank is equipped with a direct-reading level gauge. A person is always present to monitor gauges and the overall filling of bulk storage containers. There is direct communication between the container gauge and the pumping station. The fluids being measured in the bulk storage containers are clean compounds with few solids present resulting in a lower likelihood for the level instruments to clog or fail than typical waste receiving and treatment facilities.

H. Effluent – 40 CFR 112.8(c)(9):

This facility does not produce effluent.

I. Spill Clean-Up – 40 CFR 112.8(c)(10):

Operators are trained to clean up any spill or loss of oil from bulk storage tanks and the associated piping and valves. All spills and leaks are cleaned up within 24 hours of discovery. Areas where spills and leaks are common such as, hose connections and sample valves, spill pans and absorbent material are utilized to immediately catch leaks or drips.

J. Portable Oil Containers – 40 CFR 112.8(c)(11):
Operators are trained to clean up any spill or loss of oil from portable storage tanks (i.e. tote tanks) and the associated piping and valves. Portable storage tanks and drummed materials are always stored inside and in containment areas sufficient to contain the capacity of the largest single container except when being actively staged for loading or unloading from box trailers.

4. Transfer Operations, Pumping, and In-Plant Processes – 40 CFR Part 112.8(d)

A. Buried Piping – 40 CFR 112.8(d)(1):

The facility does not have any buried piping.

B. Unused Pipelines – 40 CFR 112.8(d)(2):

Pipelines not in service or in standby for an extended period are capped or blank flanged and marked as to their origin.

C. Pipe Design – 40 CFR 112.8(d)(3):

All pipe supports are properly designed to minimize abrasion and corrosion and to allow for expansion and contraction.

D. Pipe Inspections – 40 CFR 112.8(d)(4):

All pipelines, valves, and appurtenances are aboveground and examined weekly to assess their condition. This visual inspection checks the general condition of flanges, joints, valve bodies, catch pans, piping supports, locking valves, and metal surfaces. Any deviations in the condition of the piping systems are identified on the log sheet and corrected as soon as possible. Inspection log sheets are stored with the facility's operating record.

E. Pipe Protection – 40 CFR 112.8(d)(5):

Warning signs are posted as needed to prevent vehicles from damaging aboveground pipelines.

SPILL PREVENTION, CONTROL, AND COUNTERMEASURES PLAN REQUIREMENTS FOR ONSHORE OIL PRODUCTION FACILITIES – 40 CFR 112.9

This section is not applicable to this facility.

SPILL PREVENTION, CONTROL, AND COUNTERMEASURES PLAN REQUIREMENTS FOR ONSHORE OIL DRILLING AND WORKOVER FACILITIES – 40 CFR 112.10

This section is not applicable to this facility.

SPILL PREVENTION, CONTROL, AND COUNTERMEASURES PLAN REQUIREMENTS FOR OFFSHORE OIL DRILLING AND WORKOVER FACILITIES – 40 CFR 112.11

This section is not applicable to this facility.

40 CFR 112, SUBPART C – Requirements for Animal Fats and Oils and Greases, and Fish and Marine Mammal Oils; and for Vegetable Oil, Including Oils from Seeds, Nuts, and Fruits and Kernels

This section is not applicable to this facility.

40 CFR 112, SUBPART D – Response Requirements

This section is not applicable to this facility. A Certification of Substantial Harm Determination Form is included in Appendix A.

APPENDIX A - CERTIFICATION OF SUBSTANTIAL HARM DETERMINATION

CERTIFICATION OF SUBSTANTIAL HARM DETERMINATION

Facility Name: Emerald Transformer PPM LLC
Facility Address: 1672 E. Highland Road
Twinsburg, OH 44087

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42, 000 gallons?

   YES _____ NO XX

2. Does the facility have a total oil storage capacity of greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground storage tank area?

   YES _____ NO XX

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Appendix C-III, Appendix C, 40 CFR 112 or a comparable formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environment, see Appendices, I, II, and II to DOC/NOAA's "Guidance for Facility and Vessel Response Plan" Fish and Wildlife and Sensitive Environments" (see Appendix E to this part, Section 10, for availability) and applicable Area Contingency Plan.

   YES _____ NO XX

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula (Appendix C-III, Appendix C, 40 CFR 112 or a comparable formula) such that a discharge from the facility would shut down a public drinking water intake?

   YES _____ NO XX

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil discharge in an amount greater than equal to 10,000 gallons within the last 5 years?

   YES _____ NO XX

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document. Based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

_____ Plant Manager
Signature Title

Jim DelPuppo _____
Name Date

APPENDIX B - PLANT STORAGE VOLUME and CONTAINMENT CALCULATIONS

PLANT STORAGE VOLUME and CONTAINMENT CALCULATIONS

FORMULAS USED FOR CALCULATIONS

Rectangular Area = Length x Width
Rectangular Area-wedge shaped = ½ Depth of Berm Wall x Length x Width
Circular Area = Pi x Radius x Radius = πr^2
Triangular Area = 0.5 x Length A x Length B
Gallons = Cubic Feet x 7.48 gallons/ft^3.
Gross Containment Volume = Contained Area x Depth of Berm Wall
Displaced Volume = Displaced Area x Depth of Berm Wall
Net Containment = Gross Containment Volume - Displaced Volume

MAJOR SECTIONS FOR SPCC PLAN CALCULATIONS:

SECTION A - SUMMARY OF LIQUID STORAGE AND CONTAINMENT
SECTION B - FIXED LIQUID STORAGE CALCULATIONS
SECTION C - BERM DISPLACEMENT CALCULATIONS
SECTION D - BERM CONTAINMENT CALCULATIONS

SUBSECTIONS FOR SPCC PLAN CALCULATIONS:

Section 1. TSCA COMMERCIAL STORAGE AREA

Section 2. NON-REGULATED STORAGE AREA

Section 3. SOUTH LOT

Section 4. RAIL BAY

SECTION A - SUMMARY OF SPCC PLAN CALCULATIONS:

Note: The following numbers include up to four significant digits, rounded as needed to reflect reasonable precision and accuracy.

FIRST CONTINUOUSLY CURBED LOCATION:

1. TSCA COMMERCIAL STORAGE AREA

ID	FIXED LIQUID STORAGE gallons	NET CONTAINMENT gallons
TW-1	6,460	*
TW-2	6,460	*
TW-3	6,460	*
Drums	103,840 (1888 55-gal drum equivalents)	*
Totals	123,220	40,386

*** Note:** Tanks and drums are in the same containment. Largest container size is 6,460 gallons.

SECOND CONTINUOUSLY CURBED LOCATION:

ID	FIXED LIQUID STORAGE gallons	NET CONTAINMENT gallons
TW-4	11,315	***
TW-5	5,000	***
TW-6	5,000	***
Totals	21,315	25,742

2. NON-REGULATED STORAGE AREA

*** **Note:** Tanks are in the same containment. Largest container size is 11,315 gallons.

THIRD CONTINUOUSLY CURBED LOCATION:

3. SOUTH LOT

LOCATION	FIXED LIQUID STORAGE gallons	NET CONTAINMENT gallons
South Lot	**	27,249

** **Note:** Tankers, flatbeds, and a frac tank (as needed) can be parked in this area. The largest single-container size would be 20,000 gallons.

4. RAIL BAY

LOCATION	FIXED LIQUID STORAGE gallons	NET CONTAINMENT gallons
Rail Bay	26,000	54,671

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SECTION B - FIXED LIQUID STORAGE CALCULATIONS

Note: The following numbers include up to four significant digits, rounded as needed to reflect reasonable precision and accuracy.

1. TSCA COMMERCIAL STORAGE AREA

TANK STORAGE

QTY	DESCRIPTION	VOLUME
3 -	6,460-gallon vertical tanks (TW-1, TW-2, TW- 3)	19,380 gallons

CONTAINER STORAGE

QTY	DESCRIPTION	VOLUME
1888 -	Liquid drums equivalents @ 55 gallons each	103,840 gallons
	TOTAL	123,220 gallons

2. NON-REGULATED STORAGE AREA

TANK STORAGE

QTY	DESCRIPTION	VOLUME
1 -	11,315-gallon horizontal tank (TW-4)	11,315 gallons
2-	5,000-gallon vertical tanks (TW-5, TW-6)	10,000 gallons
	TOTAL	21,315 gallons

3. SOUTH LOT

QTY	DESCRIPTION	VOLUME
1 -	Tankers, Flatbeds, Frac Tank (largest single container 20,000 gallons)	20,000 gallons
	TOTAL	20,000 gallons

4. RAIL BAY

Tank Car Area

QTY	DESCRIPTION	VOLUME
1 –	26,000-gallon jumbo tank car	26,000 gallons
	TOTAL	26,000 gallons

SECTION C - BERM DISPLACEMENT CALCULATIONS

Note: The following numbers include up to four significant digits, rounded as needed to reflect reasonable precision and accuracy.

1. TSCA COMMERCIAL STORAGE AREA

Gross containment area = 14,462 ft^2
Depth of berm wall = 0.5 ft.
Gross containment volume = 14,462 ft^2 x 0.5 ft. = 7,231 ft^3
Gross containment volume = 7,231 x 7.48 = 54,088 gallons

TANK STORAGE

QTY	DESCRIPTION	DISPLACEMENT
3 -	6,460-gallon vertical tanks (AST-1, AST-2, AST-3)	339 ft^2
5 -	ramps	386 ft^2

CONTAINER STORAGE

QTY	DESCRIPTION	DISPLACEMENT
Drum,& Equip Storage		2,939 ft^2

TOTAL = 3,664 ft^2

Depth of berm wall = 0.5 ft.
Displaced volume = 3,664 ft^2 x 0.5 ft. = 1,832 ft^3
Displaced volume = 1,832 ft^3 x 7.48 = 13,702 gallons

2. NON-REGULATED STORAGE AREA

Gross containment area = 9,384 ft^2
Depth of berm wall = 0.5 ft.
Gross containment volume = 9,384 ft^2 x 0.5 ft = 4,692 ft^3
Gross containment volume = 4,692 x 7.48 = 35,096 gallons

TANK STORAGE

QTY	DESCRIPTION	DISPLACEMENT
1 -	11,315-gallon horizontal tank (TW-4)	256 ft^2
2-	5,000-gallon vertical tanks (TW-5, TW-6)	101 ft^2

CONTAINER STORAGE

QTY	DESCRIPTION	DISPLACEMENT
134-	pallets of drum storage	2144 ft^2

TOTAL = 2501 ft^2

Depth of berm wall = 0.5 ft
Displaced volume = 2501 ft^2 x 0.5 ft = 1251 ft^3
Displaced volume = 1251 ft^3 x 7.48 = 9354 gallons

3. SOUTH LOT

Gross containment area = 11,040 ft^2 (LxW = 80 ft x 138 ft)
Depth of berm wall = 0.66 ft (wedge shaped area, so height divided by 2) = 0.33 ft
Gross containment volume = 11,040 ft^2 x 0.33 ft= 3,643 ft^3
Gross containment volume = 3,643 x 7.48 = 27,249 gallons

QTY	DESCRIPTION	DISPLACEMENT
1 -	Tankers, Flatbeds, Frac Tank (largest single container 20,000 gallons)	*

*This equipment has negligible displacement because it is located on structural legs or supports.

4. RAILBAY

Gross containment area = 22,148 ft^2 (LxW = 98 ft x 226 ft)
Depth of berm wall = 0.66 ft (wedge shaped area, so height divided by 2) = 0.33 ft
Gross containment volume = 22,148 ft^2 x 0.33 ft= 7,309 ft^3
Gross containment volume = 7,309 x 7.48 = 54,671 gallons

QTY	DESCRIPTION	DISPLACEMENT
1	26,000-gallon jumbo tank car	*

*This equipment has negligible displacement because it is located on structural legs or supports.

SECTION D - BERM CONTAINMENT CALCULATIONS

Note: The following numbers include up to four significant digits, rounded as needed to reflect reasonable precision and accuracy.

The Displaced volumes are developed in Section C.

1. TSCA COMMERCIAL STORAGE AREA

Gross containment area = 14,462 ft^2
Depth of berm wall = 0.5 ft
Gross containment volume = 14,462 ft^2 x 0.5 ft = 7,231 ft^3
Gross containment volume = 7,231 x 7.48 = 54,088 gallons

Displacement = 13,702 gallons
Net Containment = Gross containment volume - Displacement

Net Containment = 54,088 - 13,702 = 40,386 gallons

2. NON-REGULATED STORAGE AREA

Gross containment area = 9,384 ft^2
Depth of berm wall = 0.5 ft
Gross containment volume = 9,384 ft^2 x 0.5 ft= 4,692 ft^3
Gross containment volume = 4,692 x 7.48 = 35,096 gallons

Displacement = 9,354 gallons
Net Containment = Gross containment volume - Displacement

Net Containment = 35,096 – 9,354 = 25,742 gallons

3. SOUTH LOT

Gross containment area = 11,040 ft^2
Depth of berm wall = 0.66 ft
Gross containment volume = 11,040 ft^2 x ½ (0.66 ft – wedge) = 3,643 ft^3
Gross containment volume = 3,643 x 7.48 = 27,249 gallons

Displacement = negligible
Net Containment = Gross containment volume - Displacement

Net Containment = 27,249 – 0 = 27,249 gallons

4. RAIL BAY

Gross containment area = 22,148 ft^2
Depth of berm wall = 0.66 ft
Gross containment volume = 22,148ft^2 x ½ (0.66 ft – wedge) = 7,309 ft^3
Gross containment volume = 7,309 x 7.48 = 54,671 gallons

Displacement = negligible
Net Containment = Gross containment volume - Displacement

Net Containment = 54,671 – 0 = 54,671 gallons

SECTION E– EMERGENCY RESPONSE

Emergency Shut down of Power and Process

In the event of an emergency, power is shut off to the affected area. The main power panel for the facility is in the Southwest walkway of the facility near the dock entrance. Other power panels, breakers, and switches down-line of the main power may be shut off in lieu of the main power depending on the situation as appropriate.

Fire valves are located on the lower inlets and outlets of tanks. In the event of a fire, and a process valve were left open, aluminum alloy links would melt activating a spring and pendulum mechanism closing the valve, thus preventing oil contained in the tanks from escaping.

LIST OF EMERGENCY EQUIPMENT AVAILABLE

Equipment	Location
Large portable spill kits	East side of Dock and in IC area.
Absorbent spill pads	Throughout facility
First aid kits	Laboratory and facility – near main entrance
Emergency Showers/Eyewash station	Plant – Northeast corner IC – Portable eyewash only
Fire Blanket	IC – Southwest corner
Bags of clay absorbent	Pallets stored in Southwest area in berm
Fire Extinguishers	Distributed throughout the facility
Personal protective equipment (PPE) - Gloves	Gloves – throughout the facility
Chemical protective suits	Clean room area - Northeast section of facility
Employee PPE	Lockers – Northeast section of facility
Additional PPE supplies	Facility supply closet

NOTE*: Large Portable Spill Kits are bins (46 "X 48" X 73") constructed of galvanized metal and designed to be transported using forklifts. These kits contain absorbent booms, oil absorbent cloth in rolls and pads, mops, buckets, a mop strainer, wet vacuum(s), squeegees, shovels, picks, protective clothing, a small portable spill kit, and other supplies.

NOTE**: The portable kits are used to quickly patch minor leaks in containers. These kits consist of an assortment of screws, washers, wooden dowels, rags, corks, duct tape, and small hand tools.

Fire and Explosion

To a great extent, the response to fire and explosion depends greatly on the nature, severity and location of the incident.

SMALL FIRE: In the event of a small fire in an easily contained area, the employees in the area shall immediately:

1. Use a fire extinguisher to put out the fire.
2. Notify others in the area of the fire,
3. Report the incident immediately to the Emergency Response Coordinator ERC) who will be responsible for notifying the fire department; and
4. If appropriate, stand by at the scene of the fire with a fire extinguisher prepared for possible further outbreaks of fire until the fire department arrives to inspect the scene.

Upon being notified of the occurrence of a small fire, the ERC shall

1. Notify the Fire Department immediately, giving:
    a. His/her name and the facility name, location, and phone number
    b. The time and type of incident;
    c. The type and quantities of materials involved;

d. The extent of injuries, if any;
e. The type of environment (processing and manufacturing);
f. The actions initiated.

2. Report to the scene of the fire to assess the situation and supervise activities.
3. If appropriate, stand by at the scene of the fire with a fire extinguisher prepared for any possible further outbreaks of fire until the fire department arrives to inspect the scene

When the fire has been controlled and these there is no immediate danger, the ERC shall make a written report to the Plant Manager, and the Health & Safety Manager concerning the date and time of the incident, the people involved, the extent of the damage, the extent of any remaining hazard, and the cause of the fire.

NOTE: A small fire can be classified as one that can be controlled by the largest fire extinguisher available at the scene. The following guidelines are to be used to assess the capability of a fire extinguisher.

- A 5-pound extinguisher can control a 10-square foot BC fire
- A 10-poind extinguisher can control an 80-square foot BC fire
- A 150-poind extinguisher can control a 240-square foot BC fire

LARGE FIRE: In the event of a large fire or explosion, or a small fire or explosion in an area that is not easily accessible to Emerald Transformer PPM LLC employees, the employees shall:

1. Cease operations, notify others in the area of the danger (see Emergency Notification System), and terminate power to the area in which the fire has occurred (See Emergency Shutdown of Power and Process)
2. Evacuate the area;
3. Notify the Fire and Police Departments immediately, giving:
   a. The name of the employee making the call and the facility name, location, and phone number;
   b. The time and type of incident;
   c. The type and quantities, if any;
   d. The type of environment (processing and manufacturing);
   e. The actions initiated.
4. Notify the Plant Manager (primary ERC) and the facility Health & Safety Manager
   The ERC shall do the following:
   A. Direct, in conjunction with responding fire and/or police departments, the activities of the plan personnel during the emergency. This includes:
      a. Coordinating an attempt to put out or control the fire with on-site equipment (where possible).
      b. Maintaining a barricade around the emergency area through which only essential personnel may pass; and
      c. Evacuating the area (if it is deemed necessary) according to the evacuation plans below.
   B. Stay at a safe distance ready to give information to the Fire Chief regarding the location and contents of the drums and/or tanks involved in the fire;
   C. Notify the State and local governmental agencies listed below of the occurrence of the fire or explosion.
   D. Oversee the proper clean-up and disposal of any residual materials.
5. Oversee the clean-up and/or replacement of all emergency equipment prior to the resumption of plant operations;
6. Notify the General Manager of the event;
7. File a written report, if required, with the EPA Regional Administrator with 15 days after the event.

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LIST OF STATE AND LOCAL AGENCIES TO BE NOTIFIED

Regional Administrator
Environmental Protection Agency

Ohio Department of Natural Resources

Cuyahoga County Board of Health Emergency Response

Twinsburg Fire Department

EVACUATION PLAN

The ERC will notify employees of the need to evacuate by paging on the telephone paging system or authorizing another employee to do so. If evacuation is required, the telephone intercom paging system is used to alert employs to this need are located in all areas of the facility.

Evacuation of the plant should only be necessary in the event of a major explosion, a fire which threatens to spread, in the event of a major storm (such as a tornado) severe enough to cause major damage to the facility, or other events of such impact.

In the event that evacuation is required, all personnel will leave the facility and meet by the flagpole located to the Northeast of the office building. If this is not a safe location then the secondary meeting location is on Highland road at the end of the facility driveway. The Plant Manager, or ERC, will make sure that all personnel are accounted for. If the supervisor is not present, the ERC will appoint someone in that department to account for the employees know to be present in that department or work area. If it is determined that person(s) are unaccounted for or know to be in an area of danger, the ERC will notify the Fire Chief or other emergency personnel as appropriate.

ARRANGEMENTS WITH LOCAL AGENCIES

The Twinsburg Fire Department would respond to any emergencies at this facility. Representatives of the fire department have toured the plant and have a current copy of this Emergency Response Plan. The fire department will consult with the ERC or PM in fighting a fire at the plant. Law enforcement and traffic control will be provided by the Twinsburg Police Department.

Bedford Medical Center, 44 Blaine Ave, Bedford, Ohio has agreed to provide medical services to the facility. Their representatives have been provided with a copy of this Emergency Response Plan.

Identification of the materials involved in a fire or explosion can be accomplished by means of the labels on the tanks or drums involved in most cases the ERC and most other plant personnel are aware of the contents of each container.

DISTRIBUTION OF EMERGENCY RESPONSE PLAN

Copies of this plan are located in the following areas:

Breakroom
Plant Manager’s office
Reception Desk
Plant Supervisor’s office

Copies will be provided to emergency responders, and all designated ERCs will have a copy of this plan.

FIRE ANDD EXPLOSION PREVENTION

All electrical components within the facility conform to the National Electric Code (Citation) and are installed a maintained in an (intrinsically safe?) manner.
All tanks are grounded. Multiple hand-held fire extinguishers are located throughout the facility.

Water for firefighting is available from 3 county hydrants.

FIGURE 1 – GENERIC SITE MAP

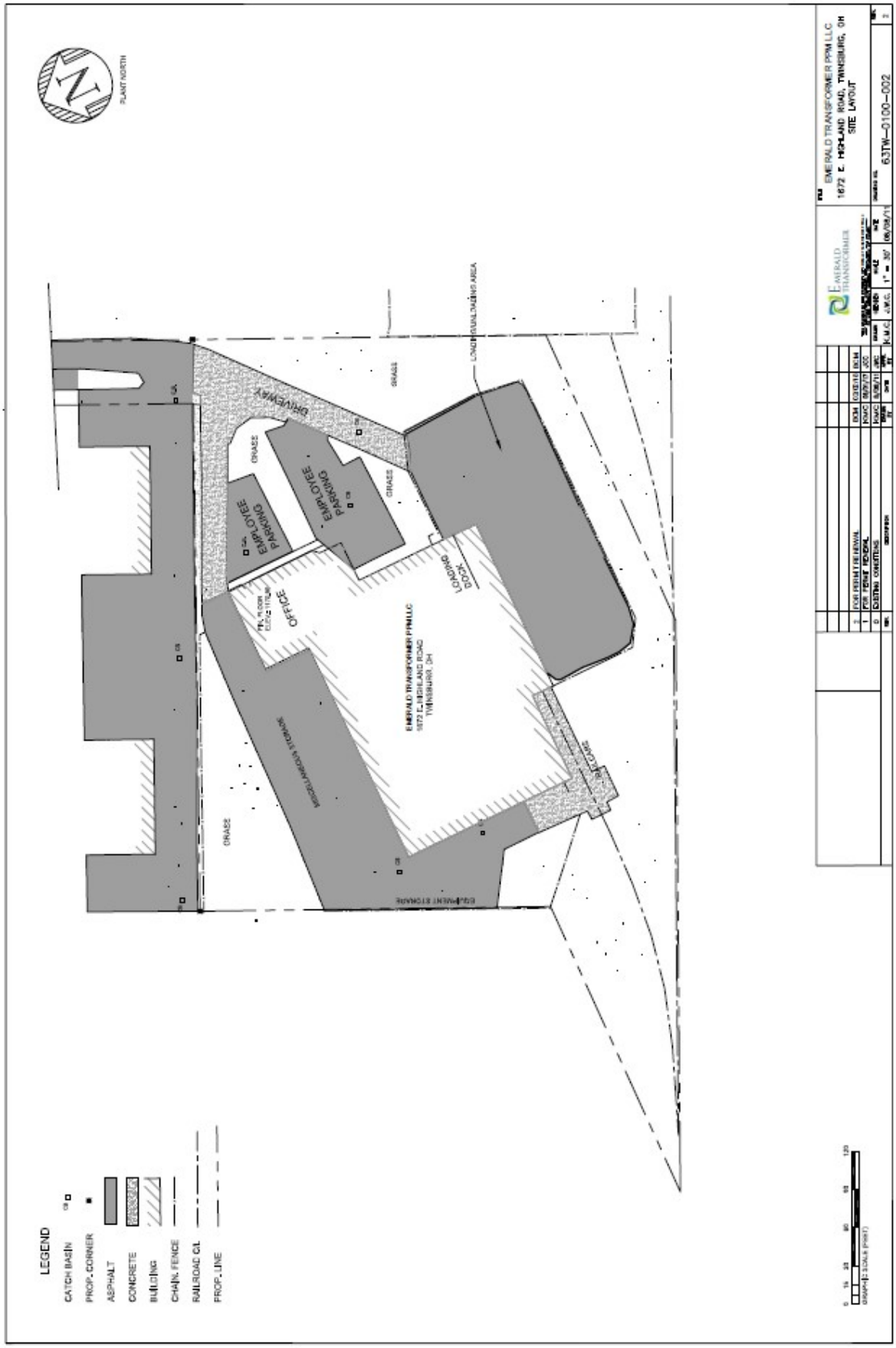


FIGURE 2 – MAIN PROCESS BUILDING LAYOUT

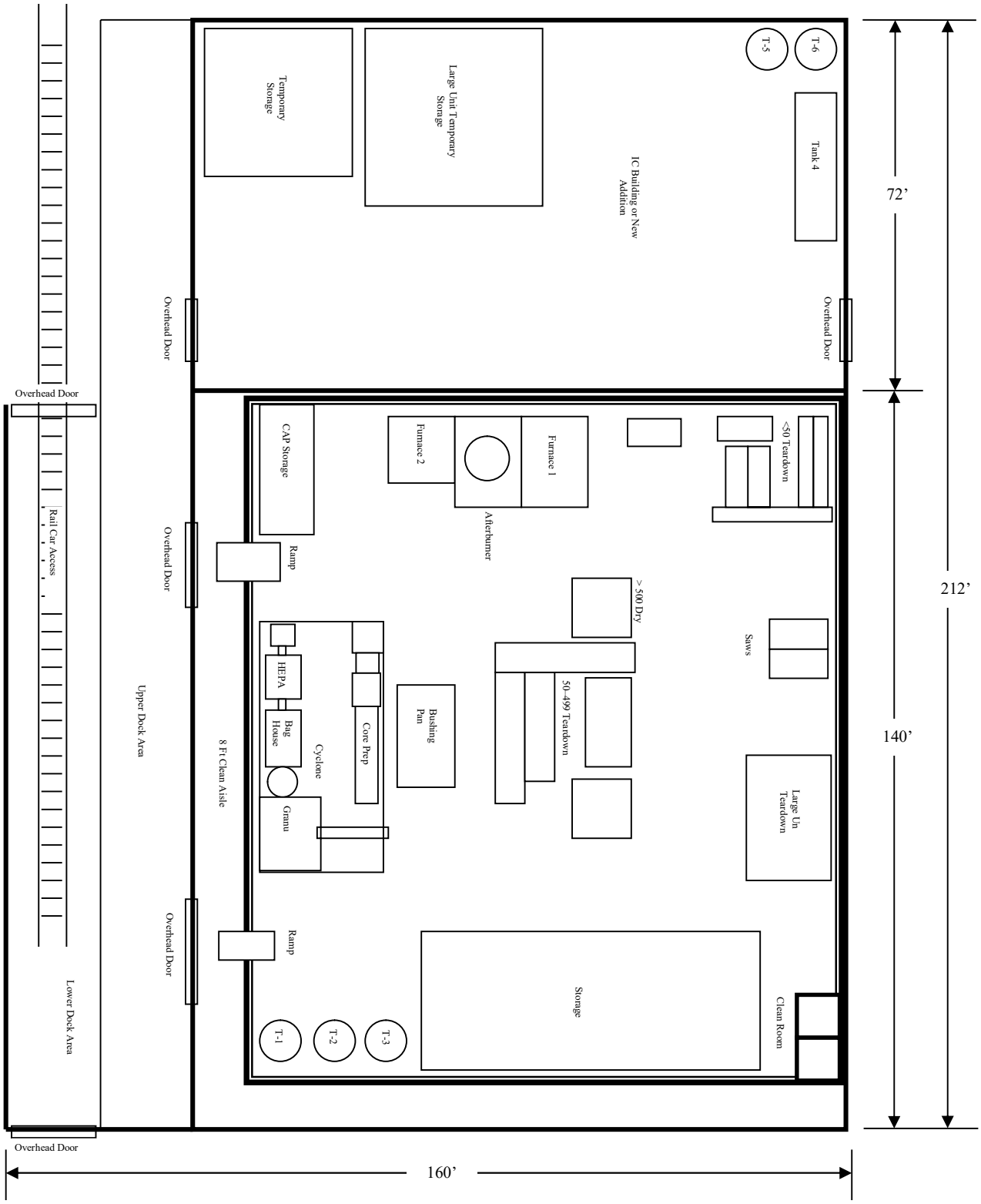
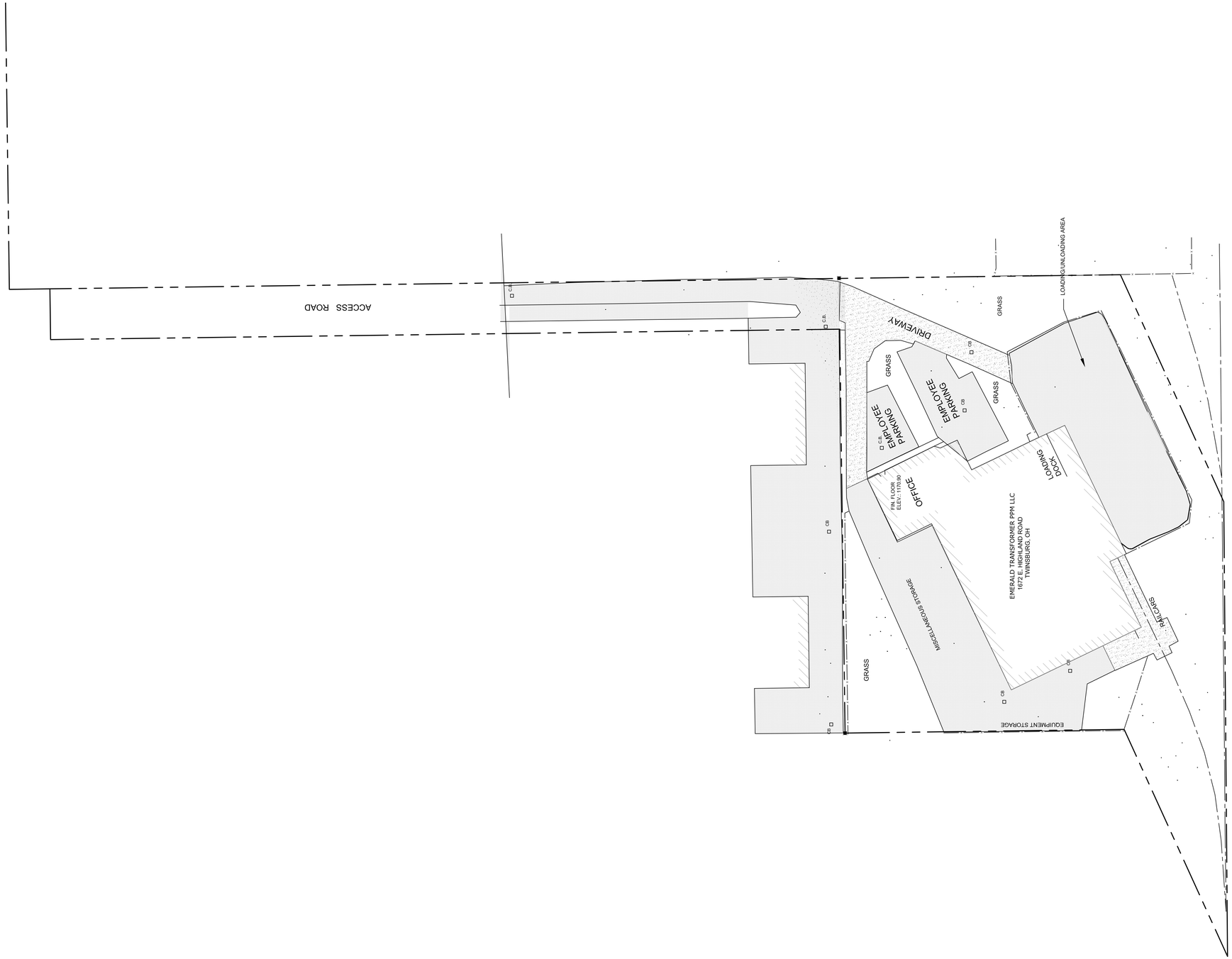


TABLE 1 – OIL STORAGE LOCATIONS

Tank #	Tank Capacity (gallons)	Contents	Tank Material	Integrity Tested Annually
1	6,460	<2 PCB Mineral Oil	Carbon Steel	Yes
2	6,460	PCB Oil	Carbon Steel	Yes
3	6,460	PCB Oil	Carbon Steel	Yes
4	11,315	<2 PCB Mineral Oil	Carbon Steel	Yes
5	5,000	2-49 ppm PCB Mineral Oil	Carbon Steel	Yes
6	5,000	2-49 ppm PCB Mineral Oil	Carbon Steel	Yes
N/A	N/A	TSCA Commercial Storage Area	N/A	N/A
N/A	N/A	Non- Regulated Storage Area	N/A	N/A
N/A – Frac Tank as needed	20,000	South Lot	Carbon Steel	N/A
N/A	N/A	Rail Bay	N/A	N/A

APPENDIX G – FACILITY DRAWINGS

PLANT NORTH



LEGEND

- CATCH BASIN
- PROP. CORNER
- ASPHALT
- CONCRETE
- BUILDING
- CHAIN. FENCE
- RAILROAD C/L
- PROP. LINE

0 25 50 100 150 200
GRAPHIC SCALE (FEET)

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
2	FOR PERMIT RENEWAL	BCM	02/02/18	BCM
1	FOR PERMIT RENEWAL	KMC	06/01/17	JCC
0	EXISTING CONDITIONS	KMC	8/08/11	JWC

EMERALD TRANSFORMER

DRAWN	CHECKED	SCALE	DATE
K.M.C.	J.W.C.	1" = 50'	08/08/11

TITLE

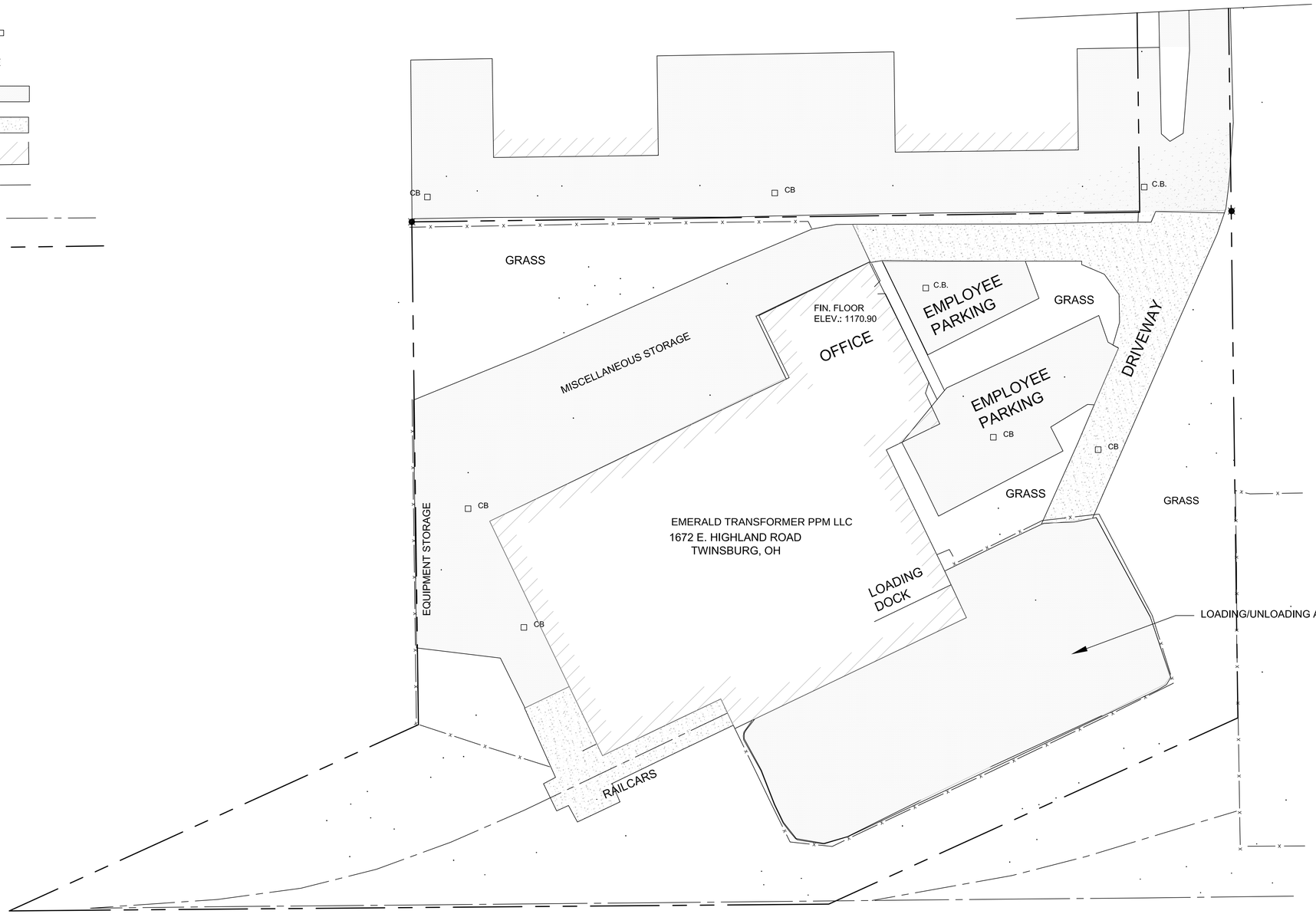
EMERALD TRANSFORMER PPM LLC
1672 E. HIGHLAND ROAD, TWINSBURG, OH
PROPERTY PLAN

DRAWING NO. 63TW-0100-001

REV. 2

LEGEND

- CATCH BASIN — CB □
- PROP. CORNER — ■
- ASPHALT
- CONCRETE
- BUILDING
- CHAIN. FENCE — x
- RAILROAD C/L
- PROP. LINE



PLANT NORTH

0 15 30 60 90 120
GRAPHIC SCALE (FEET)

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
2	FOR PERMIT RENEWAL	BCM	02/02/18	BCM
1	FOR PERMIT RENEWAL	KMC	06/01/17	JCC
0	EXISTING CONDITIONS	KMC	8/08/11	JWC

EMERALD TRANSFORMER

DRAWN	CHECKED	SCALE	DATE
K.M.C.	J.W.C.	1" = 30'	08/08/11

TITLE
EMERALD TRANSFORMER PPM LLC
1672 E. HIGHLAND ROAD, TWINSBURG, OH
SITE LAYOUT

DRAWING NO. 63TW-0100-002
REV. 2

PLAN

140'-0"
23'-4" 23'-4" 23'-4" 23'-4" 23'-4" 23'-4"
2'-8"
11"
39'-4" OPENING
100'-8"
24" MASY. RET.
38'-11"
RAIL SIDING TRACK/BALLAST/SUB-BALLAST N.I.C.
AREA DEPRESSED 49" FOR RAIL SIDING
20'-0" OPENING
17'-8"
LOADING DOCK AREA
3'-4"
13'-8"
17'-4"
1'-3"
3'-4"
17'-4"
4'-8"
20'-0"
49'-4"
16'-0"
29'-4"
8"
1'-1"
8'-0"
RAMP DN.
RAMP DN.
RAMP DN.
RAMP DN.
6" WIDE x 6" HIGH BERM
6" WIDE x 6" HIGH BERM
20'-0"
20'-0"
20'-0"
20'-0"
20'-0"
20'-0"
20'-0"
20'-0"
160'-0"
121'-1"
FROST PROOF HOSE BIBB
FROST PROOF HOSE BIBB
8'-0"
6" WIDE x 6" HIGH BERM
6" HIGH BERM
5T MONORAIL CRANE/BM
1T JIB CRANE
1T JIB CRANE
1-1/2T JIB CRANE
1-1/2T JIB CRANE
1-1/2T JIB CRANE
SEE PART PLAN TO RIGHT FOR OFFICE BLDG.
EMPLOYEE CLEAN AREA
FROST PROOF HOSE BIBB
11"
2'-1½"
3'-4"
19'-4"

1 1B 2 3 4 5 6 6A
G F4 F3 F2 F1 F E2 E1 E D1 D C1 C1A C

PART PLAN

32'-8"
65'-4"
59'-4"
33'-8"
HALL C
VEND.
LUNCH ROOM
WOMENS LOCKER ROOM
MENS LOCKER ROOM
SHWR.
JAN.
GENERAL OFFICE
SUPPLY ROOM
HALL A
HALL B
WOMENS
MENS
OFFICE 6
OFFICE 5
OFFICE 4
OFFICE 3
OFFICE 2
OFFICE 1
LOBBY

N

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
B	FOR PERMIT RENEWAL	B.C.M.	02/02/18	B.C.M.
A	FOR PERMIT RENEWAL	K.M.C.	06/01/17	J.C.C.

REFERENCE DRAWINGS

DRAWN	CHECKED	SCALE	DATE
K.M.C.	J.W.C.	1/8"=1'-0"	05/20/11

TITLE

EMERALD TRANSFORMER PPM LLC
1672 E. HIGHLAND ROAD
TWINSBURG, OH
FIRST FLOOR PLAN

DRAWING NO. 63TW-0200-001

REV. B

PLANT NORTH

E2 E1 E D1 D C1 C

6 SPACES @ 20'-0" = 120'-0"

20'-0" 20'-0" 20'-0" 20'-0" 20'-0" 20'-0" 20'-0"

2'-0"

6'-6"x72'-0"x6" THICK CONC. SLAB w/6x6 #6/6 W.W.M. OVER GRAVEL

RELOCATED CATCH BASIN

4'-0"

3'-0" 3'-0"

9

6'-0"

DN.

EDGE OF 4'-0" HIGH DOCK

6" HIGH CONC. PAD

6" CONC. FLOOR SLAB w/6x6 #6/6 W.W.M. OVER VAPOR BARRIER & GRAVEL

6" HIGH PERIM. CONC. CURB

LOADING DOCK AREA

8

D.S.

LINE OF BLDG. ROOF OVERHANG ABOVE

WAREHOUSE 2
FIN. FLOOR EL.1093.0'

6" CONC. FLOOR SLAB w/6x6 #6/6 W.W.M. OVER VAPOR BARRIER & GRAVEL

3 SPACES @ 24'-0" = 72'-0"

24'-0" 24'-0"

6"ø

7

12'-0"

6'-0"

3'-0" 2'-0"

2'-0" 3'-0"

RELOCATED CATCH BASIN

6"ø PIPE BOLLARD (TYP. OF 8)

6" HIGH CONC. RAMP

6" HIGH CONC. RAMP

DRIVE

F4 F1

DN. DN.

38'-11"

12'-0"

4'-0"

11"

12'-0"

4'-0"

FROST PROOF HOSE BIBB

WAREHOUSE 2

6A 6A

WAREHOUSE 1
SEE DWG. NO. 63TW-0200-001

23'-4"

RAIL SIDING TRACK

AREA DEPRESSED 49" FOR RAIL SIDING

LOADING DOCK AREA

19'-4"

6

3'-4"

C1A

REFERENCE DRAWINGS

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
C	FOR PERMIT RENEWAL	B.C.M.	02/02/18	B.C.M.
B	FOR PERMIT RENEWAL	K.M.C.	06/01/17	J.C.C.
A	EXISTING CONDITIONS	K.M.C.	8/08/11	J.W.C.

EMERALD TRANSFORMER

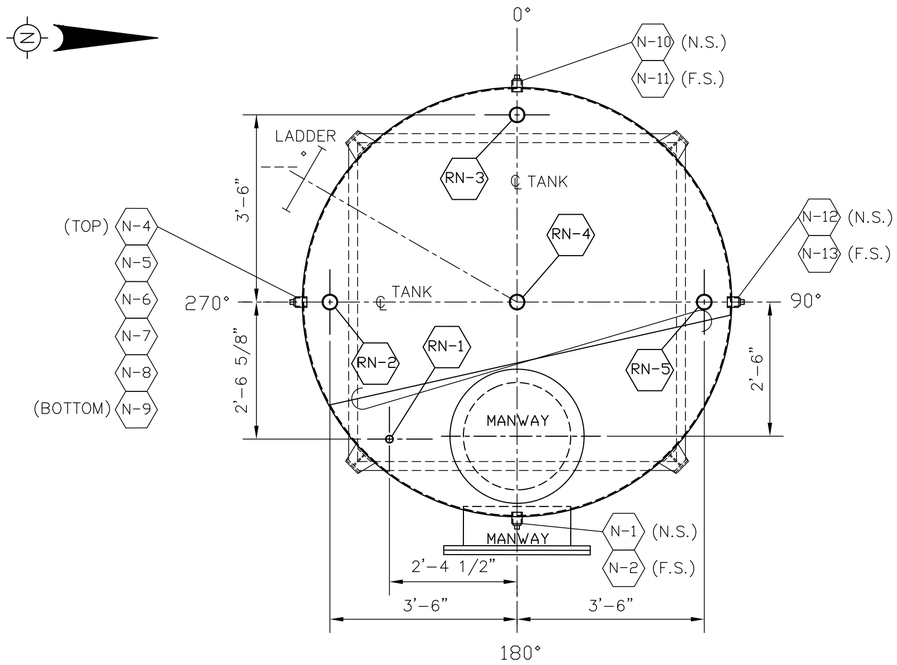
TITLE

EMERALD TRANSFORMER PPM LLC
1672 E. HIGHLAND ROAD
TWINSBURG, OH
WAREHOUSE 2 FLOOR PLAN

DRAWN	CHECKED	SCALE	DATE
K.M.C.	J.W.C.	1/8"=1'-0"	05/24/11

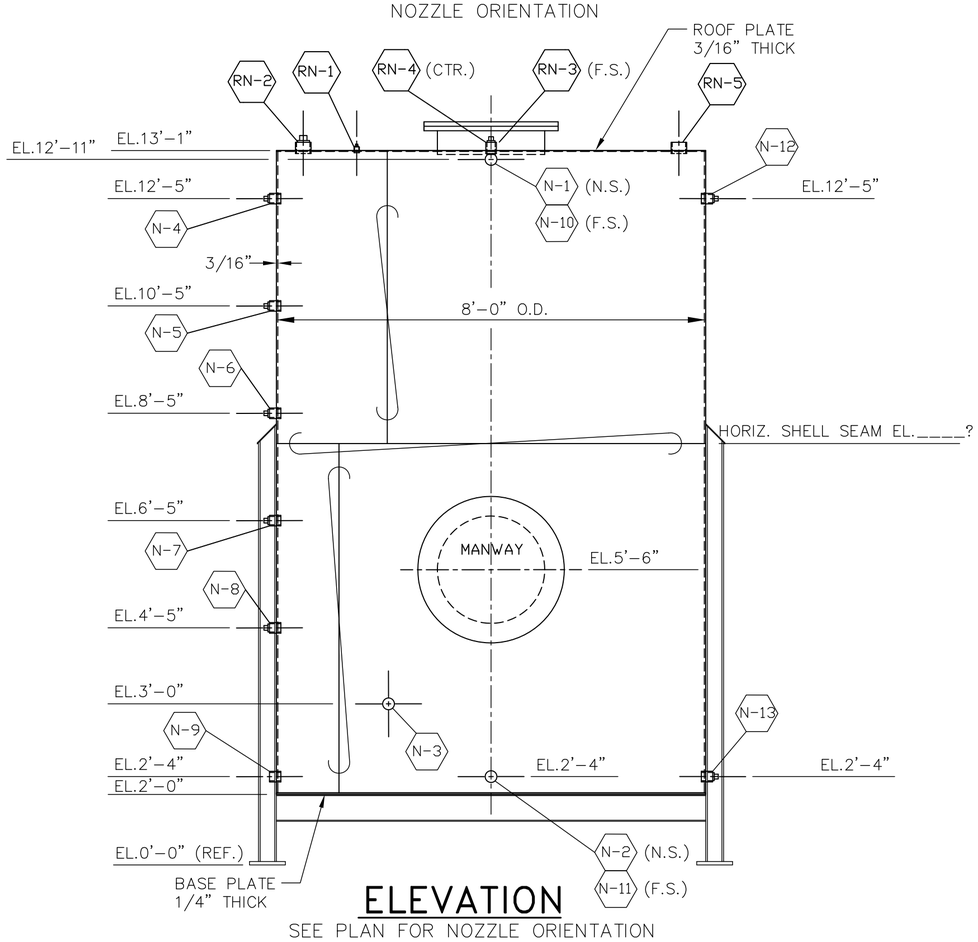
DRAWING NO. 63TW-0200-002

REV. C



PLAN

NOZZLE ORIENTATION



ELEVATION

SEE PLAN FOR NOZZLE ORIENTATION

NOZZLE SCHEDULE

MARK	SIZE	QTY.	SERVICE	LOCATION	NOZZLE CONNECTION
N-1	2"	1	FILL	SHELL	THREADED COUPLING
N-2	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-3	1"	1	–	SHELL	THREADED COUPLING w/PLUG
N-4	2"	1	LEVEL ALARM HIGH	SHELL	THREADED COUPLING
N-5	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-6	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-7	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-8	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-9	2"	1	DRAIN	SHELL	THREADED COUPLING
N-10	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-11	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-12	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-13	2"	1	–	SHELL	THREADED COUPLING w/PLUG
MANWAY	24"	1	MANWAY	SHELL	FLANGED w/COVER
RN-1	1/2"	1	–	TOP	THREADED COUPLING w/PLUG
RN-2	3"	1	–	TOP	THREADED COUPLING w/PLUG
RN-3	2"	1	–	TOP	THREADED COUPLING w/PLUG
RN-4	2"	1	VENT	TOP	THREADED COUPLING
RN-5	3"	1	LEVEL INDICATOR	TOP	THREADED COUPLING
MANWAY	24"	1	MANWAY	TOP	FLANGED w/COVER

MATERIAL SPECIFICATIONS

SHELL, CONE ROOF AND BOTTOM	ASTM A36 C.S.
NOZZLE NECKS (12" & SMALLER)	ASTM A106 GR. B C.S. SCH. 80
BLIND FLANGES	ASTM A105 FORGED C.S. (150#)
GASKETS	_____
MANHOLE COVER	ASTM A36 C.S.

DESIGN SPECIFICATIONS

OPERATING PRESSURE	ATMOSPHERIC
TOTAL VOLUME	5,500 GAL.
CODE CONSTRUCTION	UL 142

ISSUE	DESCRIPTION	DRWN.	CHKD.	APPR.	DATE
1	FOR PERMIT RENEWAL	B.C.M		B.C.M	2/2/18
0	FOR PERMIT RENEWAL	K.M.C.	J.W.C.	J.W.C.	6/1/17

EMERALD TRANSFORMER

TITLE

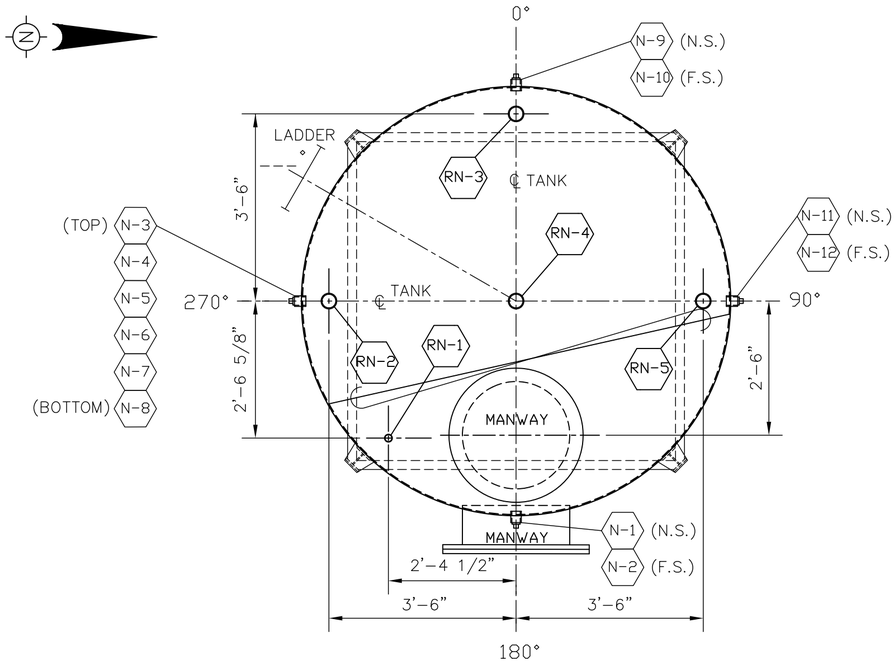
EMERALD TRANSFORMER PPM LLC
1672 E. HIGHLAND ROAD
TWINSBURG, OH

T-1 USED OIL TANK LAYOUT AND DETAILS

PROJECT NO. 63TW

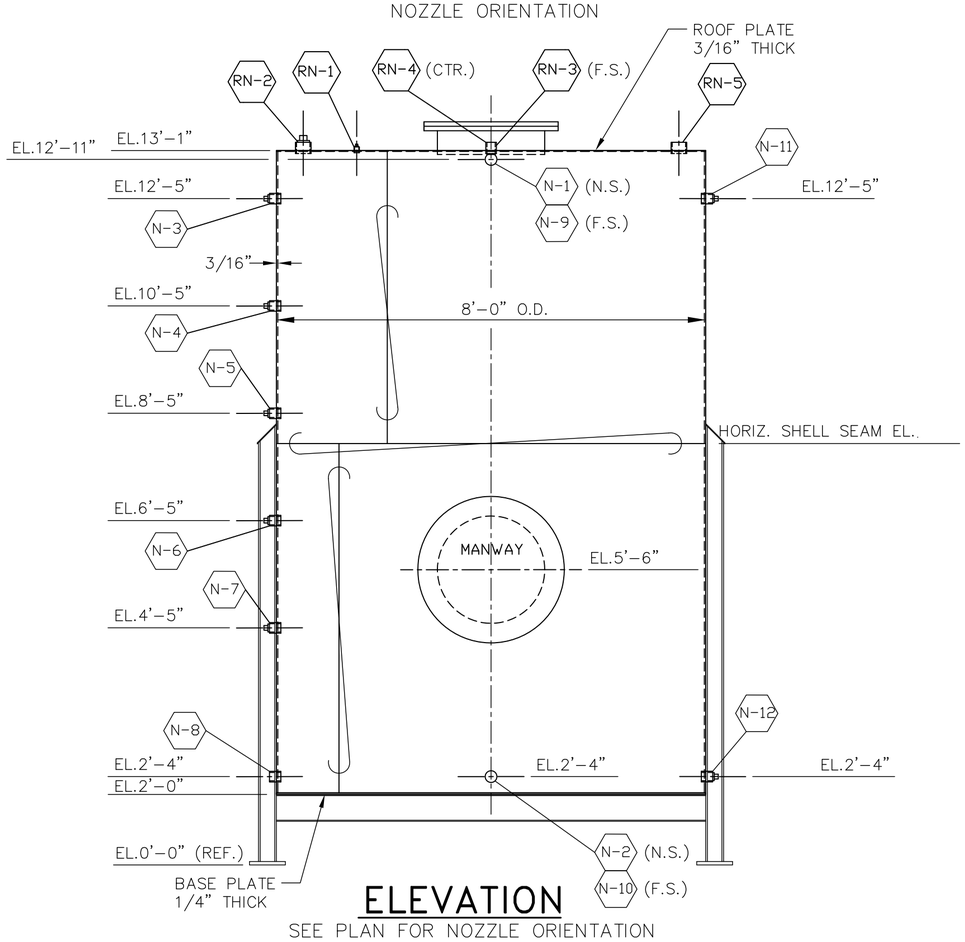
SCALE 1/2" = 1'-0"

DRAWING NO. 63TW-3600-202



PLAN

NOZZLE ORIENTATION



ELEVATION

SEE PLAN FOR NOZZLE ORIENTATION

NOZZLE SCHEDULE

MARK	SIZE	QTY.	SERVICE	LOCATION	NOZZLE CONNECTION
N-1	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-2	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-3	2"	1	LEVEL ALARM HIGH	SHELL	THREADED COUPLING
N-4	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-5	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-6	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-7	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-8	2"	1	DRAIN	SHELL	THREADED COUPLING
N-9	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-10	2"	1	FILL	SHELL	THREADED COUPLING
N-11	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-12	2"	1	–	SHELL	THREADED COUPLING w/PLUG
MANWAY	24"	1	MANWAY	SHELL	FLANGED w/COVER
RN-1	1/2"	1	–	TOP	THREADED COUPLING w/PLUG
RN-2	3"	1	–	TOP	THREADED COUPLING w/PLUG
RN-3	2"	1	FILL	TOP	THREADED COUPLING
RN-4	2"	1	VENT	TOP	THREADED COUPLING
RN-5	3"	1	LEVEL ALARM HIGH	TOP	THREADED COUPLING
MANWAY	24"	1	MANWAY	TOP	FLANGED w/COVER

MATERIAL SPECIFICATIONS

SHELL, CONE ROOF AND BOTTOM	ASTM A36 C.S.
NOZZLE NECKS (12" & SMALLER)	ASTM A106 GR. B C.S. SCH. 80
BLIND FLANGES	ASTM A105 FORGED C.S. (150#)
GASKETS	_____
MANHOLE COVER	ASTM A36 C.S.

DESIGN SPECIFICATIONS

OPERATING PRESSURE	ATMOSPHERIC
TOTAL VOLUME	5,500 GAL.
CODE CONSTRUCTION	UL 142

ISSUE	DESCRIPTION	DRWN.	CHKD.	APPR.	DATE
1	FOR PERMIT RENEWAL	B.C.M		B.C.M.	2/2/18
0	FOR PERMIT RENEWAL	K.M.C.	J.W.C.	J.W.C.	6/1/17

EMERALD TRANSFORMER

TITLE

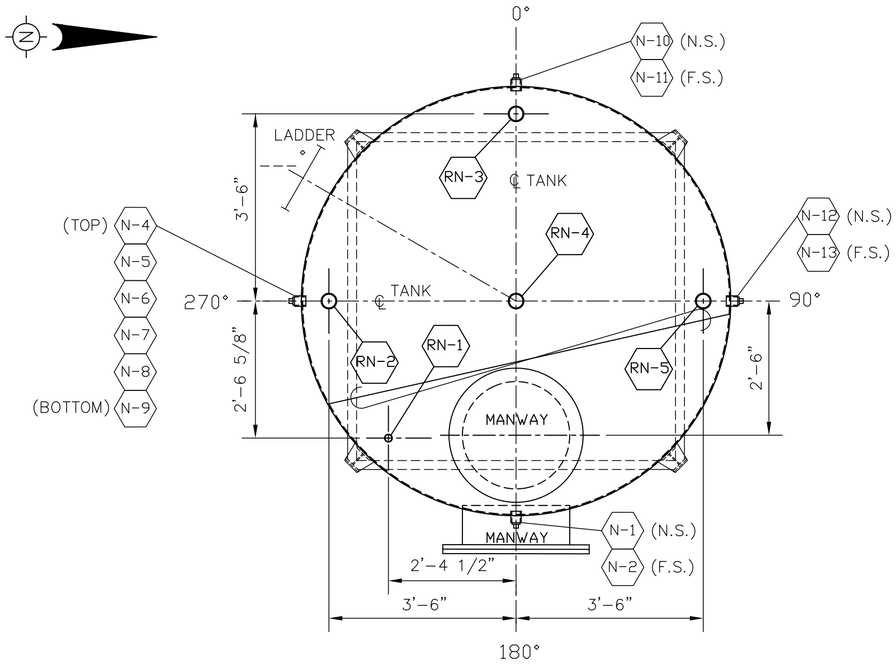
EMERALD TRANSFORMER PPM LLC
1672 E. HIGHLAND ROAD
TWINSBURG, OH

T-2 USED OIL TANK LAYOUT AND DETAILS

PROJECT NO. 63TW

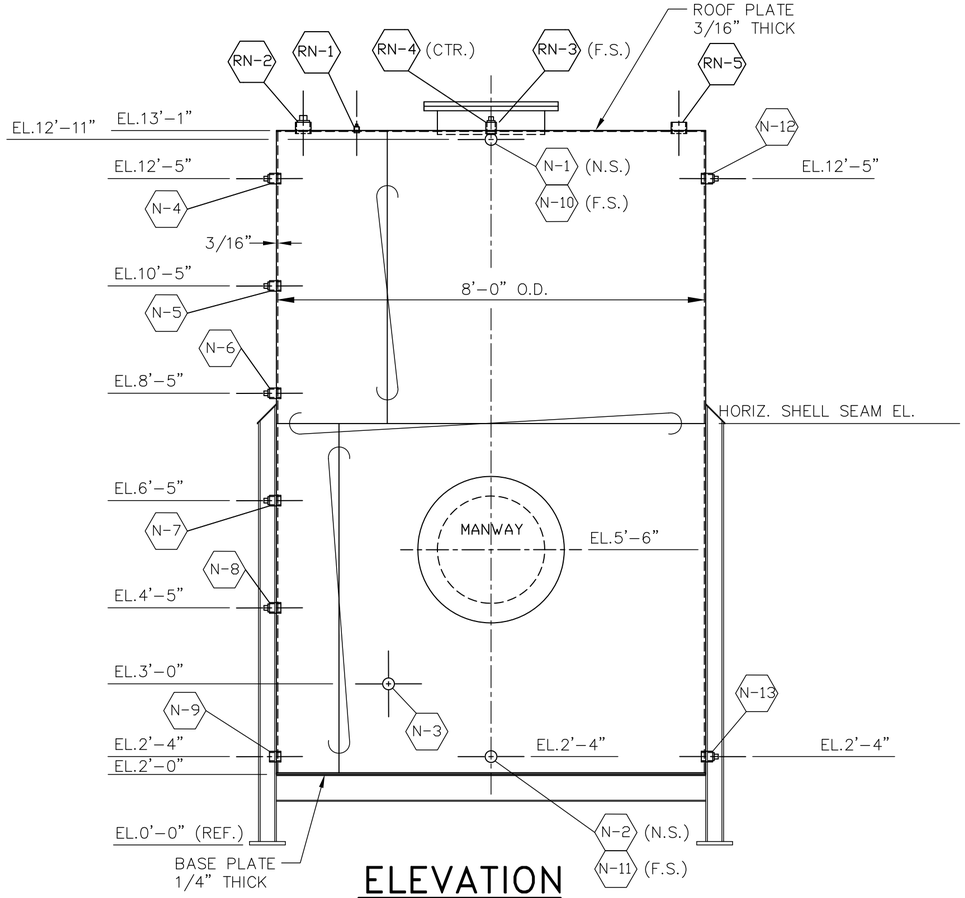
SCALE 1/2" = 1'-0"

DRAWING NO. 63TW-3600-203



PLAN

NOZZLE ORIENTATION



ELEVATION

SEE PLAN FOR NOZZLE ORIENTATION

NOZZLE SCHEDULE

MARK	SIZE	QTY.	SERVICE	LOCATION	NOZZLE CONNECTION
N-1	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-2	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-3	1"	1	–	SHELL	THREADED COUPLING w/PLUG
N-4	2"	1	LEVEL ALARM HIGH	SHELL	THREADED COUPLING
N-5	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-6	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-7	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-8	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-9	2"	1	DRAIN	SHELL	THREADED COUPLING
N-10	2"	1	FILL	SHELL	THREADED COUPLING
N-11	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-12	2"	1	–	SHELL	THREADED COUPLING w/PLUG
N-13	2"	1	–	SHELL	THREADED COUPLING w/PLUG
MANWAY	24"	1	MANWAY	SHELL	FLANGED w/COVER
RN-1	1/2"	1	–	TOP	THREADED COUPLING w/PLUG
RN-2	3"	1	–	TOP	THREADED COUPLING w/PLUG
RN-3	2"	1	FILL	TOP	THREADED COUPLING
RN-4	2"	1	VENT	TOP	THREADED COUPLING
RN-5	3"	1	LEVEL INDICATOR	TOP	THREADED COUPLING
MANWAY	24"	1	MANWAY	TOP	FLANGED w/COVER

MATERIAL SPECIFICATIONS

SHELL, CONE ROOF AND BOTTOM	ASTM A36 C.S.
NOZZLE NECKS (12" & SMALLER)	ASTM A106 GR. B C.S. SCH. 80
BLIND FLANGES	ASTM A105 FORGED C.S. (150#)
GASKETS	_____
MANHOLE COVER	ASTM A36 C.S.

DESIGN SPECIFICATIONS

OPERATING PRESSURE	ATMOSPHERIC
TOTAL VOLUME	5,500 GAL.
CODE CONSTRUCTION	UL 142

ISSUE	DESCRIPTION	DRWN.	CHKD.	APPR.	DATE
1	FOR PERMIT RENEWAL	B.C.M.		B.C.M.	2/2/18
0	FOR PERMIT RENEWAL	K.M.C.	J.W.C.	J.W.C.	6/1/17

EMERALD TRANSFORMER

TITLE

EMERALD TRANSFORMER PPM LLC
1672 E. HIGHLAND ROAD
TWINSBURG, OH

T-3 USED OIL TANK LAYOUT AND DETAILS

PROJECT NO. 63TW

SCALE 1/2" = 1'-0"

DRAWING NO. 63TW-3600-204

F-7, F-9, F-11, F-13, F-16, F-20 & F-22 FILTERS

BAG FILTERS
8" DIA. x 2' LONG
CARBON STEEL

P-8, P-10, P-17 & P-23 FEED PUMPS

AIR DIAPHRAGM
40 gpm @ 80 psig
CARBON STEEL

P-12 & P-21 TRANSFER PUMPS

GEAR PUMP
CARBON STEEL

T-1 STORAGE TANK

8' DIA. x 11'-1" HIGH
4,200 GALLONS
A36 CARBON STEEL
2-49 ppm TRANSFORMER OIL

T-2 & T-3 STORAGE TANKS

8' DIA. x 11'-1" HIGH
4,200 GALLONS
A36 CARBON STEEL
>50 ppm TRANSFORMER OIL

T-4 STORAGE TANK

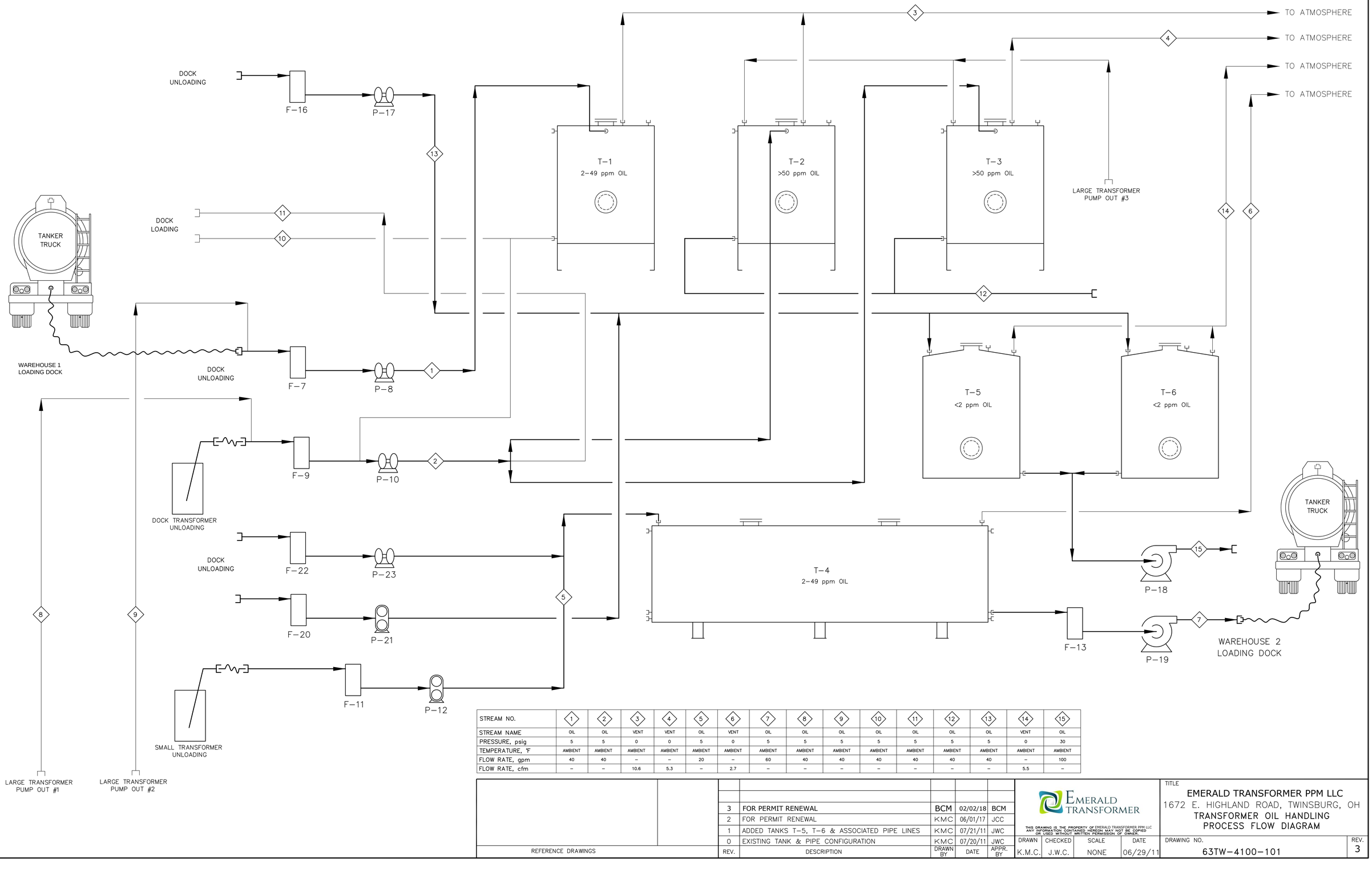
8' DIA. x 33' LONG
12,400 GALLONS
A36 CARBON STEEL
2-49 ppm TRANSFORMER OIL

T-5 & T-6 STORAGE TANKS

8' DIA. x 13'-5" HIGH
5,000 GALLONS
A36 CARBON STEEL
<2 ppm TRANSFORMER OIL

P-18 & P-19 TRANSFER PUMPS

CENTRIFUGAL
100 gpm @ 30 psig
CARBON STEEL



STREAM NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
STREAM NAME	OIL	OIL	VENT	VENT	OIL	VENT	OIL	OIL	OIL	OIL	OIL	OIL	OIL	VENT	OIL
PRESSURE, psig	5	5	0	0	5	0	5	5	5	5	5	5	5	0	30
TEMPERATURE, °F	AMBIENT	AMBIENT	AMBIENT	AMBIENT	AMBIENT	AMBIENT	AMBIENT	AMBIENT	AMBIENT	AMBIENT	AMBIENT	AMBIENT	AMBIENT	AMBIENT	AMBIENT
FLOW RATE, gpm	40	40	–	–	20	–	60	40	40	40	40	40	40	–	100
FLOW RATE, cfm	–	–	10.6	5.3	–	2.7	–	–	–	–	–	–	–	5.5	–

REFERENCE DRAWINGS

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
3	FOR PERMIT RENEWAL	BCM	02/02/18	BCM
2	FOR PERMIT RENEWAL	KMC	06/01/17	JCC
1	ADDED TANKS T-5, T-6 & ASSOCIATED PIPE LINES	KMC	07/21/11	JWC
0	EXISTING TANK & PIPE CONFIGURATION	KMC	07/20/11	JWC

EMERALD TRANSFORMER

TITLE

EMERALD TRANSFORMER PPM LLC
1672 E. HIGHLAND ROAD, TWINSBURG, OH
TRANSFORMER OIL HANDLING
PROCESS FLOW DIAGRAM

DRAWN	CHECKED	SCALE	DATE
K.M.C.	J.W.C.	NONE	06/29/11

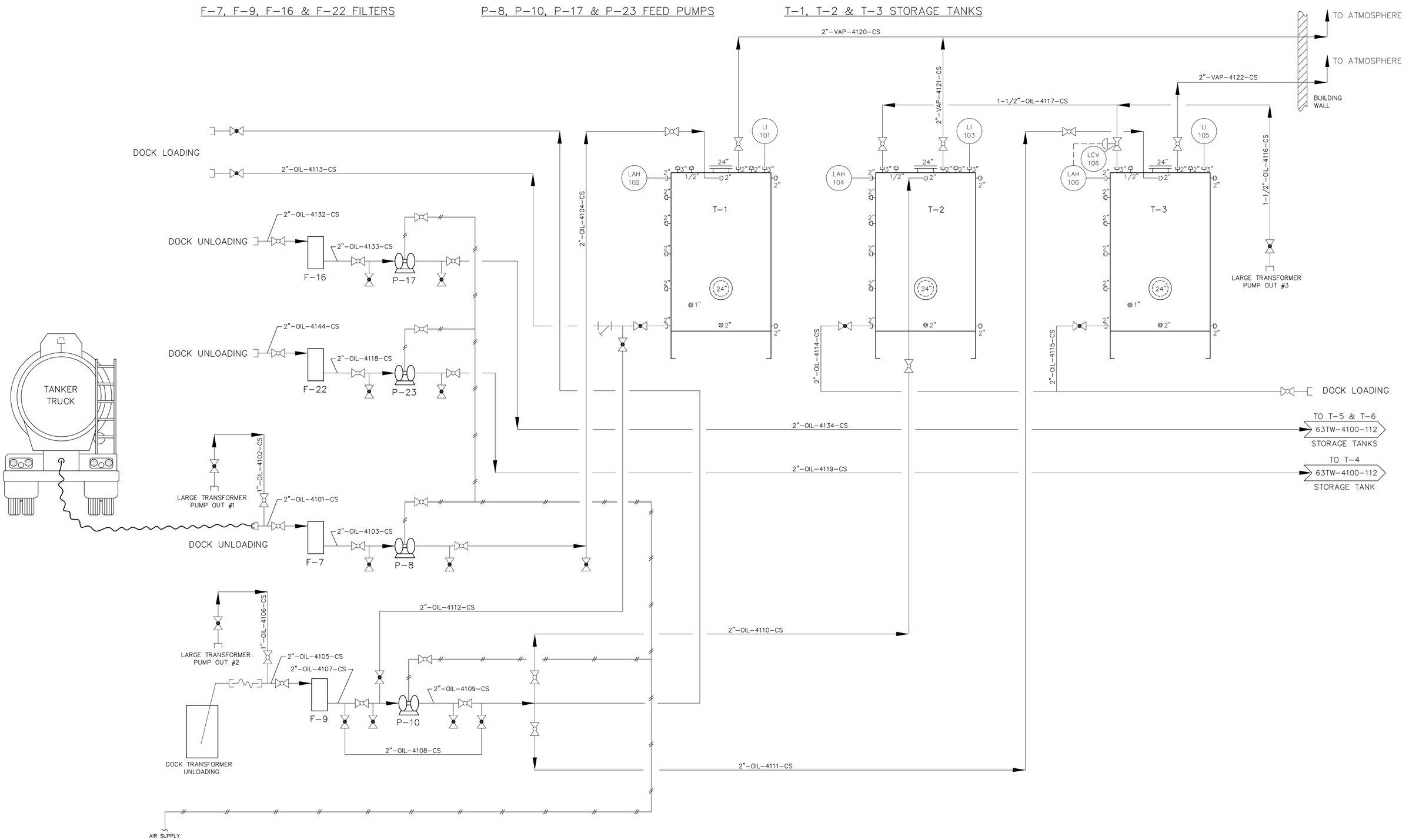
DRAWING NO. 63TW-4100-101

REV. 3

F-7, F-9, F-16 & F-22 FILTERS

P-8, P-10, P-17 & P-23 FEED PUMPS

T-1, T-2 & T-3 STORAGE TANKS



REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
3	FOR PERMIT RENEWAL	BCM	02/02/18	BCM
2	FOR PERMIT RENEWAL	KMC	06/01/17	JCC
1	ADDED FILTERS, PUMPS & ASSOCIATED PIPE LINES	KMC	07/15/11	JWC
0	EXISTING TANK & PIPE CONFIGURATION	KMC	07/14/11	JWC

REFERENCE DRAWINGS

EMERALD TRANSFORMER

DRAWN	CHECKED	SCALE	DATE
K.M.C.	J.W.C.	NONE	06/21/11

TITLE

EMERALD TRANSFORMER PPM LLC

1672 E. HIGHLAND ROAD, TWINSBURG, OH

USED OIL TANKS T-1, T-2 & T-3

PIPING & INSTRUMENTATION DIAGRAM

DRAWING NO. 63TW-4100-111

REV. 3

APPENDIX H – SAMPLING PLAN FOR MONITORING

Sampling Plan for Monitoring Surface Contamination Outside of the Bermed Storage Area

PURPOSE

This sampling plan is developed to monitor PCB surface contamination outside of the bermed storage area on a routine basis. Results will be compared with the U.S. EPA cleanup standard of $<10\ \mu g/100cm^2$ for wipe samples. In the event that any measurement exceeds this standard, an action plan for correction will be implemented.

SAMPLING LOCATIONS

Both vertical and horizontal surfaces will be tested. The locations are selected to include those areas most likely to become inadvertently contaminated by PCBs from the bermed work area. The locations selected are:

1. Floor area outside of berm where technicians enter/exit the berm;
2. Floor area outside of berm leading to Plant Manager's office and company administrators enter/exit the berm;
3. Floor of men's locker room;
4. Men's locker room wash sink;
5. Floor of office hallway;
6. Floor of women's locker room; and,
7. Women's locker room wash sink.

SAMPLING PROCEDURES

1. Equipment, Supplies, and Sampling Procedures

   The standard wipe test will be utilized, as defined in 40 CFR 761.123, to sample the surfaces of solids. Hexane will be used to wet the swab. Extreme care is taken to avoid cross-contamination. The sampler will wear gloves. Gloves will be changed after every sample.

   Samples should be taken at least every 3 months and whenever circumstances require (i.e. leaks, floor sealing, stains, etc.).

2. Action on Results

   a. Test results of less than $10\ \mu g/100cm^2$ are acceptable and no action required.
   b. Any test results equal or greater than the standard of $10\ \mu g/100\ cm^2$ will require the following actions:

      i. The entire area will be decontaminated and retested.
      ii. If the result still exceeds the standard, the re-cleaning and retesting will be repeated until the surface levels are less than the standard.
      iii. The Plant Manager will investigate to determine potential causes for the contamination.
      iv. The Plant Manager will take action, as appropriate.

APPENDIX I – CLOSURE COST CALCULATIONS

CLOSURE COST ESTIMATE
CLEAN HARBORS PPM - Twinsburg

This Closure Cost Estimate is developed assuming maximum inventory and third party costs. The closure scenario would involve the disposal of the waste items and materials as well as decontamination of the treatment/storage area and equipment. All costs are based on current dollars.

INVENTORY DISPOSAL	Quantity	Unit	Unit Cost	Cost
PCB Empty Containers	117	Cubic Yards	$175.00	$20,388
PCB Debris	153	Cubic Yards	$175.00	$26,775
PCB Wash Water (non-treatable)	54,780	Pounds	$0.45	$24,651
PCB Treatable Oil (treatable)	210,355	Pounds	$0.45	$94,660
PCB Treatable Oil (non-treatable)	136,950	Pounds	$0.45	$61,628
Capacitors	53,137	Pounds	$1.65	$87,675
PCB Transformers (full)	162,014	Pounds	$0.15	$24,302
PCB Transformers (drained)	152,413	Pounds	$0.15	$22,862
Total Disposal				**$362,940**

Note: Pounds to CY conversion used the following factor - 1 CY = 1855 lbs

TRANSPORTATION DISPOSAL COSTS								
Material	**Drum Equivalent**	**Gallons**	**Pounds**	**Drums Loads**	**Tanker/ Roll-off Loads**	**Miles**	**Cost per mile**	**Cost**
Transformers	524	28,820	314,426	7		744	$4.50	$23,436.00
PCB Oil/Water	350	19,250	191,730		4	1,285	$4.50	$23,130.00
Capacitors	97	5,335	53,137	1		235	$4.50	$1,057.50
Treatable Oil	384	21,120	210,355		5	1,285	$4.50	$28,912.50
PCB Solids/PCB	473	26,015	283,824		8	175	$4.50	$6,300.00
Empty Drums(PCB)	360	N/A	216,018		6	175	$4.50	$4,725.00
Total Transportation Costs								**$87,561.00**

SAMPLING COSTS	Quantity	Unit	Unit Cost	Cost
Warehouse Floors				
Core	304	Each	$26.60	$8,086.40
Warehouse Walls				
Chip	73	Each	$26.60	$1,941.80
Sub Total				**$10,028.20**
Tank Samples				
Wipe	24	Each	$26.60	$638.40
Sub Total				**$638.40**
Other Samples				
Background (core)	2	Each	$26.60	$53.20
Background (wipe)	2	Each	$26.60	$53.20
Warehouse unloading (core)	4	Each	$26.60	$106.40
< 50 area (warehouse) (wipe/core)	20	Each	$26.60	$532.00
Miscleanous Equipmnet	40	Each	$26.60	$1,064.00
AL-JQN scrap metal recovery oven (wipe/chip)	18	Each	$26.60	$478.80
Lab (wipe)	8	Each	$26.60	$212.80
Office Area (wipe)	4	Each	$26.60	$106.40
Lunch/Break Room (wipe)	4	Each	$26.60	$106.40
Bathrooms (wipe)	8	Each	$26.60	$212.80
Sub Total				**$2,926.00**

Post Clean-up Sampling				
Chip/Core	15	Each	$26.60	$399.00
Wipe	50	Each	$26.60	$1,330.00
Tank verification samples (wipe)	24	Each	$26.60	$638.40
Sub Total				**$2,367.40**

Sample Cooler Shipment Cost (all)	12	Each	$50.00	**$600.00**
Total Sampling				**$16,560.00**

REMEDIATION	Quantity	Units	Unit Cost	Cost
Remediation Equipment				
Pressure Washer	1	Purchase	$450.00	$450.00
Sandblasting Equipment	3	Week	$357.00	$1,071.00
Scarifier	1	Week	$855.00	$855.00
Metal Shears	10	Days	$1,000.00	$10,000.00
Sub Total				**$12,376.00**
Remediation Supplies				
Tank Cleaning Solvent (diesel or equivalent)	1,395	Gallons	$2.30	$3,208.50
Virgin Kerosene (for equipment cleaning)	55	Gallons	$4.00	$220.00
Hexane (for equipment cleaning)	55	Gallons	$4.00	$220.00
Safety Equipment (PPE)	10	Cases	$150.00	$1,500.00
Other Expendable Supplies	1	Lot	$500.00	$500.00
Drums (PPE/Misc. Debris)	25	Drum	$200.00	$5,000.00
Sub Total				**$10,648.50**
Total Remediation				**$23,024.50**

REMEDIATION DISPOSAL	Quantity	Unit	Unit Cost	Cost
Tank Cleaning Solvent (diesel or equivalent)	11,160	Pounds	$0.20	$2,232.00
Virgin Kerosene (for equipment cleaning)	385	Pounds	$1.25	$481.25
Virgin Hexane (for equipment cleaning)	385	Pounds	$1.25	$481.25
Drums (PPE/Misc Debris)	15	Cubic Yards	$175.00	$2,625.00
Misc cleaning liquids (contaminated water etc.)	4,000	Pounds	$0.45	$1,800.00
Total Disposal				**$7,619.50**

TRANSPORTATION DISPOSAL COSTS (REMEDIATION)								
Material	Drum Equivalent	Gallons	Pounds	Drums Loads	Tanker/ Roll-off	Miles	Cost per	Cost
Decon Liquid	321	1,505	11,930		1	1,285	$4.50	$5,782.50
PPE/Misc Debris	25	N/A	10,000		1	175	$4.50	$787.50
Misc Cleaning	10	500	4,000	0.5		1,285	$4.50	$2,891.25
Total Transportation Costs								**$9,461.25**

PROFESSIONAL SERVICES	Number	Days	Total Days	Total Hours	Unit Cost	Cost
Inventory Removal						
Supervisor	1	10	10	80	$65.00	$5,200.00
Labor	2	10	20	160	$45.00	$7,200.00
Pre-Cleaning (floors)						
Supervisor	1	10	10	80	$65.00	$5,200.00
Labor	2	10	20	160	$45.00	$7,200.00
Tank Cleaning						
Supervisor	1	10	10	80	$65.00	$5,200.00
Labor	2	10	20	160	$45.00	$7,200.00
Lab Cleaning						
Labor	1	3	3	24	$45.00	$1,080.00
Equip Cleaning						

Supervisor	1	7	7	56	$65.00	$3,640.00
Labor	2	7	14	112	$45.00	$5,040.00
Sampling (Initial)						
Supervisor	1	15	15	120	$65.00	$7,800.00
Labor	3	15	45	360	$45.00	$16,200.00
Post-Cleaning						
Supervisor	1	10	10	80	$65.00	$5,200.00
Labor	2	10	20	160	$45.00	$7,200.00
Sampling (post clean-up)						
Supervisor	1	5	5	40	$65.00	$2,600.00
Labor	3	5	15	120	$45.00	$5,400.00
Oversight						
Engineer	1	60	60	480	$95.00	$45,600.00
Certification						
Certification Engineer	1	30	30	240	$95.00	$22,800.00
Total Services Cost						**$159,760.00**

SUB-TOTAL CLOSURE COST - TWINSBURG TSCA FACILITY	**$666,926.41**
10% CONTINGENCY	**$66,692.64**
TOTAL CLOSURE COST - TWINSBURG TSCA FACILITY	**$733,619.05**

APPENDIX J – FACILITY HEALTH & SAFETY PLAN

EMERALD TRANSFORMER PPM LLC
HEALTH AND SAFETY PLAN

1.0 GENERAL

1.1 Health and Safety Policy

Emerald Transformer PPM LLC (ET-PPM) is committed to the safety of its employees, customers and surrounding communities. Through continuous improvement, ET-PPM will maintain the highest standards of safety and environments excellence. The following principles are the foundation of Emerald Transformer PPM LLC's Health and Safety programs.

- All occupational injuries and illnesses can be prevented
- Management is directly responsible for preventing injuries and illnesses
- Safety compliance is a condition of employment
- Training is an essential element for safe work places
- Deficiencies must be corrected promptly
- It is essential to investigate all accidents and incidents
- Audits must be conducted
- Safety off the job is important
- It is good business to prevent injuries and illnesses
- People are the most important element in the success of a Health and Safety Program

As a means of improving the overall safety program, specific procedures have been prepared for many activities above normal risk. These required procedures will be established as the minimum acceptable safe practices. These practices will provide the basis for an ongoing training program and will be expanded as needed.

The Corporate Health and Safety Department will assist, as needed, to examine current practices, develop improvement programs, evaluate results and monitor control procedures.

Providing accountability, appropriate training, equipment, and the necessary additional resources to promote strong safety awareness is our first priority.

1.2 Site Specific Health and Safety Plan

The ET-PPM Health and Safety Plan has been designed to establish safe procedures and practices for ET-PPM personnel and subcontractor personnel engaged in on-site work and for site visitors associated with the sampling and/or disposal of waste.

All on-site personnel are required to read the ET-PPM Health and Safety Plan and abide by all of its provisions. The development of this plan is in conformance with the directives and requirements of the ET-PPM Health and Safety Program, OSHA's requirements as set forth in 29 CFR 1910.120, EPA's Occupational Health and Safety Guidance Manual for Hazardous Waste Site Activities and in conjunction with the customer's Health and Safety requirements.

2.0 STAFF ORGANIZATION, RESPONSIBILITIES AND AUTHORITIES

The ET-PPM Plant Manager is responsible for all on-site activities of ET-PPM personnel.

Although Health and Safety is the responsibility of all personnel working on the site, the ET-PPM Plant Manager will receive special assistance, as needed, from the Emerald Transformer Corporate staff. The responsibilities of the key Health and Safety personnel are discussed below.

2.1 Director of Health and Safety

Responsibilities

- Review and approve the Health and Safety Plan.
- Provide corporate oversight of all aspects of the Health and Safety program.
- Conduct site inspections to monitor compliance with the applicable procedures and this plan.
- Provide or coordinate training sessions.
- Coordinate the Medical Monitoring Program.
- Maintain medical records for all ET-PPM employees.
- Suspend work due to Health and Safety Program violations; health related incidents and other increased risk situations.
- Remove personnel from work site if their actions endanger the Health and Safety of other on-site personnel
- Conduct/ensure annual respirator fit testing of on-site personnel.
- Coordinate the acquisition, calibrations, and maintenance of air monitoring equipment, respirators, and other safety equipment.
- Approve selection of Health and Safety Manager.

2.2 General Manager

Responsibilities

- Provide corporate oversight and direction to insure proper administration of Health and Safety Program.
- Select Plant Manager to provide guidance in establishing programs which will carry out the policies of ET-PPM.

2.3 Plant Manager

Responsibilities

- Assignment of all on-site personnel
- Selection and appointment of Supervision
- Determine that on-site personnel are cleared for all on-site activities including respirator use.
- Determine that required training is completed prior to assignment.
- Communicate with Health and Safety Manager regarding pending or proposed work.
- Assist in evaluation of safety programs and policies.

2.4 Plant Foreman

Responsibilities

- Maintain adequate supply of personnel protective equipment.
- Assist in on-site incident investigation.
- Participate in periodic evaluation of the Health and Safety program.
- Remove personnel from the work site if their actions endanger the Health and Safety of other on-site personnel.
- Suspend or delay operations when a change in degree or type of hazard may endanger on-site personnel.
- Oversees inspections, maintenance and storage procedures for personnel protective equipment to ensure adherence to this written plan and manufacturer's specifications.
- Communicates with the Health and Safety Manager regarding changes in scope of work, work area or conditions that may affect the health and safety of the on-site staff.
- Review the Health and Safety Plan for any non-routine work.
- Review the Hazard Determinations Worksheet for any tasks which may require the use of respiratory protective equipment.
- Notify the Health and Safety Manager of personal protective equipment problems or defects.
- Participate in the periodic review of this program.
- Implement all aspects of the on-site Health and Safety Plan

- Conduct on-site inspections to monitor compliance with the approved Health and Safety Plan
- Direct on-site Health and Safety activities
- Report safety-related incidents and prepare incident forms as required
- Ensure maintenance and inspection of on-site Health and Safety equipment
- Audit safety practices utilized by the on-site teams.
- Maintain job site inventory of safety and health equipment
- Assist in monitoring workers for exposure to chemical and physical hazards by insuring that proper procedures are utilized.
- Initiate appropriate emergency procedures and coordinate with local emergency agencies for assistance with incidents
- Provide appropriate first aid care to injured or exposed workers.
- Maintain records of inspections, medical surveillance, training, etc. as required by this plan
- Complete or gather information for hazard determination worksheets and to determine appropriate respiratory protection
- Ensure that all ET-PPM subcontractors and ET-PPM visitors have been adequately trained and fit tested for all personal protective equipment they may be required to use on-site

2.5 Contractors and Sub-Contractors

Subcontractors must agree to follow the entire ET-PPM Health and Safety plan. Subcontractors must supply their own personal protective equipment, including respirator and may be required to provide ET-PPM proof of compliance with applicable regulation, (e.g., medical, fitness for duty statement, safety performance history, training records).

3.0 BACKGROUND

3.1 General

Precautions will be taken to ensure that no PCB containing fluids are spilled. Emergency or contingency planning is considered to be necessary for the Health and Safety of the personnel working at the location.

This health and safety plan is intended to serve as a reference for use by on-site ET-PPM personnel. For more information, consult with: ET-PPM Plant Manager and/or the Health and Safety Manager for additional chemical and toxicological information available on PCB containing waste.

Personnel working at the facility shall receive OSHA training prior to commencing work at the facility. Site orientation will be provided by the management.

4.0 HAZARD ASSESSMENT AND CONTROL

4.1 General

A number of hazards exist or could exist during operations at this facility. These possible hazards are primarily due to the toxic nature of chemicals contained in the materials. In addition to the chemical hazards, the physical nature of the work could expose personnel to increased risk. This section assesses on-site operations by classifying the work into three activity groups (No Waste Contact Activities, Limited Waste Contact Activities, and Direct Waste Contact Activities) based on the likelihood of chemical exposure.

PCB containing askarel is a colorless to light yellow liquid with a distinctive odor.

4.1.1 Health Hazards

PCBs are considered potential occupational carcinogens, by NIOSH. PCBs are hepatotoxins and can affect the skin (chloracne). PCBs have also been implicated in decreased fetal growth, and immunosuppression. PCBs may be absorbed through the skin as a vapor or liquid, inhaled or ingested. The ACGIH Threshold Limit Value (TLV) and the OSHA Permissible Exposure Limit (PEL) for PCBs, 42% chlorine (e.g. Aroclor 1242) is 1 mg/M^3, and for PCBs 54% chlorine (e.g. Aroclor 1254) is 0.5 mg/M^3.

Actions will be taken to reduce and maintain employee exposure to below the permissible exposure levels / threshold limit values. These actions include implementing engineering controls, utilizing personal protective equipment, designating and limited access to certain work areas and implementing appropriate personnel and equipment decontamination procedures.

Prior to activities commencing at the facility, the ET-PPM Health and Safety Plan must be read by all ET-PPM personnel and subcontractor personnel working at the site. The plan assures that all personnel are aware of the potential hazards, precautionary measures and the locations of safety equipment.

4.1.2 Fire/Explosion Hazards

PCBs, and transformer fluids are non-flammable. In addition, no "hot work", or work involving open flames is planned. Fire extinguishers are located throughout the facility.

4.2 Activity Groups

ET-PPM activities on site are listed here and divided into three groups according to the possibility of contact with hazardous waste. The minimum personal protective equipment required follows each group. Office activities such as document preparation, safety and staff meetings, and training have not been included and do not require personal protective equipment.

4.2.1 No Waste Contact Activities

- Mobilization Activities
- Load check-in
- Shipment preparation and palletizing
- Equipment maintenance
- Housekeeping
- Stocking supplies
- Transportation activities (gloves and safety glasses optional)

Minimum Personal Protective Equipment (**LEVEL D)**

- ET-PPM uniform
- Gloves, leather
- Boots/shoes, leather, steel toe and shank
- Safety glasses
- Hard hat (only in posted areas)

4.2.2 Limited Waste Contact Activities

- Contaminated spill cleanup control
- Air Monitoring activities (if necessary)

Minimum Personal Protective Equipment **(LEVEL D)**

- ET-PPM uniform
- Gloves, leather (for drum handling)
- Gloves, chemical resistant
- Boots/shoes, leather, steel toe and shank
- Safety glasses
- Hard hat (only in posted areas)

4.2.3 Direct Waste Contact Activities

- Transformer Decontamination Activities
- Waste handling
- Material characterization
- Emergency response operations

Minimum Personal Protective Equipment (**LEVEL C)** as determined by on-site Project Manager.

Level C:

- Full face respirator with GMC-H type cartridges (organic vapor, acid gas, with dust and mist filter).
- Chemical resistant clothing hooded, one-piece Tyvek or equivalent coveralls
- Gloves (outer), chemical resistant (silver shield)
- Gloves (outer), leather (for drum handling)
- Gloves (inner), (nitrile)
- Chemical resistant safety boots
- Hard hat (only in posted areas)

4.3 Personal Protective Equipment

It is important that personal protective equipment and safety requirements are appropriate to protect against potential or known hazards at the facility. Protective equipment has been selected based on the types, concentrations, possibilities and the routes of personnel exposure from substances on site. The levels of protections provided in this section are minimum required for each activity group.

4.4 Approvals

The Director of Health and Safety is responsible for specifying personal protective equipment. All equipment purchases, repairs, and use are all approved by the Plant Manager.

To ensure that the correct protective equipment in selected, this plan must be approved by the Director of Health and Safety and the Health and Safety Manager before the activity begins. Any changes in equipment selection, prior to or during the activity, must be approved. This is especially pertinent to "downgrades". If the task is frequently repeated, a copy of the approved task-specific plan may be, signed and used by personnel without repeat approval.

The Director of Health and Safety also approves personnel protective equipment maintenance procedures, and determines if training content and fit-testing procedures are sufficient. The Plant Manager may require supplemental training or fit-testing when it is deemed to be necessary.

5.0 STANDARD OPERATING PROCEDURES

Some waste handling activities have been assigned specific operating procedures by ET-PPM. Operating procedures for activities carried out by ET-PPM personnel have been adapted for this specific facility.

6.0 ACCIDENT PREVENTION

6.1 Responsible Personnel

All personnel shall conduct themselves in a manner that will minimize the potential for accident. The ET-PPM Plant Management and Supervisory personnel shall see that ET-PPM personnel are operating in a safe manner in compliance with this document.

6.2 General Site Safety Rules:

- Periodic informal safety meetings will be conducted.
- All personnel on site will be required to wear at minimum the personal protective equipment specified in this ET-PPM Health and Safety Plan.
- Contact lenses shall not be worn for any activities involving limited or direct waste contact.
- All questions pertaining to ET-PPM activities at the facility should be referred to the Health and Safety Manager. If there is ever a doubt or question, or as needed, the Health and Safety Manager shall immediately contact the Director of Health and Safety.
- All personnel will be required to clean their respirator after each usage according to procedures outlined in the Respiratory Protection Program
- Following all limited and direct waste contact activities, all personnel must thoroughly wash their hands and faces prior to eating, drinking, or smoking.
- Prior to departing from the facility, or at the end of the work day, all personnel will decontaminate according to procedures given in section 11.
- Violation of these rules could result in disciplinary action up to and including immediate termination.

6.3 Environmental Stress

Although activities at the facility may be indoors; adverse climatic conditions, such as, heat and cold are important considerations in planning and conducting work at the site. The effects of ambient temperature can cause physical discomfort, loss of efficiency, personal injury and increased accident probability. In particular, heat stress, due to protective clothing decreasing body ventilation, is an important factor.

The following plans serve to outline procedures to mitigate environment stress factors.

6.3.1 Heat Stress Prevention Plan

An increase in ambient air temperatures and the decrease in body ventilation due to protective outer wear, increases the potential for heat casualties. Site personnel will be instructed in the identification, first-aid and the prevention of heat stress.

6.3.2 Cold Stress Plan

A decrease in ambient air temperature and effects of wind velocity increase the potential for injury due to cold stress. Site personnel will be instructed in the identification, prevention and first aid for cold stress.

6.4 Buddy System

6.4.1 Purpose

The "Buddy System" is defined as "a system of organizing employees into work groups in such a manner that each employee of the work group is designated to observe the activities of at least one other employee in the work group." The purpose of the "buddy system" is to:

- Provide his or her partner with assistance
- Observe his or her partner for signs of chemical, or environmental exposure
- Periodically check the integrity of his or her partner's protective clothing
- Notify other if emergency help is needed

6.4.2 Procedure

- A minimum of two persons is required for any job involving waste materials or substances.
- When working, persons are to maintain contact, either visual or audio, with each other. This is required at all times when working in limited access rooms or in potentially hazardous environments.

7.0 FIRE PREVENTION AND PROTECTION

To minimize the potential for fires and to reduce the impact of any fire, proper fire prevention and protection procedures will be followed. Requirements include, but are not limited to, the following:

7.1 Fire Prevention

- No smoking is allowed in any **EXCLUSION ZONE**.
- No flammable liquid with a (closed cup test) flash point below 100ºF (37.7ºC), shall be used for cleaning purposes.
- Equipment using flammable liquid fuel shall be shut down during refueling, servicing, or maintenance.

7.2 Fire Protection

- Portable fire extinguishers are located throughout the facility and are inspected and maintained in accordance with National Fire Protection Association (NFPA) 10, Portable Fire Extinguishers.
- Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
- The type of fire extinguisher equipment shall be based upon the hazard that is present.

8.0 HEALTH AND SAFETY TRAINING PROGRAM

8.1 Initial Training

ET-PPM personnel and subcontractor personnel who have the potential for exposure to waste will receive a minimum of 24 hours of training and annual refreshers to meet requirements of 29 CFR 1910.120.

8.2 Site Specific Training

Employees assigned to the facility will be given specific training to include the following subject matter as required by 29 CFR 1910.120:

- Acute and chronic effects of toxic chemical found at the site.
- Routes of potential exposure and on-site activities which could result in such exposure.
- Need for personal protection, types of protection, its effectiveness and limitations.
- Proper use and fitting of respiratory protective equipment (see ET-PPM Respiratory Protection Program)
- Wearing contact lenses.
- Eating, drinking, smoking chewing gum and use of smokeless tobacco products,
- Wearing of personal articles such as watches, rings, etc.,
- Working when ill.
- Engineering controls and safe work practices associated with each employee's work assignment including dust control measures and use of the "Buddy System".
- Personal and equipment decontamination procedures.
- Emergency response procedures for on-site and off-site incidents.
- Basic operational safety, emphasizing hazards expected on-site.

8.3 Visitor and Sub-Contractor Training

ET-PPM subcontractors and visitors will be made aware of the hazards associated with the site, emergency procedures, and Facility Management shall ensure that all personnel required to use PPE have been adequately trained and fit tested for equipment.

9.0 AIR MONITORING PROGRAM

It is not expected that air monitoring will be necessary given the scope of the work being done, and given the nature of the transformer fluid, or PCB contaminants.

Based on the evaluation of air monitoring data, type of work in progress, likelihood of exposure, etc., the Director of Health and Safety may modify the levels of personal protection and frequency of sampling.

Results of any air monitoring will be maintained at the facility.

10.0 PERSONNEL AND EQUIPMENT DECONTAMINATION

10.1 General

Each time an employee completes a limited or direct waste activity he/she must make a thorough self inspection. Equipment must be removed without exposure to the wearer. Before eating or use of tobacco products, hands and face must be scrubbed to avoid accidental ingestion of wastes. Footwear must be evaluated prior to egress from contaminated area to avoid "tracking" of contaminants outside the work area.

Only after satisfactory inspection at the end of the daily activity may the employee relax his or her vigilance to accidental chemical exposure. It is therefore encouraged that the employee shower and wash all exposed body parts as soon as practical after direct waste contact activities.

10.2 Clothing

ET-PPM shall provide all required safety clothing and PPE. No PPE or uniforms (including boots) shall be worn or carried off-site unless properly decontaminated.

10.3 Respirators

All required respirators will be provided, maintained, decontaminated/disinfected and inspected in accordance with ET-PPM Respiratory Protections Programs and appropriate OSHA standards.

10.4 Packaging of Waste Items

All disposable clothing and other contaminated material will be placed in containers for storage on-site. Containers will be disposed of with other contaminated materials.

10.5 Lunch and Break Facilities

Lunch and break facilities will be provided to employees.

11.0 EMERGENCY PROCEDURES

11.1 Spills

Put on appropriate personal protection equipment such as, but not necessarily or limited to, safety glasses, chemical resistant, Tyvek coverall, chemical resistant gloves, safety shoes, and respiratory protection equipment. Depending on the chemical one may need to upgrade the level of protection beyond Level C to Level B.

- Response by ET-PPM personnel shall never be initiated in situations calling for level A protection equipment
- Contain liquid spill with absorbent
- Keep spill from getting into storm drain or sewer system.
- Clean up spill immediately before someone may walk or drive over it, or restrict access to the area
- Always maintain a clear path of escape. Do not walk over or onto spilled material.
- For spills of solid materials, carefully sweep up with broom and shovel into an appropriate container from upwind direction. Be careful not to create dust problem or create sparks for potentially ignitable materials.
- For spills of liquid material, absorb spill with absorbent from upwind direction. Be careful not to splash liquid when applying absorbent. Do not toss absorbent into the spill, rather apply with broom and shovel to avoid splashing. Apply absorbent first around the outside edge of the spill, and then fill in towards center with broom or shovel.
- Place spill clean up waste into appropriate container for disposal.
- Label and mark the container appropriately for storage and disposal.

11.2 Fires

- Contain fire with dry chemical fire extinguishers.
- Never fight a chemical fire. By products of combustion may be extremely hazardous.
- Never fight a fire in a confined space.
- Never fight a fire where there is a risk of oxygen deficiency.
- Never fight a fire where there is a risk of explosion.
- If fire is too large or hazardous to contain, evacuate area and call 9-1-1.
- Always approach fire from upwind.
- Approach and fight fire from crouched position in case there's a flare up.
- Shoot fire retardant as base of fire. Follow directions on fire extinguisher.

- Always maintain a clear escape path.
- Never turn your back on a fire.
- Place clean up debris into appropriate container for disposal, after making sure there are no cinders and the debris has adequately cooled.

11.3 Evacuation

- All personnel must respond to the emergency and fire alarm system.
- Stop what you are doing. Do not take time to retrieve personal property.
- Follow pre-defined evacuation routes. If pre-defined route is obstructed, follow alternate route.
- Listen for directions that may be given over the speaker system.
- Determine which muster station to use based on announcements and through observation.
- Go to the nearest muster station that is upwind and away from the emergency.
- Once at the muster station, wait for further instructions. Evacuation may be necessary.
- Remain at the muster station for roll call. DO NOT LEAVE until instructed by the emergency coordinator.
- No one may return to the evacuated area until the evacuation alarm ceases and the designated emergency coordinator gives permission.

11.4 Illness and Injures

11.4.1 Bleeding

- Stop bleeding by applying pressure to wound with clean hand or towel
- Do not apply tourniquet.
- If bleeding will not stop, call 9-1-1.
- Seek medical attention, if necessary.

11.4.2 Breathing difficulties

- If individual is conscious, remove from area to get fresh air.
- If individual stopped breathing, call 9-1-1 and administer CPR.
- Seek medical attention.

11.4.3 Burns

- Apply wet towels to burned area. Do not let towels dry or they may stick to the skin or tissue.
- When applying wet towels to face, make sure nose and mouth are not covered or victim may suffocate.
- Do not apply ice packs to badly burned victim, it may cause issue cell destruction and shock.
- For chemical burns, determine what chemical caused the damage.
- For serious second degree burns and third-degree burns, call 9-1-1.
- If victim goes into shock, keep him warm and verify air ways are not blocked.
- Seek medical attention.

11.4.4 Eye injury

- Flush eye(s) with copious amounts of water for at least 15 minutes.
- Do not try to remove foreign objects embedded in eye. Keep wet patch over eye.
- Seek medical attention.

11.4.5 Head Injury

- If individual is unconscious, call 9-1-1.
- Seek medical attention.

11.4.6 Ingestion

- Determine source of poisoning.
- Call 9-1-1.
- Unless instructed to do so, do not induce vomiting.

11.4.7 Inhalation

- Remove from area and get fresh air.
- Administer artificial respiration, if necessary.
- Determine what individual was exposed to.
- Seek medical attention.

11.4.8 Skin Exposure

- Remove contaminated coveralls and clothing.
- Wash affected area with copious amounts of water.
- Seek medical attention, if necessary.

11.4.9 Strains and Sprains

- Avoid physically demanding work.
- Seek medical attention, if necessary.

11.4.10 Unconsciousness

- Do not move individual unless he/she is in immediate danger.
- Call 9-1-1.
- Administer artificial respiration, if individual has stopped breathing.

11.4.11 Other illnesses and Injuries

- For minor injuries, apply general first aid.
- Do not administer any form of medication unless instructed to do so by a physician.
- Call 9-1-1 if individual is unconscious, bleeding uncontrollably, not breathing, in shock, or suffering from third degree burns.
- Apply artificial respiration, if individual is not breathing.
- If individual is in shock, unconscious, or received an injury to the spinal cord (neck and back), do not move him unless he is in immediate danger. Call 9-1-1.
- Keep individual warm and verify air ways are not blocked.

11.5 Accident/Incident Reporting

ET-PPM personnel will complete an incident report for every incident described above and for every "near-miss" or close call that could have resulted in an accident. Report the incident to management within 24 hours. The ET-PPM Plant Manager or the Health and Safety Manager will assist you in filling out the other appropriate forms (e.g., medical claim forms). Seek medical attention at the nearest occupational health care clinic for non-serious injuries. For serious and potentially serious injuries, call 9-1-1 and allow the emergency personnel to select the appropriate medical facility.

12.0 SITE SECURITY/VISITORS

All personnel entering the site will log-in at the office and will log-out prior to departure.

A record of personnel entrance/exit times, names and company name will be maintained.

The following ET-PPM visitor entry control protocols are in place:

- All ET-PPM visitors will report to the office.
- No ET-PPM visitors will be allowed site entrance without prior approval.
- ET-PPM visitors will follow the same entry control protocols as for authorized personnel.

13.0 TASK SPECIFIC SAFETY PLAN

This safety checklist is intended to serve as a quick reference for individual job or task procedures. *All applicable blanks are to be completed by a Health and Manager prior to performing a task where the potential for exposure to wastes exists*. For more information, contact the Health and Safety Manager or Director of Health and Safety for additional chemical and toxicological information.

13.1 Site Location & Project Description

Customer:_____, _____, plant location

Address:_____.

Contact: _____.

Telephone: _____. Emergency Telephone on Site: _____.

Scheduled Project Start Date: _____. Estimated Completion: _____.

13.2 Scope of Work

[ ]Tank/Vessel Work	[ ]Excavation	[ ]Vacuum Truck Operations
[ ]Bulking	[ ]Repacking	[ ]Dewatering
[ ]Pressure Washing	[ ]PCB	[ ]Hot Work
[ ]Other		

13.3 Personnel

Supervisor:

Personnel:

Sub contracts:

13.4 Work Area

[ ]Store Room	[ ]Laboratory	[ ]Outdoor
[ ]Indoor	[ ]Shed	[ ]Warehouse
[ ]Yard	[ ]Multi-story/upstairs	[ ]Downstairs
[ ]Loading Dock	[ ]Pallet Available	[ ]Other

13.5 Types of Waste Products

[ ]Waste Water	[ ]Tank Contents	[ ]Contaminated Soil
[ ]Sludge	[ ]off-spec	[ ] Structural Material
[ ]Drums	[ ]PCB	[ ]Contaminated Debris
[ ]Unknowns	[ ]Other	

Personnel working at this facility shall familiarize themselves with the physical appearance and hazards of these materials prior to commencing work and shall be familiar with all Health and Safety plans related to the facility.

13.6 Hazard Assessment

[ ]Fire Risk	[ ]Carcinogens	[ ]Radiation
[ ]Confined Space	[ ]Biohazard	[ ]Excavation
[ ]Unhealthy Atmosphere	[ ]Other	

An assessment of hazards has been made for each of the activity groups.

13.7 Applicable Standard Operating Procedures (See Appendix)

[] Confined Space	[] Buddy System
[] Bulking	[] Heavy Equipment Operation
[] Excavation	[] Lockout of Energy Sources
[] Hot Work	[] Vacuum Operations
[] Linebreaking	[] High Pressure Washing

13.8 Personnel Protective Equipment

It is important that personnel protective equipment and safety requirements are appropriate to protect against the potential or known hazards at the site. Protective equipment has been selected based on the types, concentrations, possibilities and the routes of personnel exposure from substances at the site. The following levels of protections are required for the following activity groups.

Activity	Level of Protection		
No Waste Contact Activities		**D**	
Limited Waste Contact Activities	**[ ]D**	**[ ]C**	**[ ]B**
Direct Waste Contact Activities		**[ ]C**	**[ ]B**
Stand By Equipment		**B**	

Level C Protection Personal Protective Equipment: (General)

- Full face piece air purifying respirator with cartridge.
- Chemical resistant one or two-piece hooded, chemical splash suit (polyethylene, or Saranex coated Tyvek).
- Inner and outer chemical resistant gloves
- Chemical resistant safety boots
- Hard hat

Level D Protection Personal Protective Equipment: (General)

- Coveralls
- Gloves, if required
- Boots/shoes, leather, steel toe and shank
- Safety glasses
- Hard hat

Special Equipment Needed

[ ]Air-Line Respirator	[ ]SCBA
[ ]Air Purifying Respirator	[ ]Mercury Vapor Respirators
[ ]Barricade Tyvek	[ ]Poly Tyvek
[ ]Double Gloves	[ ]Winter Weather PPE
[ ]Portable Eyewash	[ ]Air Monitoring Equipment
[ ]Other	

13.9 Change, Shower, Lunch and Break Facilities:

Lunch and break facilities are provided to ET-PPM employees.

Attachment 1: Directions & Map from Site to Hospital

bing maps

A Emerald Transformer, 1672 E Highland Rd, Twinsburg, OH 44087
B Uhhs Bedford Medical Center, 44 Blaine Ave, Cleveland, OH 44146

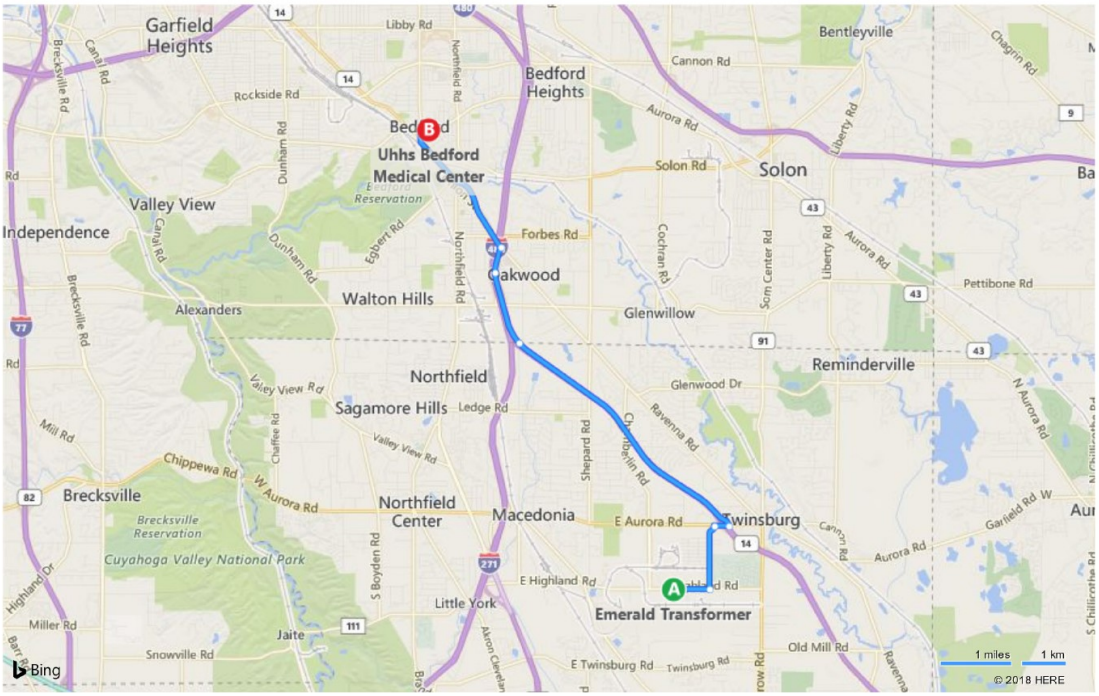
18 min, 9.6 mi
Light traffic (17 min without traffic)
Via I-480 W, OH-14

Directions to: Bedford Medical Center
(440) 735-3900

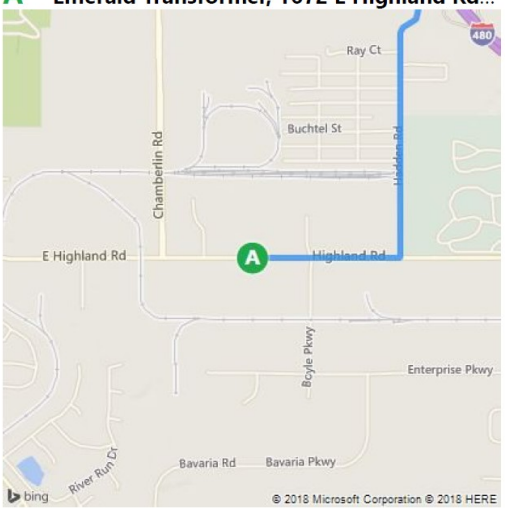
A Emerald Transformer

↑	1.	Depart **Highland Rd** toward N Boyle Pkwy	0.5 mi
↰	2.	Turn **left** onto **Hadden Rd**	1.0 mi
↱	3.	Turn **right** onto **OH-82 E / E Aurora Rd** Wendy's on the corner	0.2 mi
480	4.	Take ramp **left** for **I-480 W / OH-14 W**	4.1 mi
271	5.	Take ramp for **I-271 N / I-480 W / OH-14 W**	1.1 mi
↗	6.	At exit **23**, take ramp **right** for **Fair Oaks Rd** toward **Broadway Ave / Forbes Rd**	0.4 mi
↰	7.	Turn **left** onto **OH-14 / Broadway Ave** Pass Marathon/Circle K in 0.2 mi	2.0 mi
↱	8.	Turn **right** onto **Warrensville Center Rd** BURGER KING on the corner	0.2 mi
↱	9.	Turn **right** onto **Blaine Ave**	0.1 mi
	10.	Arrive at **Blaine Ave** The last intersection is Elm St If you reach Garden St, you've gone too far	

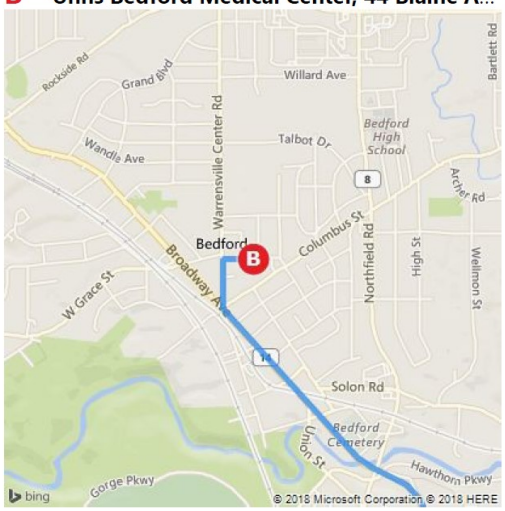
B Uhhs Bedford Medical Center



A **Emerald Transformer, 1672 E Highland Rd...**



B **Uhhs Bedford Medical Center, 44 Blaine A...**



These directions are subject to the Microsoft® Service Agreement and are for informational purposes only. No guarantee is made regarding their completeness or accuracy. Construction projects, traffic, or other events may cause actual conditions to differ from these results. Map and traffic data © 2018 HERE™.

APPENDIX K – FINANCIAL ASSURANCE

FOR YOUR RECORDS

GENERAL SURETY RIDER

To be attached and form a part of

Type of Bond: Closure/Post Closure Bonds

Bond No. : 1143855

Dated effective: 6/30/2017
(MONTH, DAY, YEAR)

executed by: Emerald Transformer Western States LLC , as Principal,
(PRINCIPAL)

and by: Lexon Insurance Company , as Surety,
(SURETY)

and in favor of : U.S. Environmental Protection Agency (EPA) .
(OBLIGEE)

In consideration of the mutual agreements herein contained the Principal and the Surety hereby consent to changing

INFORMATION	FROM	TO
Description	EPA Identification Number OHD 986 975 399, Clean Harbors Twinsburg Facility, 1672 E. Highland Rd., Twinsburg, OH 44087	Emerald Transformer PPM, LLC; 1672 East Highland Dr. Twinsburg, OH 44087; OHD 986 975 399

Nothing herein contained shall vary, alter or extend any provision or condition of this bond except as herein expressly stated.

This rider is effective 6/30/2017
(MONTH, DAY, YEAR)

Signed and Sealed 8/22/2017
(MONTH, DAY, YEAR)

Emerald Transformer Western States LLC
PRINCIPAL

BY: Robin Wilson VP of Finance
TITLE

Lexon Insurance Company
SURETY

BY: Kristin D. Thurber
Kristin D. Thurber, ATTORNEY-IN-FACT

POWER OF ATTORNEY

LX- 296044

Lexon Insurance Company

KNOW ALL MEN BY THESE PRESENTS, that **LEXON INSURANCE COMPANY**, a Texas Corporation, with its principal office in Louisville, Kentucky, does hereby constitute and appoint: David G. Jensen, Erin Brown, Kristin D. Thurber its true and lawful Attorney(s)-In-Fact to make, execute, seal and deliver for, and on its behalf as surety, any and all bonds, undertakings or other writings obligatory in nature of a bond.

This authority is made under and by the authority of a resolution which was passed by the Board of Directors of **LEXON INSURANCE COMPANY** on the 1st day of July, 2003 as follows:

Resolved, that the President of the Company is hereby authorized to appoint and empower any representative of the Company or other person or persons as Attorney-In-Fact to execute on behalf of the Company any bonds, undertakings, policies, contracts of indemnity or other writings obligatory in nature of a bond not to exceed $4,500,000.00, Four Million Five Hundred Thousand dollars, which the Company might execute through its duly elected officers, and affix the seal of the Company thereto. Any said execution of such documents by an Attorney-In-Fact shall be as binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company. Any Attorney-In-Fact, so appointed, may be removed for good cause and the authority so granted may be revoked as specified in the Power of Attorney.

Resolved, that the signature of the President and the seal of the Company may be affixed by facsimile on any power of attorney granted, and the signature of the Assistant Secretary, and the seal of the Company may be affixed by facsimile to any certificate of any such power and any such power or certificate bearing such facsimile signature and seal shall be valid and binding on the Company. Any such power so executed and sealed and certificate so executed and sealed shall, with respect to any bond of undertaking to which it is attached, continue to be valid and binding on the Company.

IN WITNESS THEREOF, **LEXON INSURANCE COMPANY** has caused this instrument to be signed by its President, and its Corporate Seal to be affixed this 5th day of August, 2015.

LEXON INSURANCE COMPANY

BY _____
David E. Campbell
President

ACKNOWLEDGEMENT

On this 5th day of August, 2015, before me, personally came David E. Campbell to me known, who be duly sworn, did depose and say that he is the President of **LEXON INSURANCE COMPANY**, the corporation described in and which executed the above instrument; that he executed said instrument on behalf of the corporation by authority of his office under the By-laws of said corporation.

AMY TAYLOR
Notary Public- State of Tennessee
Davidson County
My Commission Expires 07-08-19

BY _____
Amy Taylor
Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of **LEXON INSURANCE COMPANY**, A Texas Insurance Company, DO HEREBY CERTIFY that the original Power of Attorney of which the forgoing is a true and correct copy, is in full force and effect and has not been revoked and the resolutions as set forth are now in force.

Signed and Seal at Mount Juliet, Tennessee this 22nd Day of August, 2017.

BY _____
Andrew Smith
Assistant Secretary

"WARNING: Any person who knowingly and with intent to defraud any insurance company or other person, files and application for insurance of claim containing any materially false information, or conceals for the purpose of misleading, information concerning any fact material thereto, commits a fraudulent insurance act, which is a crime and subjects such person to criminal and civil penalties."

APPENDIX L – PERSONNEL TRAINING

APPENDIX L - PERSONNEL TRAINING..... 2

APPENDIX L - PERSONNEL TRAINING

1.0 Outline of Introductory and Continuing Training Programs

This training program has been developed in accordance with the regulatory requirements of 40 CFR Parts 270 and 264. The program is designed to provide the information needed by Emerald Transformer PPM LLC (PPM) personnel to assist them in understanding the processes and materials with which they are working and the potential safety and health hazards associated with those processes and materials. The training program also facilitates instruction of facility personnel in the proper procedures for preventing and reacting effectively to emergency situations. Where appropriate, the training program provides information regarding inspection, repair, and replacement of facility emergency equipment.

The goal of the training program is to train personnel to perform their job functions in an efficient and safe manner and in compliance with applicable regulations and permit requirements.

1.1 Job Titles and Duties

As required in 40 CFR 264.16, records at the facility will include:

- The job titles for positions at the facility related to waste management,
- The names of the employees filling these jobs,
- A description of these jobs including duties, and
- A description of the minimum qualifications for employees filling these jobs.

The following are job titles that are most relevant to the compliant operation of PPM:

- Plant Manager
- Shipping/Receiving Supervisor
- Laboratory Supervisor
- Laboratory Chemist/Technician
- Compliance Guard
- Plant Foreman
- Plant Technician

Examples of the job descriptions can be found at the end of this document and include a summary of the duties, qualifications, and training for the job titles listed above.

1.2 Training Content, Frequency and Techniques:

All employees receive training within time frames that ensure compliance with corporate and regulatory requirements. All initial training will be conducted within 6 months of initial date of hire with additional or refresher training conducted when necessitated by job changes, regulatory environment changes, major operational changes at the site, or on an annual or triennial basis where applicable and noted.

All plant employees receive at a minimum the following training:

- 24-hour HAZWOPER training with Annual 8-hour refreshers
- Initial RCRA training with annual updates
- Respirator Inspection training with Fit Testing
- Hazardous Material Transportation Skills, with triennial updates
- Site Specific Emergency Preparedness Training
- On the job task specific training

Additionally, personnel performing specialized functions will receive other training as applicable that may include:

- Confined Space Entry Training
- Driver Safety
- Chemical Hygiene Plan
- First Aid/CPR
- Controlled Substance Training
- Bloodborne Pathogen
- Forklift Operations
- Non-pressure Tank Cars

The type and content of the job-specific training will depend on the skills and level of expertise demanded by the job. Attachment B – Training Matrix by Job Function and Attachment C - Training Topics include a list of typical topics for job-specific training that will be provided to the appropriate employees. The job-specific training completes the employee's initial training. Employees will not be allowed to perform unsupervised, waste management duties prior to completion of initial training.

Continuing training will be provided for employees performing certain jobs after the employee completes the initial training.

The matrix in Attachment B indicates the Company mandatory and recommended training by job classification.

Training techniques will vary depending on the subject. Typically, training techniques may involve classroom lecture, on-the-job, and audio/visual demonstration. Training instructors will include personnel who have experience and/or training in that area and outside instructors such as manufacturer's representatives. On-the-job training is conducted by qualified facility personnel.

1.3 Director of the Training Program:

The Plant Manager (PM) will direct the training program. The duties and qualifications of the Plant Manager to direct the program are provided in Attachment A. The duties of the PM include maintaining records that demonstrate that personnel are receiving the appropriate training in accordance with the training program. The minimum qualifications for the PM will be a college degree and/or equivalent experience with a knowledge of regulatory and safety requirements. The PM will be trained in waste management procedures.

1.4. Relevance of Training to Job Position:

It is important that employees be trained and possess knowledge of the concepts required to perform their duties. Each employee engaged in waste management activities must be able to act correctly and safely while fulfilling job responsibilities.

In addition to the introductory training that all employees will attend, relevant job-specific training will be provided to appropriate employees. For example, if an employee is in a position requiring an understanding of how to operate a fire extinguisher, then the employee is trained accordingly. Attachment C contains outlines of typical topics for the training.

1.5. Training for Emergency Action/Response

The Site-Specific Emergency Preparedness Training includes training on the Spill Prevention Control and Countermeasures Plan (SPCC). Emergency action procedures are included in the SPCC. In accordance with 29 CFR 1910.120(p)(8) and PPM's SPCC, the facility may evacuate employees in the event of an emergency, and may not have a specially trained Emergency Response Team. The training topics provided during the training regarding the SPCC are provided in Attachment C.

In addition to introductory training, appropriate employees will receive job-specific training on emergency procedures, equipment, and systems. Where applicable, this job-specific training will include:

- Waste identification;
- Waste processing procedures;
- Instruction on machinery operation;
- Procedures for the shutdown of operations;
- Instruction on safety equipment;
- Procedures for using, inspecting, repairing, and replacing facility emergency equipment;
- Procedures for using the communications or alarm systems;
- Procedures for fires or explosions; and
- Procedures for incidents of potential soil or ground water contamination.

1.2 Implementation of Training Program

The PM will monitor the training program to ensure that all employees complete their initial training and any required updates of the initial training. The initial training must be completed within six (6) months of either:

- Initial employment,
- Assignment to PPM if the individual is employed by Emerald Transformer at the time of the assignment (unless equivalent training was received in his/her previous assignment), or
- Transfer to a new position within the facility, if the employee has not previously received the appropriate training.

In the last two (2) cases, the employee will only be required to receive instruction in those portions of the initial training for which the employee has not yet been trained. For example, an employee who transfers from one position to another within PPM will not be required to repeat the initial training or any job-specific training the employee has already completed.

Records of the training provided to employees as part of the training program will be maintained at the facility. These training records will include:

- Date of training,
- Course name,
- Instructor's name,
- Employees in attendance, and
- Any test results, if appropriate.

Training records for current employees will be maintained until closure of the facility. Training records for former employees will be maintained for at least three (3) years from the date the employee last worked at the facility. Employee training records may accompany personnel transferred to PPM from another facility operated by Emerald Transformer.

Attachment A – Job Descriptions, Duties, and Qualifications (Examples)

JOB DESCRIPTION

TITLE:	Plant Manager
DUTIES:	Responsible for the safe and efficient management of operations at the facility. Approves the development of all records and manuals at the facility. Responsible for the enforcement of facility safety and training programs. Coordinates all facility operations with corporate office.
QUALIFICATIONS:	College degree and substantial experience in waste management. Knowledge of State and Federal Regulations dealing with waste management.
TRAINING:	See Training Matrix (Attachment B)

JOB DESCRIPTION

TITLE:	Shipping/Receiving Supervisor
DUTIES:	Oversees the shipping and receiving of waste at the facility. Supervises Compliance Guards who handle and maintain manifest records.
QUALIFICATIONS:	College degree and/or equivalent experience working with State and Federal regulations.
TRAINING:	See Training Matrix (Attachment B)

JOB DESCRIPTION

TITLE:	Laboratory Supervisor
DUTIES:	Responsible for the routine operation of the laboratory including organizing and maintaining all laboratory records. Supervises technical employees to ensure that all analyses are performed correctly and in a timely manner. Responsible for the analysis of incoming waste samples.
QUALIFICATIONS:	Degree in Chemistry or Physical Science which included a minimum of sixteen (16) hours of chemistry. A knowledge of chemistry and general laboratory experience such as would be acquired by four (4) years of academic study in the field of chemistry supplemented by at least three (3) years experience performing hands-on analytical laboratory chemistry work.
TRAINING:	See Training Matrix (Attachment B)

JOB DESCRIPTION

TITLE:	Laboratory Chemist/Technician
DUTIES:	Responsible for the routine operation of the laboratory under the direction of the Laboratory Supervisor. Performs analysis on samples. Responsible for assisting in maintaining all laboratory records and inventory.
QUALIFICATIONS:	Two (2) years college including a minimum of thirteen (13) college credit hours of chemistry plus other science related courses or a minimum of two (2) years laboratory experience.
TRAINING:	See Training Matrix (Attachment B)

JOB DESCRIPTION

TITLE:	Compliance Guard
DUTIES:	Responsible for the preparation and maintenance of manifest records at the facility. Assures compliance with hazardous materials regulations on shipping papers.
QUALIFICATIONS:	A minimum of one (1) year experience in industrial waste operation, including basic chemistry knowledge.
TRAINING:	See Training Matrix (Attachment B)

JOB DESCRIPTION

TITLE:	Plant Foreman
DUTIES:	Responsible for supervising Plant Technicians in all aspects of materials handling and treatment operations. Responsible for the enforcement of all safety programs and company policies. Assists in formulating all records and manuals at the facility. Assumes management of the facility as required.
QUALIFICATIONS:	College degree and/or related experience in waste management operations including regulations.
TRAINING:	See Training Matrix (Attachment B)

JOB DESCRIPTION

TITLE:	Plant Technician
DUTIES:	Responsible for performing materials handling and treatment operations in compliance with company policies and Federal and State regulations. Responsible for compliance with of all safety programs.
QUALIFICATIONS:	Equipment/process experience preferred.
TRAINING:	See Training Matrix (Attachment B)

Attachment B – Example Training Matrix by Job Function

Training Matrix by Job Function

Job Function	Initial Training	Update Training (annual)	Update Training (3 years)	Course
Plant Manager	x	x		RCRA
	x	x		OSHA 24 Hr. HAZWOPER
	x		x	Hazardous Materials Transportation
	x	x		Respirator Training
	x			Controlled Substance Training
	x	x		CPR
	x		x	First Aid
	x	x		Bloodborne Pathogens
	x	x		Site Specific Emergency Preparedness/Contingency
	x			Job specific training
Shipping and Receiving Supervisor	x	x		RCRA
	x	x		OSHA 24 Hr. HAZWOPER
	x		x	Hazardous Materials Transportation
	x	x		Respirator Training
	x			Controlled Substance Training
	x	x		Site Specific Emergency Preparedness/Contingency
	x	x		Confined Space Entry
	x	x		CPR
	x		x	First Aid
	x	x		Bloodborne Pathogens
	x		x	Forklift Operations
	x	x		Non-Pressure Tank Cars
	x			Job Specific Training

Job Function	Initial Training	Update Training (annual)	Update Training (3 years)	Course
Plant Foreman	x	x		RCRA
	x	x		OSHA 24 Hr. HAZWOPER
	x		x	Hazardous Materials Transportation
	x	x		Respirator Training
	x			Controlled Substance Training
	x	x		Site Specific Emergency Preparedness/Contingency
	x	x		Confined Space Entry
	x		x	First Aid
	x	x		CPR
	x	x		Bloodborne Pathogens
	x		x	Forklift Operations
	x	x		Non-Pressure Tank Cars
	x			Job specific training
Plant Technician	x	x		RCRA
	x	x		OSHA 24 Hr. HAZWOPER
	x		x	Hazardous Materials Transportation
	x	x		Respirator Training
	x			Controlled Substance Training
	x	x		Site Specific Emergency Preparedness/Contingency
	x	x		Confined Space Entry
	x		x	First Aid
	x	x		CPR
	x	x		Bloodborne Pathogens
	x		x	Forklift Operations
	x	x		Non-Pressure Tank Cars
	x			Job specific training

Job Function	Initial Training	Update Training (annual)	Update Training (3 years)	Course
Compliance Guard	x	x		RCRA
	x	x		OSHA 24 Hr. HAZWOPER
	x		x	Hazardous Materials Transportation
	x	x		Respirator Training
	x			Controlled Substance Training
	x	x		Site Specific Emergency Preparedness/Contingency
	x		x	First Aid
	x	x		CPR
	x	x		Bloodborne Pathogens
	x	x		Non-Pressure Tank Cars
	x			Job specific training
Laboratory Supervisor/Chemist/Tech	x	x		RCRA
	x	x		OSHA 24 Hr. HAZWOPER
	x		x	Hazardous Materials Transportation
	x	x		Respirator Training
	x			Controlled Substance Training
	x		x	First Aid
	x	x		CPR
	x	x		Bloodborne Pathogens
	x	x		Site Specific Emergency Preparedness/Contingency
	x	x		Chemical Hygiene Plan
	x			Job specific training

Attachment C – Training Topics (Examples)

COURSE OUTLINES

Course: Hazardous Materials Transportation

- HazMat Regulations
- Hazard Classes
- Hazardous Materials Table
- Shipping Papers
- Labeling and Marking
- Placarding
- Segregation
- UN Packaging Authorizations/Specifications

Course: Rail Transport: Non-Pressure Tank Cars

- Identify rail car types and markings
- Select and inspect an appropriate tank car
- Loading a non-pressure tank car to a pre-set amount
- Inspect a tank car before and after loading
- Identify proper actions for a leaking tank car
- Concerns involving tank cars containing residue

Course: Hazwoper 24 Hour Training

- Identify federal and state regulatory involvement in the areas of safety and health for employees
- Explain the fundamental principles of toxicology and industrial hygiene
- Describe the functions and purposes of hazard communication
- Recognize the physical hazards, sometimes called physical agents, like excessive noise, open trenches and excavations, electrical hazards, and confined spaces
- Explain medical surveillance procedures
- Describe the different levels of personal protective equipment, explain the uses of personal protective equipment, and determine the care
- Identify and properly use respiratory equipment, such as the air-purifying cartridge respirators often used for known hazards.
- Describe and demonstrate the procedures for decontamination; identify and exhibit techniques used to store, handle, and transport hazardous chemicals safely.

Course: Controlled Substances Testing

- Describe the company policy for controlled substances testing
- Explain how to comply with the policy
- Describe the consequences for not complying with the policy
- Identify DOT regulatory requirements related to the company policy.

Course: Forklift Operator Training

- Identify aspects of forklift operation
- Identify how forklift operation differs from automobile operations
- Identify the four types of forklifts
- Successfully perform a pre-shift inspection
- Demonstrate maneuvering and operation of a fork lift.
- Identify all manufacturer safety features, including seat belts, hand brake, backup horn, lights, and roll cage.

Course: Chemical Hygiene Plan

- Describe the measures employees can take to protect themselves from hazards of chemicals in the laboratory
- Identify specific procedures the company has implemented to protect employees from exposures to chemicals
- Describe work practices, emergency procedures, and PPE to be used.

Course: Bloodborne Pathogens

- Describe the epidemiology of bloodborne pathogens
- Recognize situations involving potential bloodborne pathogen exposure situations
- Identify the measures an employee can take to prevent exposure to bloodborne hazards in their work environment
- List procedures the employer must take in the event employees are exposed
- Describe an Exposure Control Plan, which can be tailored to meet site-specific requirements.

Course: Confined Space Entrant/Supervisor/Rescue

- Define the purpose of the Confined Space Entry training program
- Discuss the requirements of the CHES Confined Space Entry procedure
- Describe the difference between the duties of an Authorized Entrant/Attendant and a Confined Space Entry Supervisor. Generally, outline the main topics of OSHA 29 CFR 1910.146
- Outline what is expected of employees and employers by the OSHA regulation
- Practice an emergency rescue from a confined space
- Demonstrate techniques used to safely enter and work in a confined space
- Practice completing confined space entry permits
- Pre-entry atmospheric monitoring
- Review rescue and retrieval requirements
- Identify and demonstrate specific equipment used in the rescue and retrieval

Course: First Aid

- Basic training for employees who may have the need to assist in providing first aid.
- Designed and provided by the American Red Cross.

Course: CPR

- Basic training for employees who may have the need to assist in providing CPR.
- Meet the training and certification requirements of the American Red Cross for Adult CPR.

Course: Site Specific Emergency Preparedness and Contingency Plan

- General Facility Description
- Contingency Plan implementation procedures
- Access and use of communication and alarm systems
- Response to fires, explosions, spills and/or releases
- Site evacuation procedures
- Procedures for shutdown of operations
- Procedures for incidents of potential soil or ground water contamination
- Procedures for using, inspecting, repairing and replacing facility emergency equipment

Course: RCRA (Hazardous Waste Management)

- Overview of RCRA Hazardous waste management regulations
- Proper Characterization and identification of hazardous wastes
- Land Disposal Restrictions
- Manifests and Labels
- Site specific recordkeeping requirements
- Use and Management of Containers
- Site Security
- Inspection Program

Course: Respirator Training/Fit Testing

- Proper use of respirators
- Inspection of respirators before use
- Fit testing of respirators to ensure proper protection

Typical Job-Specific Training Topics

OPERATIONS:

- Security procedures and equipment
- Access to and use of internal communications/alarms
- Access to and use of portable fire extinguishers, spill control, and decontamination equipment
- Job-specific use and maintenance of emergency equipment
- Hazard Communication/Material Safety Data Sheets
- Site procedures for tank operation and control
- Site procedures for management of containers

SAFETY:

- Industrial Hygiene and Decontamination Procedures
- Job Specific Protective Equipment
- Wound and Burn management
- Procedures for safety in handling and treating wastes
- Site procedures for trucks
- Procedures for operation and maintenance of heavy equipment
- Basic Chemistry and safety in handling chemicals

TECHNICAL TRAINING:

- Waste Stream Approvals and Customer Profiles
- Manifest Procedures
- Site specific records system
- Procedure for sampling trucks properly
- Waste identification and segregation
- Procedures for identifying and handling incompatible materials