



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
RESOURCE CONSERVATION  
AND RECOVERY

Mr. Ron Shaw  
Facility Manager  
Florida Transformer Incorporated  
4509 State Highway 83 North  
DeFuniak Springs, FL 32433

Dear Mr. Shaw:

The Office of Resource Conservation and Recovery (ORCR) of the U.S. Environmental Protection Agency (EPA) approves Florida Transformer Incorporated (FTI) of DeFuniak Springs, Florida, under authority of §6(e)(1) of the Toxic Substances Control Act (TSCA) and 40 CFR §761.60(e), to demonstrate its alternate non-thermal polychlorinated biphenyl (PCB) disposal technology using chemical dechlorination.

With this letter and enclosed Approval, EPA authorizes FTI to demonstrate its technology to destroy PCBs in mineral oil dielectric fluid (MODEF) from a maximum original concentration of 1,500 parts per million (ppm) Aroclor 1260 to less than 2 ppm. FTI shall follow all of the terms and conditions found in the enclosed PCB alternative non-thermal disposal demonstration Approval. The chemical dechlorination technology (aka PCB-1000<sup>TM</sup>) is described in the PCB Disposal by Non-Thermal Alternative Method Demonstration Test Plan dated May 3, 2012 that FTI submitted to ORCR. During the Demonstration Test, FTI may only process and treat MODEF at their facility in DeFuniak Springs pursuant to the conditions of this Approval. This Approval is valid from the date of the signature of this letter until November 16, 2012.

Please note that EPA representatives may submit Quality Assurance (QA) spiked PCB or Aroclor samples to the laboratory designated by FTI to conduct chemical analyses of samples collected at the Demonstration Test. FTI shall determine the PCB concentration of each sample using its designated laboratory(s) and include the results in the Demonstration Test Report that is submitted to EPA.

FTI may claim any information submitted (e.g., information in FTI's Demonstration Test Plan) to be confidential business information (CBI) in accordance with EPA regulations at 40 CFR §2.203(b). FTI shall clearly mark such information as "Confidential" and shall also submit a redacted, non-CBI version of the information at the time FTI makes the claim of confidentiality. Failure to assert a claim of confidentiality shall constitute a waiver of CBI rights and EPA may release any information submitted without prior notice to FTI.



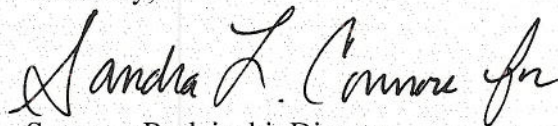
Subsequent to the demonstration test, if EPA issues a nationwide operating Approval to FTI, the approval will contain financial assurance requirements similar to the requirements in 40 CFR Part 264 (Subpart G and H) that would be applicable to the PCB-1000<sup>TM</sup> unit and to the operating area. Issuance of such operating Approval may be contingent on FTI demonstrating adequate financial assurance. FTI will be required to submit documentation of compliance with these requirements to ORCR prior to initiation of any commercial disposal operations.

If FTI successfully demonstrates the operation of the chemical dechlorination mobile unit during the Demonstration Test, ORCR will consider issuing a final nationwide approval imposing conditions addressing the types of PCB-containing material which FTI may treat, as well as limits on the PCB concentrations. ORCR will base the requirements of the final nationwide operating approval, if granted, on observations made during the Demonstration Test, the materials and data included in the approval application, the Demonstration Test Report, supporting documents submitted by FTI, and other relevant information. Operating conditions will include, but may not be limited to, those set forth in Appendix III of the enclosure. EPA representatives will be on site during the Demonstration Test to observe procedures and to verify the results of the test runs.

This Approval does not exempt FTI from any other applicable Federal, State and local laws, rules or regulations.

Thank you in advance for your cooperation with EPA representatives at the test demonstration site. If you have any questions regarding this matter, please contact Lilybeth Colon at (703) 308-2392.

Sincerely,

A handwritten signature in cursive script, appearing to read "Suzanne L. Rudzinski for".

Suzanne Rudzinski, Director  
Office of Resource Conservation and Recovery

Enclosures

cc: Ken Feely  
USEPA, Region IV

Bheem Kothur  
Florida DEP



Enclosure

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Approval to Demonstrate the Disposal of Polychlorinated Biphenyls (PCBs)

COMPANY

Florida Transformer Incorporated (FTI)  
4509 State Highway 83 North DeFuniak Springs, FL 32433

APPROVAL TYPE

Demonstration Test

SITE OF DEMONSTRATION

Florida Transformer  
4509 State Highway 83 North  
DeFuniak Springs, FL 32433

EFFECTIVE DATE

Signature of this Approval through November 16, 2012.

AUTHORITY

This Approval to perform a Demonstration Test for polychlorinated biphenyl (PCB) disposal is issued pursuant to §6(e)(1) of the Toxic Substances Control Act (TSCA) of 1976, Public Law No. 94-469, and the Federal PCB Regulations at 40 CFR §761.60(e), (48 Federal Register 13185, March 30, 1983).

CONDITIONS OF APPROVAL

1. Advance Notification: FTI shall provide a thirty-day advance notification of the Demonstration Test to the EPA Regional Administrator and State and local officials where the FTI PCB-1000<sup>TM</sup> Mobile Oil Processing Plant chemical dechlorination unit (from here on called the "PCB-1000<sup>TM</sup> unit") will be demonstrated. This notice shall identify the exact site, date, and entity using the PCB-1000<sup>TM</sup> unit process along with the testing dates and an estimate of the length of stay at the site. FTI shall also submit a copy of the notice to the Director of the Office of Resource Conservation and Recovery (ORCR) at EPA Headquarters. Appendix II is a sample thirty-day notification.
2. Feedstock Restrictions: The FTI unit shall demonstrate the treatment of PCB-contaminated transformer oil, i.e. PCBs in mineral oil dielectric fluid (MODEF). The



Demonstration Test shall consist of using the PCB-1000<sup>TM</sup> unit to treat feedstock with a maximum PCB concentration of 1,500 parts per million (ppm) in MODEF. For purposes of this Demonstration Test only, FTI is authorized to blend PCB contaminated oil (50 – 499 ppm) with PCB oil (500 – 2000 ppm) in order to achieve an appropriate PCB concentration for the Demonstration Test.

Prior to any treatment, FTI shall characterize the feedstock for PCBs, including Aroclor type and concentration (EPA Method 8082). PCBs as Aroclors shall be sampled and analyzed by gas chromatography in accordance with the procedures described in FTI's Demonstration Test Plan dated May 3, 2012.

The treatment of MODEF will be limited to that needed to complete the Demonstration Test.

EPA representatives will observe the Demonstration Test and obtain appropriate samples for verification of the effectiveness of the process. FTI shall sample and analyze the feedstock, the treated oils, condensates, and other wastes, consistent with their Demonstration Test Plan dated May 3, 2012. FTI will be responsible for collecting and analyzing the samples to verify that the PCB-1000<sup>TM</sup> unit complies with the regulatory requirements and provisions in this approval. FTI may also conduct any additional analyses, as necessary, to characterize the feedstock and facilitate more efficient operation of the PCB-1000<sup>TM</sup> unit.

3. EPA Laboratory Audit: EPA intends to provide samples of PCBs in test matrices in order to determine the adequacy and accuracy of the analytical methods employed by FTI or its agent. EPA intends to inform FTI of the approximate range of PCB concentrations and the identity of the test matrix for any samples provided. FTI or its agent shall determine the PCB concentration of the test material during the Demonstration Test and provide EPA representatives with chromatograms for all samples and associated standards, calculations, and records regarding each analysis. EPA personnel may observe all or any portion of the analytical procedures.

4. Process Restrictions: FTI shall operate the PCB-1000<sup>TM</sup> unit as described in its Demonstration Test Plan dated May 3, 2012. The restrictions under which the FTI PCB-1000<sup>TM</sup> unit shall operate include, but are not limited to, the following:

- a. Temperature shall not exceed 95°C; batch reactor time shall not be less than 20 continuous minutes and N<sub>2</sub> pressure shall not exceed 15 psi. Monitoring for temperature and pressure shall be constant, and the system shall have mechanisms to stop and cool the system should the temperature exceed 95°C. The system shall also have mechanisms to stop the system should the pressure exceeds 15 psi.
- b. The control limits presented in Appendix III shall not be exceeded.

These process restrictions may be modified or supplemented based on conditions observed during the Demonstration Test at the discretion of the EPA field representatives.

5. Process Waste Characterization: FTI shall analyze liquid and non-liquid waste from the system for PCBs. FTI shall dispose of all processed non-liquid and non-aqueous waste



exhibiting a PCB concentration at greater than 2 ppm PCBs and aqueous liquid waste above 0.5 parts per billion (ppb) PCBs as if it contained the original PCB level of the feedstock. Aqueous liquid waste shall be equal or below 0.5 ppb for unrestricted use or discharge. FTI shall sample the non-liquid and liquid wastes at the termination of the Demonstration Test or when non-liquid or liquid media is replaced or replenished, whichever occurs first. Non-liquid wastes include, but are not limited to, granulated activated carbon (GAC). Liquid wastes include, but are not limited to, any condensates. FTI shall provide splits of representative samples of the feedstock, GAC, condensates, and treated waste for analysis by ORCR from all trial test runs during the Demonstration Test.

6. Successful Test Runs: FTI shall complete a minimum of three successful demonstration test runs before ORCR will consider the test successful. A successful test run is defined as one in which: (1) the PCB-1000<sup>TM</sup> unit was operated in accordance with this Approval with no PCB emissions into the environment above what is permissible under the TSCA PCB regulations; (2) sampling was representative, accurate, precise, and adequately demonstrated that all non-liquid and non-aqueous wastes, such as GAC or oils resulting from the treatment of the PCB-contaminated MODEF, had less than 2 ppm PCBs; and (3) all aqueous liquid wastes that result from the treatment of the PCB-contaminated MODEF had less than 0.5 ppb. PCB analysis showing Aroclor patterns shall be reported in the Demonstration Test Report. See Appendix V for the definitions of accuracy, precision and representativeness.

7. Secondary Containment Restrictions: FTI shall maintain a secondary containment system for any PCB liquids managed/stored on site. The containment volume provided shall be greater than the volume of the largest container to ensure that no releases of PCBs and PCB-related waste to the environment occur. If any liquids accumulate in the secondary containment, FTI shall sample and analyze the liquids for PCBs. In the event that PCBs greater than or equal to 0.5 ppb are found in the liquids that accumulate in the secondary containment, FTI shall manage the liquid as a PCB waste in accordance with 40 CFR Part 761.

8. Process Failure: If the quality control testing as described in FTI's Demonstration Test Plan dated May 3, 2012, reveals that the PCB concentration in the treated MODEF is greater than 2 ppm, the EPA field representative may order cessation of all demonstration activities until adequate written explanation is provided to EPA and all necessary corrective measures are implemented. A written report detailing the problem and solution shall be submitted to the Director of ORCR within five business days of EPA's order to cease disposal activities.

9. PCB Releases: In the event FTI knows, believes, or has reason to believe, that a release of PCBs from the PCB-1000<sup>TM</sup> unit to the environment has or may have occurred, FTI shall immediately inform all EPA representatives on site. If no EPA representatives are on site, FTI shall immediately notify the Director of ORCR and the EPA Regional Administrator. If, subsequent to the release, EPA representatives arrive at the testing site, FTI shall immediately notify the EPA representatives of the release upon their arrival.

FTI shall submit a written report describing the incident by the close of business on the next regular business day to the Director of ORCR and the EPA Regional Administrator. FTI shall not process/treat PCBs in the PCB<sup>TM</sup> unit until the release problem has been corrected to the satisfaction of the Director of ORCR.



10. PCB Spills: FTI shall minimize the likelihood of PCB spills by following the spill prevention procedures described in their Demonstration Test Plan dated May 3, 2012. In the event of a spill, FTI shall, within five days, submit a written report to the Director of ORCR and the EPA Regional Administrator that describes: 1) the spill; 2) the storage, processing or disposal operations involved at the time of the spill; and 3) all clean-up actions. If a spill occurs prior to EPA representatives arriving on site, FTI shall immediately inform all EPA representatives upon their arrival.

11. Facility Security and Safety: FTI shall take all necessary precautionary measures to ensure that operation of the PCB-1000<sup>TM</sup> unit is conducted in compliance with all applicable safety and health standards, as required by Federal, State, and local regulations and ordinances. FTI shall ensure that the test site is secure (e.g., fence, alarm system, etc.) so that only those individuals participating in and overseeing the Demonstration Test, and other authorized visitors, are allowed in the approved areas.

FTI shall be responsible for the actions of all individuals who are involved in the Demonstration Test and shall report any accident or personal injury occurring as a result of the PCB-1000<sup>TM</sup> unit. If the accident or personal injury occurs while EPA representatives are on site, FTI shall inform all EPA representatives that are on site. If the accident or personal injury occurs prior to EPA representatives arriving on site, FTI shall inform all EPA representatives upon their arrival. If the accident or personal injury involves any EPA representative, FTI shall immediately inform the Director of ORCR. If no EPA representatives are on site, or are planned to be on site within the next business day, FTI shall inform the Director of ORCR by the next business day. Under all circumstances, FTI shall also submit a written report describing the accident to the Director of ORCR within five business days of the event.

12. Reporting Requirements: For Conditions 8, 9, 10 or 11, FTI shall also notify the Permits Branch by telephone (703-308-8404) within the time frame specified within each condition. FTI shall submit the written reports to the Director of ORCR, 1200 Pennsylvania Avenue N.W., Mail Code: 5301P, Washington, D.C. 20460 within the specified time frame.

13. Disposal of PCB Contaminated Materials: FTI shall decontaminate, store, and/or dispose, in accordance with 40 CFR Part 761, Subpart D, all PCBs not used in the Demonstration Test (e.g., spiking solutions), as well as any PCB contaminated materials generated as a result of such test.

14. PCB Off site Transport: FTI shall not transport PCB waste off site, except for proper storage or treatment/disposal in accordance with 40 CFR Part 761, Subpart D. FTI shall decontaminate any PCB-contaminated equipment on the PCB-1000<sup>TM</sup> unit in accordance with 40 CFR §761.79 before it may be transported off site.

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

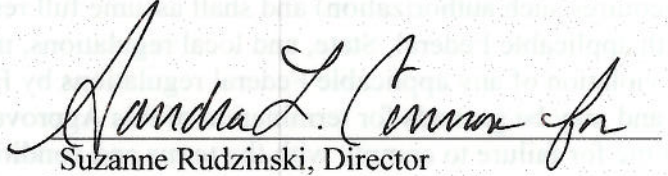


16. Other Approvals/Permits: No operation may commence until FTI has obtained all necessary approvals/permits from Federal, State, and local agencies.
17. Compliance Responsibility: FTI shall be responsible for any authorized or unauthorized FTI operation (that requires such authorization) and shall assume full responsibility for any failure to comply with applicable Federal, State, and local regulations, including the conditions of this Approval. A violation of any applicable Federal regulations by FTI may be subject to enforcement action, and may be grounds for termination of this Approval. This Approval may be rescinded at any time for failure to comply with the terms and conditions herein, or for any other reasons which EPA deems necessary to protect public health and the environment. Furthermore, receipt of evidence: (1) showing that there was misrepresentation of any material fact in any FTI submittal; or (2) that all relevant facts were not disclosed to EPA; may constitute sufficient cause for termination, suspension or modification of this Approval, in addition to any other legal or equitable relief or remedy EPA chooses to pursue under applicable law.
18. EPA Inspection: EPA reserves the right for its employees or agents to inspect and test FTI activities, procedures, and equipment related to the Demonstration Test. EPA may, at its discretion, terminate FTI PCB disposal activities at any time based on such inspections or tests.
19. Deviation from the Demonstration Test Plan: Any deviations during the Demonstration Test from the conditions of this Approval or the provisions of FTI's Demonstration Test Plan, dated May 3, 2012, must receive prior authorization from the EPA field representative. Within 10 business days of oral authorizations of deviation requests, FTI shall submit a written modification to the Demonstration Test Plan documenting the authorized deviation to the Director of ORCR. In this context, the "Demonstration Test Plan" shall be defined as all data, materials and other information which have been received by the Director of ORCR from FTI regarding the FTI treatment/disposal unit.
20. Additional Demonstration Approval Conditions: The Director of ORCR or his/her representatives reserve the right to impose additional conditions when there is reason to believe that the continued operation of the PCB-1000<sup>TM</sup> unit presents an unreasonable risk of injury to health or the environment, or for any other reason it deems valid. Such reasons could include, but are not limited to, imminent hazard, new information, or evidence of failure to meet any condition of this Approval.
21. Demonstration Test Report: After the demonstration, FTI shall collect and assemble all test results (including chromatographs) and other appropriate information into a Demonstration Test Report and submit the report to the Director of ORCR for evaluation. After a complete Demonstration Test Report has been received, and when the evaluation of the results is completed, the Director of ORCR will consider issuing FTI a nationwide PCB treatment/disposal approval to treat MODEF containing PCBs.



Approval is hereby granted to FTI of DeFuniak Springs, Florida to conduct a PCB treatment/disposal demonstration for its PCB-1000™ unit, subject to the findings and conditions expressed herein, and consistent with the materials and data included in FTI's Demonstration Test Plan dated May 3, 2012.

8/23/12  
Date

  
Suzanne Rudzinski, Director  
Office of Resource Conservation and Recovery



## APPENDIX I

### BACKGROUND

Florida Transformer, Inc. (FTI) is in the business of receiving and transporting electrical distribution equipment for test and evaluation purposes. FTI is currently seeking approval to destroy PCBs in mineral oil dielectric fluid (MODEF) with PCB concentrations as high as 1,500 ppm.

PCB analytical results and customer specifications determine the disposition of the equipment, whether repair or decommission. PCB analysis by Gas Chromatography is performed at the on site laboratory unless valid PCB results are provided by the customer prior to pick up. All equipment is entered into the FTI database with PCB result.

In an effort to assist in lessening the environmental footprint of its customers, it is the intention of FTI to process by dechlorination used oil up to 1,500 ppm PCB for further recycling. The oil will be removed from the electrical equipment, segregated and transferred to the appropriate bulk storage tank dependent on PCB concentration by the same procedure used currently.

Drained electrical equipment designated for decommission will be relocated to the appropriate decommission department based on PCB concentration. Drained electrical equipment evaluated and designated for repair will be relocated from In-processing to the appropriate repair department based on unit type. After repair is complete and all customer specifications have been met, the unit is filled with new transformer mineral oil and shipped to the appropriate customer.

A mobile dechlorination system manufactured by Redragon Oil & Gas Systems International Inc. (Mobile Oil Processing Plant PCB-1000<sup>TM</sup>) will be placed adjacent to the existing bulk tank storage area where material will be transferred from its respective tank(s) dependent on PCB concentration into the system. All non-PCB material (2 – 49 ppm), PCB-contaminated material (50 – 499 ppm), and  $\geq 500$  ppm PCB material will be processed separately.

Regenerated oil (less than 2 ppm PCB) from processed used oil (2 – 49 ppm PCB) may be used for insulating liquid in repaired transformers given FTI receives prior approval from the owner of the equipment. This oil will be transferred from the dechlorination system after processing to a newly acquired and installed bulk storage tank for regenerated oil only. The remaining processed material will be transferred to a holding tank until picked up by an appropriate vendor for further recycling.

Regenerated oil from processed PCB-contaminated oil (50 – 499 ppm PCB) proven to have a post process concentration of  $< 2$  ppm will also be transferred to a holding tank until picked up by an appropriate vendor for further recycling.

Additionally, it is the intention of FTI to offer field service to electrical cooperatives, municipalities and utilities by making the mobile dechlorination system available for on site tasks. The mobile unit will be used to remove used non PCB (2 – 49 ppm PCB) insulating oil from large electrical equipment and to replace processed, regenerated, PCB free oil back into the



equipment. The mobile service will also be provided for large PCB contaminated electrical equipment to remove and treat PCB contaminated oil to PCB concentrations of < 2 ppm and to replace it with PCB free oil.

The feed must be treated to levels less than 2 ppm PCBs in these oils. FTI has one rig associated with the facility at DeFuniak Springs, Florida. The system is completely housed within a 40'9" container trailer with the ability to be relocated as needed. The final products (from the destruction of PCBs) include sodium chloride, polyphenylene, and mineral oil with < 2 ppm PCBs.

## FINDINGS

The PCB-1000<sup>TM</sup> unit uses a process that chemically destroys PCBs with the use of an alkaline metallic (sodium) reagent. In this process, the reagent reacts with the chlorine atoms on the PCB molecule to form the waste products carbon monoxide, carbon dioxide, hydrogen chloride, phenols, aldehydes, sodium chloride, and hydrocarbon molecules. 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.

The following equipment is included in the system:

- a) Degasifier
- b) Heater
- c) Reagent System
- d) Mixer Tanks (two)
- e) Centrifuge
- f) Nitrogen Purge System
- g) Fuller's Earth System

## Process Description:

See Appendix IV for the PCB-1000<sup>TM</sup> Process Flow Diagram. The contaminated oil is pumped into inboard feedstock tanks. The contaminated oil is passed through a pre-treatment degasifier (to remove moisture and vapor from the oil and ensure the correct viscosity), and then undergoes reagent dispersion, mixing, and condensate removal, after which it is centrifuged. During the reaction, the PCBs in the Aroclor are converted to sodium chloride and hydrocarbon molecules.

## Reactor Effluent:

The product of the PCB-1000<sup>TM</sup> plant will have < 2 ppm PCB mineral oil. Byproducts include sodium chloride and hydrocarbon molecules. The byproducts are the constituents of the sludge that is formed as a result of the sodium and chloride reaction. The sludge byproduct and dechlorinated oil will both be at < 2 ppm PCBs. Byproducts may also include saturated fuller's earth from further purification after dechlorination. The fuller's earth will be considered caustic, as a main function of this absorbent is to aid in the removal of acids and tar from the oil.



Due to the design aspects, operating parameters, and safety measures, EPA finds that FTI's PCB-1000<sup>TM</sup> unit, when tested in accordance with this approval, will be capable of demonstrating whether FTI's PCB-1000<sup>TM</sup> unit can achieve a level of performance equivalent to an incinerator. EPA also finds that the demonstration activity itself, when performed in accordance with this approval, will not pose an unreasonable risk of injury to health or the environment.



## APPENDIX II

### SAMPLE THIRTY DAY NOTIFICATION FORM FOR CONDITION NO. 1

Company Name, Address, Phone Number, and Contact Person:

Person, Organizational Affiliation/Title, and Phone Number for:

EPA Regional Contact:

State Contact:

Local (Town/City/County) Contact:

Nature of the Disposal Activity:

Kind of PCB Disposal Process:

Kinds of Material Containing PCBs:

Numbers and Sizes of Pieces of Equipment Containing PCBs:

Quantity of Solids and/or Volume of Liquid(s) Containing PCBs:

Concentration(s) of PCBs in the Material Treated:

Location

Street Address or Other Identifier for All Facilities:

Telephone Contact and Address for Facility Manager:

Date/Time(s) of Processing

Date(s):

Time(s):



# APPENDIX III

## OPERATING CONDITIONS FOR THE BATCH CHEMICAL DECHLORINATION PROCESS

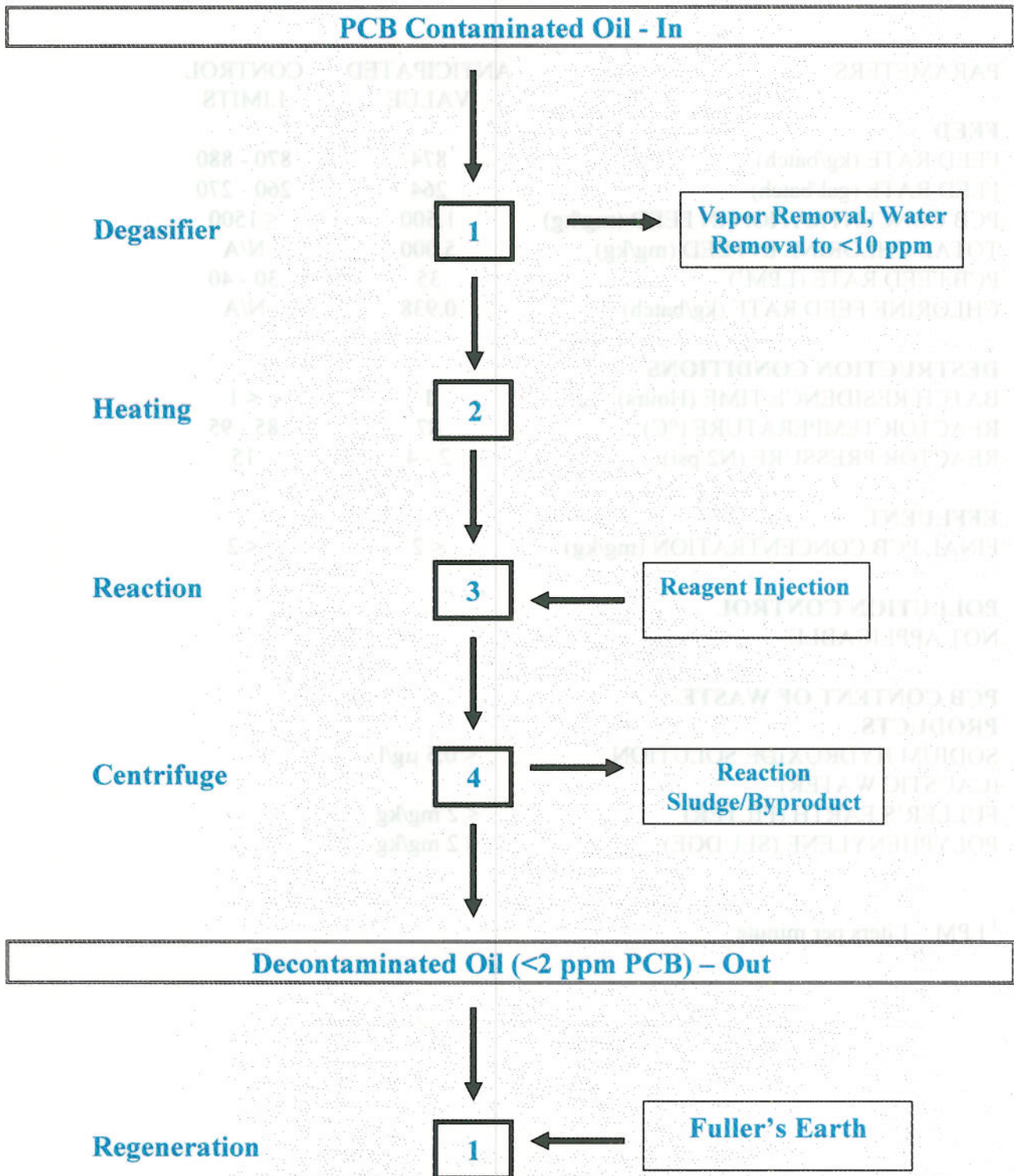
PARAMETERS	ANTICIPATED VALUE	CONTROL LIMITS
<b>FEED</b>		
FEED RATE (kg/batch)	874	870 - 880
FEED RATE (gal/batch)	264	260 - 270
PCB CONCENTRATION IN FEED (mg/kg)	1,500	≤ 1500
TOTAL CHLORINE IN FEED (mg/kg)	5,000	N/A
PCB FEED RATE (LPM <sup>1</sup> )	35	30 - 40
CHLORINE FEED RATE (kg/batch)	0.938	N/A
<b>DESTRUCTION CONDITIONS</b>		
BATCH RESIDENCE TIME (Hours)	1	< 1
REACTOR TEMPERATURE (°C)	87	85 - 95
REACTOR PRESSURE (N2 psi)	2 - 4	15
<b>EFFLUENT</b>		
FINAL PCB CONCENTRATION (mg/kg)	< 2	< 2
<b>POLLUTION CONTROL</b>		
NOT APPLICABLE		
<b>PCB CONTENT OF WASTE PRODUCTS</b>		
SODIUM HYDROXIDE SOLUTION (CAUSTIC WATER)	< 0.5 µg/l	
FULLER'S EARTH (FILTER)	< 2 mg/kg	
POLYPHENYLENE (SLUDGE)	< 2 mg/kg	

<sup>1</sup> LPM – Liters per minute



## APPENDIX IV

### PCB-1000™ PROCESS FLOW DIAGRAM





## APPENDIX V

### DATA QUALITY INDICATORS

**Accuracy** is defined as the degree of agreement between an observed value and an accepted reference value. Accuracy is monitored through the analysis of Quality Assurance (QA) and EPA split samples. FTI results shall be in close agreement (in a 70-130% range) with EPA results.

**Precision** is defined as the degree to which a set of observations or measurements of the same property, obtained under similar conditions, are reproducible. Precision is monitored through the analysis of QA and EPA samples. FTI results shall be in close agreement (in a 70-130% range) with EPA results.

**Representativeness** is the degree to which data accurately and precisely represent a media's PCB concentration. This is a qualitative assessment and is addressed primarily in the sample design and procedures that reflect the project goals and processes being sampled. It is ensured in the laboratory through (1) the proper handling, homogenizing, compositing, and storage of samples and (2) analysis within the specified holding times so that the material analyzed reflects the material collected as accurately as possible.