UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
61 FORSYTH STREET
ATLANTA, GEORGIA 30303

In the Matter of	**)**
	) Approval to Commercially Store and
Emerald Transformer PPM, LLC	**) Dispose of Polychlorinated Biphenyls (PCBs)**
1875 Forge Drive	**) By Chemical Dechlorination**
Tucker, Georgia	**)**

AUTHORITY

This Approval to commercially store and dispose of Polychlorinated Biphenyls (PCB) waste is issued pursuant to Section 6(e)(1) of the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2605(e)(1), and 40 Code of Federal Regulations (CFR) Part 761, "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions."

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BACKGROUND

The Emerald Transformer facility (Facility) is located at 1875 Forge Drive, Tucker, Georgia 30084, and is currently owned and operated by Emerald Transformer PPM, LLC. Until 2017, the Facility was owned and operated by Clean Harbors, PPM, LLC (CHPPM). To the best of the EPA's current understanding, CHHPM is owned by Transformer Services Holdco LLC, which in turn is owned by Clean Harbors Disposal Services, Inc. As of June 8, 2017, Clean Harbors Disposal Services, Inc., transferred 100% of all issued and outstanding equity interests in Transformer Services Holdco, LLC to Emerald Transformer Western States LLC. The transaction was complete June 30, 2017. As a result of this transfer, Emerald Transformer Western States LLC became the sole owner of Transformer Services Holdco, LLC (which is the sole owner of CHPPM). Following the closing of the transaction, the name of the Facility and owner of the property was changed from CHPPM to Emerald Transformer PPM, LLC (Emerald Transformer). Emerald Transformer is a subsidiary of Emerald Transformer Western States LLC, headquartered in McKinney, Texas.

The Facility has provided commercial waste treatment services to customers that include: (1) inspecting and evaluating PCB transformers and other PCB-containing electrical equipment to determine whether the equipment can be refurbished or must be disposed; (2) draining and treating PCB-contaminated oils and liquids from equipment for reuse; (3) arranging for incineration of PCB oils and fluids at TSCA regulated incinerators from equipment that cannot be refurbished; and (4) arranging for disposal of carcasses of drained transformers and equipment at landfill facilities licensed to take such equipment.

The Facility operates a waste treatment de-chlorination unit (WTDU). The WTDU is designed to destroy PCBs in mineral oil dielectric fluid (MODEF). The WTDU process uses an alternate technology (de-chlorination) for disposal of PCBs.

The chemical reaction in the WTDU is a nucleophilic aromatic substitution. An aryl halide (PCB) reacts with an organometallic compound (sodium naphthalide) in ether to form diphenyl sodium chloride. The addition of water results in the formation of polyphenylene, sodium hydroxide, sodium chloride, and hydrogen gas. The treatment system is a batch process that includes a Tank Farm consisting of two Reactor Tanks, and all equipment used in the treatment process. The Tank Farm is concrete-floored and bermed to contain any potential oil spills and has a roof to minimize rainwater accumulation within the bermed area. The Tucker Treatment Process is permanent fixed equipment comprised of tanks and ancillary equipment that facilitates dechlorination via the sodium naphthalide reagent. The dechlorination of PCBs by sodium reagents must be conducted in a nitrogen atmosphere or other inert atmosphere, such as argon. This is to prevent a fire hazard resulting from hydrogen being produced by reaction of the sodium reagent with any moisture that may be in the oil. These tanks are identified and described in Sections 3.1.11 and 3.1.12 of the Approval Renewal Application dated December 2020 (Application). This information is also in Appendix I of this Approval.

CHPPM operated the WTDU under a TSCA PCB Approval issued by the EPA on February 6, 2007 for PCB storage pursuant to 40 CFR § 761.65(d) and alternate treatment for disposal pursuant to 40 CFR § 761.60(e). Pursuant to requirements of the Approval pertaining to alternate treatment for disposal, CHPPM conducted a test that demonstrated that the WTDU process was effective in reducing PCB contamination in the drained oils and fluids.

The Approval issued in 2007 expired on June 22, 2014. Prior to expiration of the Approval, CHPPM advised the EPA in a letter dated May 9, 2014, that it intended to continue operations and was seeking a renewal of the Approval. Based on CHPPM having submitted the notice and request, the Approval and all conditions remained in effect beyond the 2014 Approval expiration date, pending the EPA's review and approval of the request.

After becoming the owner of the Facility in 2017, Emerald Transformer requested that the Approval be renewed. Since that time, the Facility has continued receiving PCB transformers and electrical equipment to evaluate it for refurbishment or disposal and treating PCB MODEF oils and fluids at the Facility and/or disposing offsite. As part of its review of Emerald Transformer's request for renewal of the Approval, the EPA determined that Emerald Transformer needed to first conduct testing to demonstrate that the WTDU alternate treatment process is still effective in producing the same results and meets required levels of destruction/treatment, as when the EPA first approved its use as part of the 2007 Approval issued to CHPPM. On January 17, 2018, the EPA requested Emerald Transformer to submit a Demonstration Test Plan (DTP) that would support the EPA's issuance of an Approval for conducting a demonstration test for the WTDU process.

In April 2018, Emerald Transformer submitted a draft DTP for the demonstration test which was subsequently revised several times based on the EPA's comments in June 2018 and March and June 2019. Also, on April 19, 2020, Emerald Transformer submitted a Quality Assurance Plan (QAP) and

the remaining Appendices pertaining to the September 2019 DTP. On June 23, 2020, the EPA issued an Approval to allow Emerald Transformer to conduct a PCB treatment/disposal demonstration for its WTDU.

Emerald Transformer conducted a demonstration test from September 21-23, 2020, processing 3 batches approximately 8100 gallons each of PCB-contaminated MODEF. The parameters utilized in the demonstration test are as described in Appendix II of this Approval. The PCB concentrations in the three batches of MODEF treated during the demonstration test ranged from 195-223 parts per million. The demonstration test included extensive sampling and testing as part of process control and verification of treatment. Samples of treated oil were split for independent laboratory analysis by the EPA.

On November 6, 2020, Emerald Transformer submitted the demonstration test report to the EPA. Pertinent test results demonstrated that the WTDU is capable of destroying PCBs. PCBs were detected in concentrations < 2 parts per million (ppm) per resolvable gas chromatographic peak in the treated oil product. Tests on by-products from the treatment process (e.g., filter media, caustic solution, and the caustic sludge) showed that PCB concentrations were also reduced to < 2 ppm. The results of the September 2020 demonstration test are consistent with past demonstration tests conducted at the Facility and with EPA's laboratory results. Emerald Transformer's test results can be found in Appendix III of this Approval.

FINDINGS

The treatment system is designed and operated to prevent any release of PCBs to air, water, or soils. Vapor emissions are reduced through ambient reaction temperature, standard pressure in the reactor tank, and nitrogen gas blanketing. The treatment and storage tank systems are designed with shut-off valves and other safety features to prevent releases to the environment. Solid wastes are produced in small amounts in the form of spent filter media and sludge. These wastes contain biphenyl and polyphenylene substances, inorganic chlorides, water and a small amount of treated oil. Liquid wastes generated during pre-treatment and treatment include water containing low concentrations of PCBs and caustic solution.

The EPA categorizes the WTDU as an alternative PCB disposal technology. Specifically, the WTDU is a non-thermal alternative PCB disposal process. The WTDU has been shown to have a level of performance equivalent to that of approved high-temperature PCB incinerators. For processes that destroy PCBs in contaminated liquid, the Agency has generally required the applicant to show that the concentration of any individual PCB congener in the product (decontaminated liquid) and other process waste streams is no more than 2 ppm. The operation of the WTDU and management of the residual wastes as described in the Application demonstrate the potential benefits of the destruction method. The EPA finds that the storage and the processing and disposal operations of the WTDU, in accordance with the conditions of this approval and other applicable state and federal requirements, will not present an unreasonable risk of injury to health or the environment.

APPROVAL

Pursuant to 40 CFR §§ 761.65(d) and 761.60(e), Approval to store PCB waste and dispose of PCBs by a chemical dechlorination process is hereby granted to Emerald Transformer, subject to the conditions

expressed herein, and consistent with the material and data included in the Application and additional information submitted to the EPA. This Approval may be rescinded at any time for failure to comply with the conditions herein, failure to disclose all relevant facts, or for any other reason as the EPA deems appropriate to protect health or the environment.

This Approval becomes effective on the date of the EPA's signature and shall expire 10 years from the date of signature, unless revoked, suspended, or terminated in accordance with the Approval conditions stated herein.

_____
Date

_____
Cesar Zapata
Director
Land, Chemicals and Redevelopment Division

DEFINITIONS

All the terms and abbreviations used in this Approval shall have the meanings as defined in 40 CFR §761.3, unless the context clearly indicates otherwise or unless defined below for purposes of this Approval.

"Application" means the December 2020, Modification to the Application for Approval of a Commercial Storer's Permit and PCB Treatment Process and all data and materials which have been received by this Agency from Emerald Transformer regarding its system and operations in response to Agency comments and/or requests.

"**Bulk Pretreatment Tank** (BPT)" The BPT may be of any volume and is used to allow water to separate from Mineral Oil by gravity prior to the vacuum drying apparatus or the Bulk Reaction Tank (BRT). The BPT may be bypassed when mineral oil is unloaded directly from an incoming tanker to the bulk reaction tank.

"**Bulk Reaction Tank** (BRT)" means the vessel that is used to contain the batch of contaminated mineral oil during treatment.

"Daily" means each working day, excluding non-working weekends and holidays or any other day that the company is closed for business, for whatever reason.

"Emerald Transformer" means Emerald Transformer PPM, LLC, which is a subsidiary of Emerald Transformer Western States LLC, headquartered in McKinney, Texas.

"Emerald Transformer Facility" and **"Facility"** mean the contiguous land and structures, other appurtenances and improvements on the land located at 1875 Forge Street, Tucker, Georgia 30084.

"Decontaminated Oil Storage Tank" (DOST) means a tank which is used to hold mineral oil which has been treated through the Wash Water Process (WWP) and has been decontaminated of PCBs.

"EPA" means the U.S. Environmental Protection Agency, Region 4 whose office is located at 61 Forsyth Street, SW, Atlanta, Georgia.

"Final Sample" means the third process control mineral oil sample collected during the treatment process after the filter from the Wash Water Process (WWP).

"LCRD" means the Land, Chemical and Redevelopment Division.

"Mineral Oil" means and includes mineral oil dielectric fluid (MODEF).

"Non-Contact Caustic Solution" means the high-pH, aqueous fraction of liquid derived from the WWP following mineral oil decontamination, where the PCB concentration of the Pre-Final Sample of treated mineral oil collected from the BRT before the WWP is applied is at non-detectable levels.

"Non-Detectable Levels" means a concentration of PCBs in mineral oil of less than two parts per million (< 2 ppm) per PCB peak as calculated against the homolog in the Dry Color Manufacturers Association (DCMA) standard having the nearest retention time, as specified in the EPA's "Recommended Analytical Requirements for PCB Data Generated On-Site During Non-Thermal PCB Destruction Tests," dated March 19, 1986.

"Pre-Final Sample" means the second process control mineral oil sample collected during the treatment process from the BRT before the WWP is applied.

"Preliminary Sample" means the first process control mineral oil sample collected prior to beginning the treatment process to determine the PCB concentration in the feedstock.

"Regional Administrator" means the Regional Administrator of the EPA Region 4.

"Rig Reactor Tank" (RRT) means a tank of approximately 500 gallons in volume that is used to mix the chemicals that form the sodium naphthalide reagent.

"Tank Farm" means the treatment and storage tanks associated with the WTDU and located at the Emerald Transformer facility.

"Warehouse 1 and Administration Building" means the warehouse and office areas located at 1875 Forge Street, Tucker, GA 30084.

"Warehouse 2" means the office areas, PCB operations laboratory, and commercial PCB storage area located at 4720-B Stone Drive, Tucker, Georgia 30084.

"Wash Water Process" (WWP) means the process by which water is added gradually to decontaminated mineral oil and mechanically agitated to deactivate excess sodium naphthalide and sodium metal.

"WTDU" means the chemical decontamination process used by Emerald Transformer to dispose of (destroy) PCBs in mineral oil.

CONDITIONS OF APPROVAL

A. GENERAL CONDITIONS

1. Site Location

The operation of the authorized PCB storage and chemical dechlorination process, which is an alternative method of PCB disposal and the storage of PCB waste shall be carried out at the Emerald Transformer facility located at 1875 Forge Street, Tucker, Georgia 30084.

2. Scope of Work

Emerald Transformer is permitted during the ten years from the effective date of this Approval to do the following:

a. Store PCB liquids in tanks within the Tank Farm as identified in the Application, subject to the conditions of this Approval and the federal PCB regulations at 40 CFR Part 761. Any storage of PCBs and/or PCB Items except as authorized in the EPA Approval is prohibited.

b. Treat PCB and PCB-contaminated MODEF subject to the conditions contained in this Approval and in conformance with the Application. The PCB-contaminated MODEF shall be treated using the WTDU.

c. Dispose of WTDU liquid and non-liquid treatment residuals subject to the conditions contained in this Approval.

3. Compliance with Federal Regulations

a. This Approval does not relieve Emerald Transformer from compliance with the federal PCB Regulations at 40 CFR Part 761, including: :

i. 40 CFR §761.40 - marking;
ii. 40 CFR §761.60 - disposal;
iii. 40 CFR, §761.65 - storage for disposal;
iv. 40 CFR, §761.79 - decontamination;
v. 40 CFR Part 761 Subpart G - PCB spill cleanup policy
vi. 40 CFR, § 761.180 - records and monitoring; and
vii. 40 CFR, § 761, Subpart K, PCB waste disposal - records and reports.

b. Compliance with these Approval conditions does not establish a defense to any other law that provides protection from any unreasonable risk to public health and the environment, including the federal PCB Regulations at 40 CFR Part 761.

c. Issuance of this Approval does not convey property rights or any exclusive privilege, nor does it authorize any injury to persons such as Emerald Transformer employees, agents, or contractors, or any property damage, any invasion of other private rights, or any infringement of state or local laws or regulations.

d. If at any time Emerald Transformer becomes aware that it is operating the Facility in a manner that is not in compliance with this Approval or other applicable provisions of the PCB Regulations, Emerald Transformer shall notify the PCB Coordinator within 24 hours and shall submit a written report to the Director of LCRD describing the noncompliance within five (5) calendar days

4. Compliance with Other Governmental Requirements

a. Emerald Transformer must obtain all necessary approvals from other federal, state and local agencies prior to the storage and treatment of PCB-contaminated MODEF.

b. Emerald Transformer must comply with all applicable federal, state and local health, safety and environmental requirements and regulations.

5. Application and Approval Modification

a. Emerald Transformer must notify the EPA in writing of any intended modification of this Approval or Emerald Transformer's Application.

b. A "major modification" is defined as any change in capacity, design, efficiency, type of reagent, or change in the storage areas, the maximum PCB storage inventory, or the closure plan, or any other changes which affect overall performance or environmental impact. A change in "type of reagent" is defined as a change to the use of reagent different from the sodium naphthalide (highly dispersed sodium metal in oil combined with glycol ether) used during the demonstration of the process. A major modification to this Approval or the Application shall be made only after written approval by the EPA LCRD Director.

c. A "minor modification" is defined as administrative and informational changes, correction to typographical errors, changes to conform with Agency guidance or regulations, or any other change which does not affect overall performance or environmental impact. A minor modification to this approval or the final Application shall be made only after written concurrence by the EPA Redevelopment and Chemicals Branch Chief.

d. An equipment modification, replacement in kind, may be made to a process without prior written approval from the EPA provided that the modification does not alter the capacity, efficiency, waste type, system pressure settings, flow rates, or otherwise affect overall performance, safety, or environmental protection as they are described in the approved Application. For example, treatment unit components such as motors, fabricated metal parts, monitoring instruments, flexible hose, hard piping, valves, protective coatings or mechanical process components (e.g., tanks, mixers) may be replaced without prior written EPA authorization provided that the replacement equipment is of the same size, type and specification ratings as the original equipment.

6. Approval Suspension/Revocation

Failure to comply with the Approval conditions, the Application, approved modification(s) to this Approval, or any Federal, State or local statute or regulation may result in the immediate suspension of this Approval and/or the commencement of proceedings to revoke this Approval and/or appropriate enforcement action under all applicable statutes and regulations. This Approval may be suspended or revoked at any time by the EPA when it has reason to believe that the continued operation of the facility presents an unreasonable risk to health or the environment.

7. Severability

The conditions of this Approval are severable, and if any provision of this Approval or any Application of any provision is held invalid, the remainder of this Approval shall not be affected thereby.

8. Entry and Inspection

The EPA reserves the right for its authorized representatives to observe the treatment of PCB-contaminated MODEF, perform inspections of Emerald Transformer's property and activities, take samples, and inspect and request copies of records that must be maintained under the PCB regulations and this Approval. These activities will be conducted during normal operations and at other reasonable times.

9. Transfer of Ownership

a. Emerald Transformer shall notify the EPA at least ninety (90) days before transferring ownership or operational control of the facility. In addition, Emerald Transformer must notify the Georgia Environmental Protection Division and local authorities, as applicable, of the transfer of ownership.

b. The EPA will recognize the transfer of this Approval to a new owner/operator if all the following conditions are met:

   i. The transferee has established, within 30 days from the date of transfer, financial assurance for closure of the facility pursuant to 40 CFR § 761.65(g) using a mechanism under which there will be no lapse in financial assurance for closure of the transferred facility.

   ii. The transferee submits an amended or new and complete Application for a PCB commercial storage and disposal approval including all the elements listed in 40 CFR §761.65(d).

   iii. The transferee submits a signed and notarized affidavit which states that the transferee shall comply with all the conditions of this Approval.

c. Failure by Emerald Transformer or the transferee to comply with any provision of these conditions shall render this Approval null and void.

10. PCB Releases and Spills

a. If, there is a spill or release of the equivalent of 1 pound or more of pure PCBs, a reportable quantity (RQ), Emerald Transformer must notify the National Response Center at (800) 424-8802. Releases or spills of PCBs below the RQ, which pose a potential for significant exposure to humans, animals or the environment, shall be reported to the EPA PCB Coordinator.

b. Cleanup of PCB spills must begin immediately pursuant to 40 CFR Part 761, Subpart G (PCB Spill Cleanup Policy). Any debris or solid wastes generated as a result of clean up or decontamination of a PCB spill or release must be disposed of in a facility approved to dispose of PCBs under 40 CFR §761.60. Cleanup includes any areas impacted by the spill which may include containment areas, sumps and drainage system.

c. A written summary report about a reportable spill incident, as identified in the preceding paragraph, must be submitted to the EPA PCB Coordinator within five business days following the incident. When the EPA requests a detailed report on the incident, this report shall be submitted to the EPA PCB Coordinator within fifteen business days following the request. The detailed report shall include, but not be limited to, a description of the spill, cleanup activities, and changes in the Emerald Transformer operations to prevent such spills in the future.

11. Safety and Health

a. Emerald Transformer shall comply with all applicable safety and health standards, as required by federal, state and local regulations and ordinances.

b. Personnel with access to PCB storage areas shall wear or use protective clothing or equipment at the Facility to protect against dermal contact with or inhalation of PCBS.

c. Emerald Transformer shall test and maintain the emergency equipment in accordance with the manufacturer's recommendations to ensure proper operation in time of emergency. In the event any of the emergency response equipment were manufactured by Emerald Transformer, Emerald Transformer shall establish and follow a testing and maintenance plan for those manufactured items.

d. Injuries or illnesses directly related to PCB exposure, including resulting from spills or handling of PCBs must be reported to the EPA PCB Coordinator in writing. The report must include a description of the incident and the corrective measures or treatment provided. Within five days of completing the corrective measures and/or treatment, Emerald Transformer must submit the report to the PCB Coordinator, Terri Crosby-Vega at crosby-vega.terri@epa.gov.

e. At all times, there shall be at least one worker present at the Facility or on call with the responsibility for coordinating all emergency response measures. This worker shall have immediate access to the entire Facility and to a device, such as a telephone or a hand-held two-way radio, immediately available at the scene of operation capable of summoning external emergency assistance. This worker must have the authority to commit the resources needed to carry out contingency measures of this Approval, the Application, or the PCB Regulations, or that are otherwise appropriate.

f. Upon any unplanned suspension of the operation of the PCB treatment system which results during PCB processing, Emerald Transformer must prepare a document which shall include,

at a minimum, the date and time of the suspension and an explanation of the circumstances causing the suspension of the operation. The document shall be sent to the EPA PCB Coordinator at the email above, within thirty (30) days of any such suspension.

12. Facility Security

a. All PCB storage and processing areas at the Facility shall be secured (such as a fence, alarm system, or barricades, as appropriate) to restrict or control public access to the area. The waste management areas shall remain fenced with at least a six-foot high chain-link fence. The fence shall be kept in good repair. All entrances to the Facility shall be closed and locked when security personnel are not present.

b. Emerald Transformer shall maintain and operate the Facility to prevent fire and explosion.

13. Personnel Training

a. Emerald Transformer shall be responsible for ensuring that the personnel directly involved with the handling or disposal of PCBs are demonstrably familiar with the requirements of this Approval. At a minimum, this must include:

   i. the types of fluid that may be treated using the WTDU and the upper limit of PCB concentration that may be treated;
   ii. basic recordkeeping requirements under this Approval and the location of records;
   iii. notification requirements;
   iv. disposal requirements for regulated by-product wastes generated during the operation of the WTDU; and
   v. reporting requirements.

b. Emerald Transformer must ensure that personnel who are directly involved with handling PCBs and PCB Items are familiar with the Spill Prevention Control and Countermeasure Plan and regulatory requirements under 40 CFR Part 761.

c. Emerald Transformer shall make its training plan available to the EPA PCB Coordinator upon request. The EPA shall have the right to review the training plan and require Emerald Transformer to correct any deficiencies in a prompt manner. If updates to the training plan are required, Emerald Transformer shall retrain all existing workers that have, or will have, access to PCB storage areas in accordance with the updated training plan within 60 days of the effective date of this Approval.

d. All new workers must complete training in accordance with the Emerald Transformer training plan within 30 days and prior to entering PCB storage areas. In addition to initial training, all workers with access to PCB storage areas must complete annual refresher training in accordance with the training plan.

14. Recordkeeping and Reporting

a. Emerald Transformer shall comply with all applicable recordkeeping and reporting requirements of the PCB Regulations, including but not limited to, annual records, annual document logs and annual reports as required by § 761.180.

b. An authorized representative of Emerald Transformer shall certify all reports and other information submitted to the EPA.

c. Emerald Transformer shall maintain daily records of storage inventories which are sufficient to determine compliance with the Maximum Storage Capacity and related requirements for PCBs specified in condition B.1.

d. Emerald Transformer must maintain records demonstrating compliance with the requirements of 40 C.F.R. § 761.180(a) and (b) and this Approval:
   i. the documentation of PCB content, sampling and analytical testing requirements of condition C.5;
   ii. the inspection requirements of condition B.11, which shall be in the form of inspection records;
   iii. the cleanup and disposal requirements of conditions A.10 and A.15;
   iv. the repair requirements of condition B.11;
   v. the worker training requirements of condition A.13, which shall include the name and title of the individual, the date(s) of the training, and a signature sheet certifying that the signatory completed training in accordance with the Emerald Transformer training manual on the date specified;
   vi. the spill requirements of conditions A.10 and B.11;
   vii. the reporting requirement of condition A.10, which shall include the items, and certification, if applicable, required under 40 C.F.R. §§ 761.3 and 761.125; and
   viii. the equipment maintenance and testing requirements of condition A.11.

e. Emerald Transformer must record the inspections required by condition B.11 of this Approval, in an inspection log or summary. Records of inspections, maintenance, cleanup and disposal must be maintained in accordance with 40 CFR §761.180(a) and (b) and must be made available to the EPA upon request.

f. Emerald Transformer shall monitor and record other facility-specific, PCB waste storage and disposal process data as necessary to prepare the annual records, annual document logs and annual reports as required by 40 CFR §761.180(b).

g. Emerald Transformer shall retain all records required by this approval or the federal PCB regulations at 40 CFR Part 761 during the course of any unresolved enforcement action regarding the facility or upon request by the EPA, notwithstanding any other provision of this approval or the federal PCB regulations at 40 CFR Part 761.

15. Certificate of Disposal

Emerald Transformer must prepare a Certificate of Disposal for the PCB-contaminated MODEF disposed of at the facility as required in 40 CFR §761.218.

16. Closure and Financial Requirements

a. Emerald Transformer must maintain a closure plan, a closure cost estimate, and financial assurance for closure, in accordance with 40 CFR §761.65(e), (f) and (g), respectively. The facility has filed with the EPA a closure plan and financial assurance for closure. Financial assurance shall be maintained to provide for funding of proper closure of the facility. The closure plan shall include the decontamination and/or disposal in a TSCA approved disposal facility of PCB-contaminated equipment and materials.

b. When the Regional Administrator approves a modification to the facility's closure plan and that modification increases the cost of closure, Emerald Transformer shall revise the closure cost estimate and the financial assurance mechanism, if applicable, no later than thirty (30) days after the modification is approved.

c. Emerald Transformer shall update the Closure Cost Estimate annually for inflation and to reflect changes beyond the control of Emerald Transformer which may affect disposal.

d. Emerald Transformer shall keep a copy of the current closure plan, closure cost estimate and financial assurance document(s) at the facility and make such documents available to the EPA inspectors for review, upon request.

17. Expiration/Renewal

a. This Approval shall expire ten years from the effective date of signature. To continue operations granted by this Approval after the expiration date, Emerald Transformer must submit a written notice of intent to continue the Approval to the EPA at least 180 days, but not more than 270 days prior to the expiration date of this Approval.

b. This Approval and its conditions herein will remain in effect beyond the approval expiration date if Emerald Transformer has submitted a timely and complete notice of intent to continue the Approval and, through no fault of Emerald Transformer, the EPA has not issued an Approval renewal.

c. The EPA may require Emerald Transformer to submit additional information and/or conduct additional tests of Emerald Transformer's PCB treatment process in connection with the renewal of this Approval.

B. STORAGE OF PCBS

1. Approved PCB Storage Areas

a. All PCB waste shall be stored within the approved PCB storage areas as described in the Application. The approved PCB storage area is the Tank Farm enclosure housing the PCB treatment/disposal operation.

b. Within the Tank Farm, the tanks listed herein are authorized for storage of untreated PCB mineral oil and treatment of PCB mineral oil:

Tank ID #	2	4	6	10	12	Temporary Tote/Drum
Capacity (gal)	10,000	10,000	10,000	10,000	3,000	2,000
Function	storage	storage	storage	treatment	treatment	treatment/storage

2. Design Requirements of Storage Areas

The PCB storage area shall be maintained in accordance with the specifications in the approved Application and shall meet the requirements at 40 CFR §761.65.

3. Types of PCB Storage Allowed

Tank Farm: Emerald Transformer is authorized to store untreated PCB mineral oil, PCB waste undergoing treatment in the WTDU, and WTDU byproduct waste streams in tanks listed in Approval Condition B.1.b., within the Tank Farm containment berm.

4. Maximum PCB Storage

Tank Farm: 45,000 gallons where the combined contents of Tanks 2, 4, 6, 10, 12, plus incidental container storage associated with processing must not exceed 45,000 gallons.

5. Containers

PCB containers used for storage of PCB waste shall be limited to those container types authorized for PCB storage under 40 CFR §761.65(c)(6) and (c)(7).

6. Marking and Dating Requirements

a. The approved PCB storage area identified in Approval Condition B.1., shall be marked as required in 40 CFR §761.40(a)(10).

b. For each of the PCB waste storage tanks identified in Condition B.1.b., Emerald Transformer shall comply with the recordkeeping requirements of 40 CFR §761.65(c)(8).

10. Moveable equipment

a. Except as provided below, no item of moveable equipment used for handling PCBs or PCB Items in the Tank Farm enclosure that has come in direct contact with PCBs, shall be removed from Tank Farm enclosure unless it has been decontaminated in accordance with 40 CFR §761.79.

b. An item of moveable equipment used for handling PCBs in one storage area may be transferred to and used in another approved PCB storage area at the Emerald Transformer facility without prior decontamination provided that the equipment is containerized during the transfer or other appropriate measures are taken to prevent the spread of PCB contamination and exposure to unprotected personnel en route between the two storage areas.

11. Inspection Requirements

a. All PCB Items stored within the Tank Farm enclosure shall be checked for leaks at least once every 30 days. Any leaking PCB waste shall be transferred immediately to properly marked non-leaking containers. Any spilled or leaked materials shall be immediately cleaned up and the materials and residues containing PCBs shall be disposed of in accordance with 40 CFR §761.61.

b. The condition of floor, joints and curbing in the Tank Farm enclosure shall be inspected and recorded at least once every 30 days. Any needed repairs noted during such inspections shall be made within 30 days of the inspection date unless a longer repair period is authorized by the EPA.

c. The roof of the Tank Farm enclosure should be such that rainwater is prevented from entering the area. However, following a storm event, Emerald Transformer shall inspect the Tank Farm enclosure for accumulated storm water. Accumulated storm water shall be collected and containerized as soon as practical following a storm event. Collected storm water shall be managed and disposed in accordance with the requirements of Condition C.7.

C. CHEMICAL DECONTAMINATION

1. Process Conditions

a. The WTDU shall be used only to chemically dispose of PCBs contained in mineral oil.

b. The WTDU shall be operated only by trained Emerald Transformer employees, agents, or contractors.

c. All tanks and vessels shall be identified by labels indicating their content and function.

d. All mineral oil storage tanks shall be labeled as to the range of PCB concentration of the materials therein.

2. Feedstock Restrictions:

a. The approved WTDU may be used by Emerald Transformer to destroy PCBs in mineral oil up to a maximum PCB concentration of 223 ppm.

b. Emerald Transformer may blend PCB-containing oil with non-regulated (PCBs<50 ppm) oil to reduce the concentration in order to achieve an appropriate PCB concentration to within the maximum permissible concentration limit specified above.

c. Prior to treatment, the mineral oil must be sampled and analyzed by gas chromatography with electron capture detection (GC-ECD) for the concentration of PCBs in accordance with the EPA-approved procedures.

d. If Emerald Transformer successfully demonstrates to the EPA that the WTDU is capable of treating higher concentrations of PCBs in mineral oil or PCBs in other organic feedstock fluids, the feedstock material and feedstock concentration limits may be modified as a major modification accordingly with another demonstration test. Authorized EPA representatives may witness the demonstration and obtain split samples for verification of analytical results.

3. Process Control

a. Each batch of mineral oil shall be sampled and analyzed at three locations during routine treatment operations and analyzed for PCB concentration with GC-ECD.

i. The first sample, known as the Preliminary Sample, shall be collected prior to beginning the treatment process to determine the PCB concentration in the feedstock. Mineral oil containing PCBs at concentrations greater than 223 ppm may not be treated.

ii. The second sample, known as the Pre-Final Sample, shall be collected from the BRT before the WWP is applied. If the sample's PCB concentration is less than 2 ppm, the treated mineral oil may be moved to the water wash system. If it is greater than or equal to 2 ppm, chemical treatment shall be continued.

iii. The Final Sample shall be collected after the filter from the WWP. If the sample contains greater than 2 ppm PCB, the wash process continues.

b. If the concentration of PCBs in a Final Sample is greater than or equal to 2 ppm per identifiable and resolvable PCB peak (as calculated by comparison to an external sample homolog peak having the nearest retention time to each appropriate peak to be quantified), the fluid must be:

i. reprocessed until the PCB concentration is less than 2 ppm per identifiable and resolvable PCB peak (according to condition C.2.c) before the next batch can be treated; or

ii. dispose of the treated oil, all by-products, and PCB wastes at an EPA-approved incinerator which complies with 40 CFR §761.70 or other EPA approved disposal methods. All of the fluids, by-products, and PCB wastes must be disposed using the maximum PCB concentration that was originally blended together.

c. No material other than treated oil from the WWP may be introduced into DOST Tank 8. Additives may be introduced to the treated oil and/or the oil may be further processed after it has been confirmed clean in accordance with paragraph (b) above and transferred to a Clean Oil Tank (DOST Tanks 14 or 16).

4. Process Waste Restrictions

a. Except for caustic solution, all liquid, multi-phasic, or non-liquid by-product waste streams generated by the WTDU that contain greater than or equal to 1 ppm PCBs, are regulated PCB wastes. Liquid and multi-phasic PCB wastes shall be disposed of at an EPA-approved incinerator which complies with 40 CFR §761.70. Non-liquid PCB wastes shall be disposed of at an EPA-approved incinerator which complies with 40 CFR §761.70 or an EPA-approved chemical waste landfill which complies with 40 CFR §761.75. Caustic solution generated as a by-product of the WTDU shall be disposed of in a manner authorized in Approval Condition C.4.c.

b. The caustic solution from individual batches of treated oil may be commingled in the DOST until the quantity is large enough to make treatment or disposal feasible in accordance with good engineering practice.

c. Non-contact caustic solution is not subject to TSCA PCB disposal requirements and shall be managed in accordance with applicable Resource Conservation and Recovery Act (RCRA) regulations or State of Georgia hazardous waste management regulations. Caustic solution that does not qualify as non-contact caustic solution shall be managed as follows. Whenever a quantity of caustic solution is withdrawn from the DOST to be processed for disposal, Emerald Transformer may elect to sample and measure the PCB concentration of the caustic solution. Caustic solution containing PCBs at concentrations less than or equal to 0.5 parts per billion (ppb) is unrestricted for use per 40 CFR 761.79(b)(1)(iii). Caustic solution containing PCBs at concentrations greater than 0.5 ppb, but less than 3 ppb may be disposed in accordance with 40 CFR §761.79(b)(1)(ii). Caustic solution containing PCBs at concentrations equal to or greater than 3 ppb shall be disposed of at an EPA-approved incinerator which complies with 40 CFR §761.70.

d. Emerald Transformer shall not transport processed mineral oil with a PCB concentration $\geq$ 2 ppm per identifiable and resolvable PCB peak (as calculated by comparison to an external standard homolog peak having the nearest retention time to each appropriate peak to be quantified) off site except for the purpose of disposal in an EPA-approved facility.

5. Sampling and Analysis

a. For purposes of demonstrating compliance with treatment standards and/or disposal requirements as set forth in this Approval, Emerald Transformer shall sample and chemically analyze mineral oil feedstock, treated mineral oil and WTDU by-products according to the Quality Assurance Project Plan (QAPP) procedures contained in the Application, and in the Demonstration Test Plan dated May 2020.

b. Use by Emerald Transformer of PCB quantitation methods with Aroclor standards is acceptable only if the PCB contents of the analyte mixture (products and by-product waste streams) closely resemble the PCB contents of the standard. If the operation of the WTDU changes the composition of congeners present in an Aroclor in a waste stream or product, a GC standard containing individual PCB congeners such as the Dry Color Manufacturers Association (DCMA) Standard must be used. If PCB quantitation is based on a congener standard like DCMA, no individual peak can be equal to or greater than the applicable criterion (e.g., 2 ppm for treated oil product). Peaks must be summed to determine the total PCB concentration when the concentration of PCBs is greater than or equal 2 ppm for any individual peak (as calculated by comparison to an external standard homolog peak having the nearest retention time to each appropriate peak to be quantified).

6. Process Monitoring/Recordkeeping

a. For each batch of PCB fluid processed, Emerald Transformer shall monitor and record the process parameters and maintain the treatment process within the safe operating range specified in Appendix II.

b. Emerald Transformer shall monitor and record the following information for each batch of PCB oil processed:

i. Fluid quantity and PCB concentration of mineral oil charged into the reactor vessel;

ii. Amount of non-regulated oil used in each treatment batch

iii. Quantity and PCB concentration of treated oil produced;

iv. Estimated quantity of PCB regulated wastes generated at each batch, including treated oil that could not be successfully treated to achieve levels below 2ppm PCBs;

v. Identification of facilities used to dispose of the PCB wastes listed in condition C.6.b.iv;

vi. Date, time, and duration of the treatment run (a run begins when the first reagents are added and ends when the concentration of PCBs reaches less than 2 ppm as measured in the Final Sample);

vii. Name and address of the person or company whose PCB fluid was treated;

viii. Temperature and pressure of reaction monitored continuously and recorded in at least one-half hour intervals;

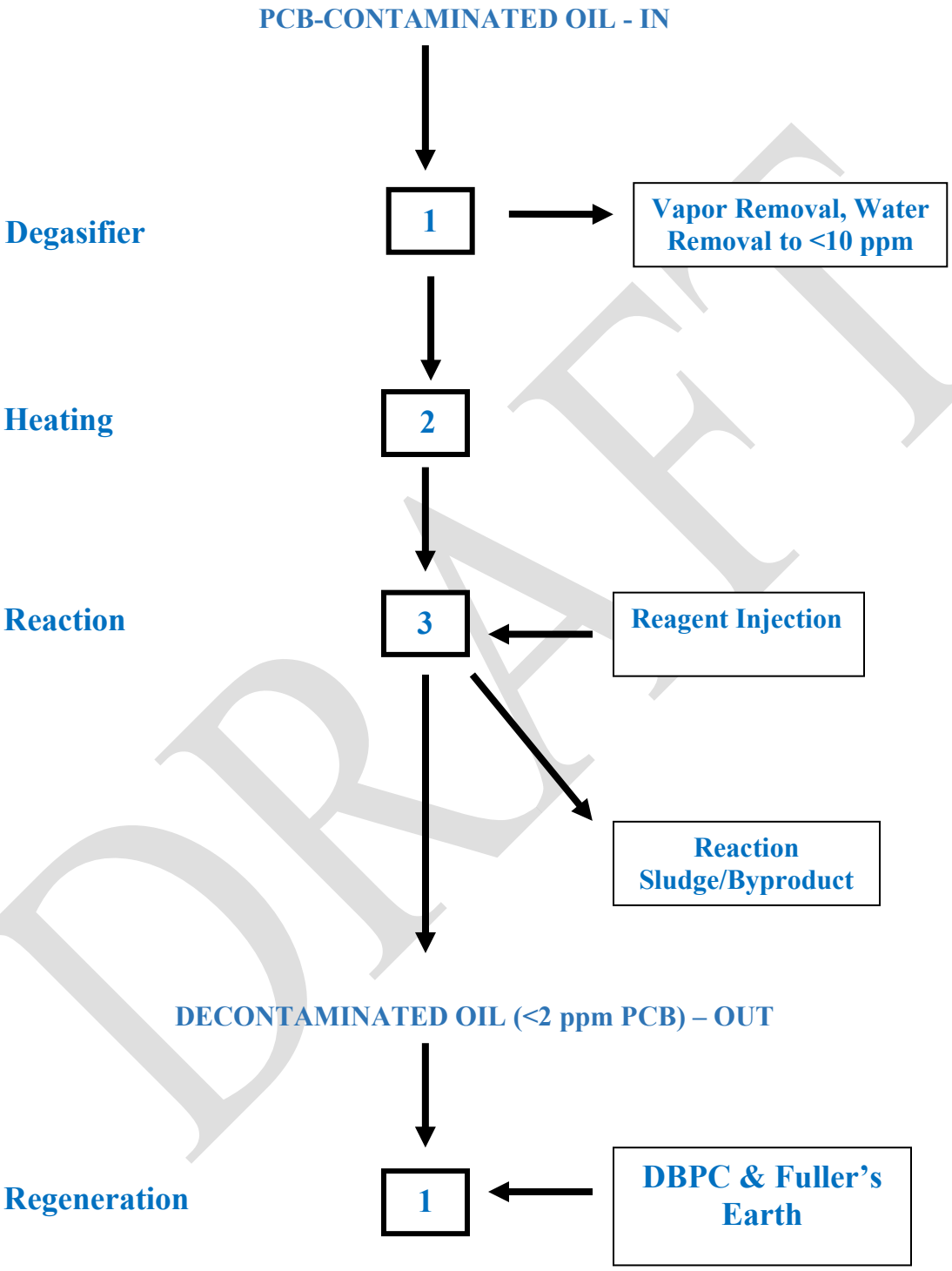
ix. Name and telephone number of process operator and supervisor;

x. Copies of gas chromatographs from the tests required by Approval conditions C.2, C.3, C.4, and C.5;

c. Emerald Transformer shall monitor and record the PCB concentration, if analyzed, and the amounts of the commingled caustic solution and any other by-product waste streams generated by the WTDU for each quantity processed for disposal.

d. All process operating records required under Approval conditions C.6.b., and C.6.c., must be compiled within sixty (60) days of the treatment date, or if applicable, the by-product waste process for disposal date. Such records must be kept at a centralized location at the site and must be available for inspection by authorized representatives of the EPA. Such documents shall be maintained for at least five (5) years. If Emerald Transformer terminates business, these records must be made available and submitted to the LCRD upon request.

APPENDIX I - TUCKER TREATMENT PROCESS FLOW DIAGRAM



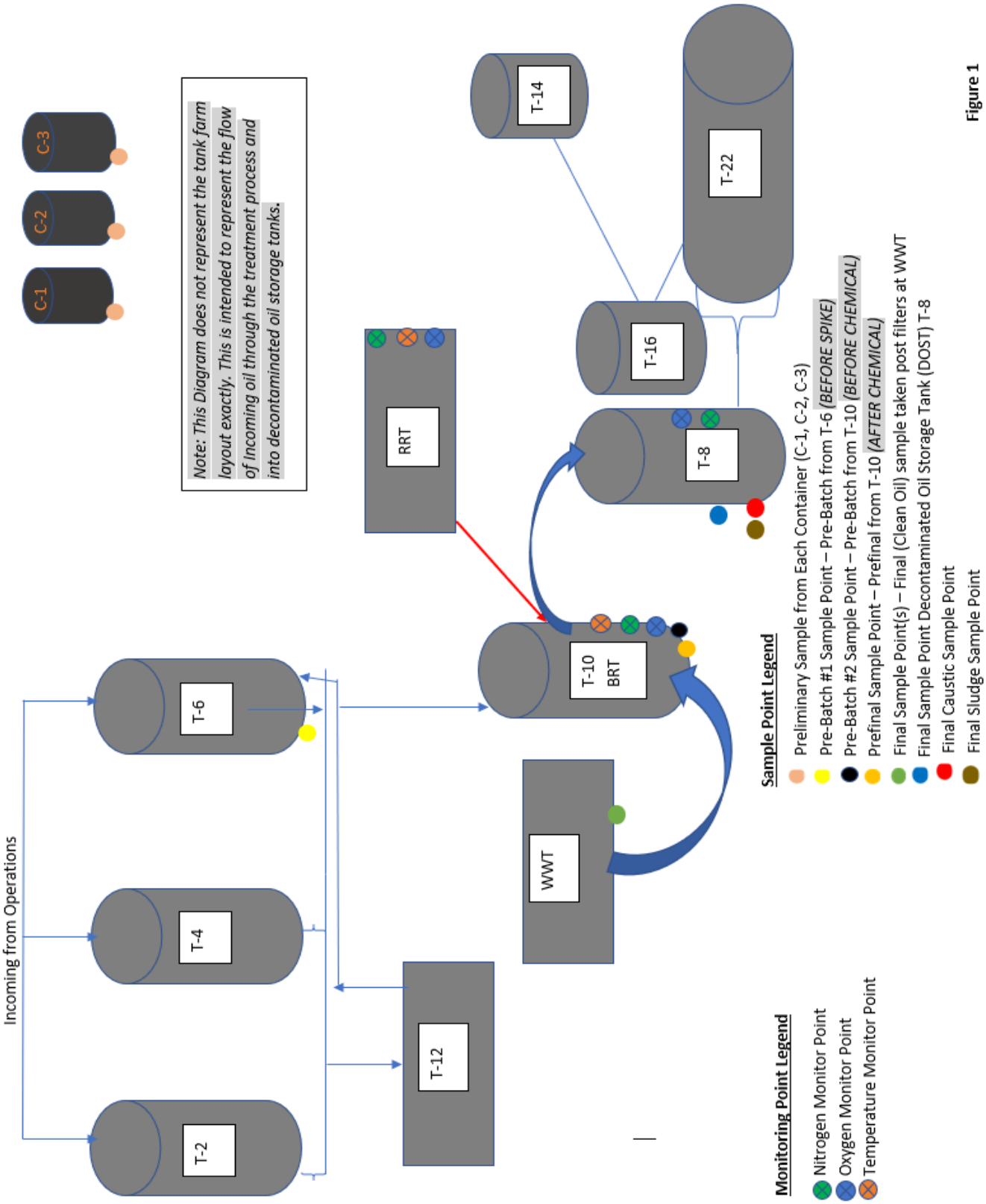

C-1
C-2
C-3
Note: This Diagram does not represent the tank farm layout exactly. This is intended to represent the flow of incoming oil through the treatment process and into decontaminated oil storage tanks.
RRT
T-14
T-22
T-16
T-8
T-6
T-10 BRT
WWT
T-4
T-12
T-2
Incoming from Operations
Sample Point Legend
Preliminary Sample from Each Container (C-1, C-2, C-3)
Pre-Batch #1 Sample Point – Pre-Batch from T-6 (BEFORE SPIKE)
Pre-Batch #2 Sample Point – Pre-Batch from T-10 (BEFORE CHEMICAL)
Prefinal Sample Point – Prefinal from T-10 (AFTER CHEMICAL)
Final Sample Point(s) – Final (Clean Oil) sample taken post filters at WWT
Final Sample Point Decontaminated Oil Storage Tank (DOST) T-8
Final Caustic Sample Point
Final Sludge Sample Point
Monitoring Point Legend
Nitrogen Monitor Point
Oxygen Monitor Point
Temperature Monitor Point

Figure 1

APPENDIX II - OPERATING CONDITIONS FOR THE WTDU

Parameter	Process	Anticipated Value	Control Limits	Monitoring Equipment
Waste Feed Rate (GPM)		90	N/A	Manual/Sight Gauge
Waste Feed Rate		26,635	<28,000	Manual/Sight Gauge
(kg/batch)				
Waste Feed Rate		8,000	<8,000	Manual/Sight Gauge
(g/batch)				
Inlet Pressure of Waste Feed		Not pressurized	N/A	N/A
Reaction Vessel Pressure		Atmospheric	N/A	N/A
Nitrogen Flow (SCFH)	Treatment	450	>450	N2 Flow Monitor
Nitrogen Flow (CFM)	Empty Tank	1	1-5	N2 Flow Monitor
	DOST Draining	19	19-25	N2 Flow Monitor
	Drain BRT	9	9-19	N2 Flow Monitor
	WWT Operation	4	4-19	N2 Flow Monitor
Waste Feed PCB Concentration		≥50	TBD	Gas Chromatography
(mg/kg)				
Batch Residence Time (hrs)		≥2	<8	Clock
Oxygen (%)		<8	>8	Handheld Gas Monitor
Temperatures (^{o}F)	Temperature of Incoming Waste Oil	<170	<170	External LED Display
	Reagent (RRT) Mix Temperature	60-100	<150	External Thermostat Display
	Reaction (BRT) Temperature	80-100	<130	External Thermostat Display
Water Quench Flow (GPH)		30	18-54	Manual
Oil Filter Pressure (psig)		10	<40	Manual
Water Concentration in PCB oil (mg/kg)		<1,000	<10,000	Karl Fischer
PCB Concentration in Treated Oil (mg/kg)		<2	<2	Gas Chromatography
Caustic Solution-PCB		0.005	<2	Gas Chromatography
(mg/L/Peak)				
Filter-PCB (ug/g/peak)		<2	<2	Gas Chromatography
Sludge-PCB (ug/g/peak)		<2	<2	Gas Chromatography

APPENDIX III - DEMONSTRATION TEST RESULTS

Test Results Table 1
Appendix A

Test #	Test #1	Test #2	Test #3
Date	9/21/2020	9/22/2020	9/23/2020
Start Time (24hr)	10:58(9/21/20)	13:54(9/22/20	14:58(9/23/20)
End Time (24hr)	06:30(9/22/20)	16:48(9/22/20)	06:20(9/24/20)
Operating Parameters			
Waste Feed Rate (gal/batch)	8100	8100	8100
Spike Waste Feed PCB Concentration (PPM)	4225	5070	4904
Bulk Waste Feed PCB Concentration (PPM)	195	223	197
Batch Reaction Time (Hours)	20.5	3.0	15.36
Batch Max Reaction Temperature (°F)	84	94	96
Additional Parameters			
Waste Feed Moisture Content (Pre Reaction)	696ppm	260ppm	103ppm
Product PCB Concentration (mg/kg)	<2	<2	<2
Average Spike Waste Feed PCB Conc (PPM)	4733		
Average Waste Feed Concentration (PPM)	205		