



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Clean Earth of Carteret, LLC
d/b/a Clean Earth of Connecticut
d/b/a Phoenix Soil | A Clean Earth Company
Attn: Scott Miller, Regional General Manager
58 North Washington Street
Plainville, Connecticut 06062

Re: 58 North Washington Street, Plainville, CT
Final Approval to Commercially Dispose of Polychlorinated Biphenyls by Low
Temperature Thermal Desorption ("LTTD")

Dear Mr. Miller:

Enclosed is the document entitled *Approval to Commercially Dispose of Polychlorinated Biphenyls (PCBs) by Low Temperature Thermal Desorption (LTTD)* ("Approval"). This Approval authorizes Clean Earth of Carteret ("CECT") to operate its LTTD System ("LTTDS"), a thermal alternative PCBs disposal technology, to destroy PCBs in contaminated solids and semi-solids, including soil and sediment, contingent on the terms and conditions specified therein. The enclosed Approval is issued pursuant to Section 6(e)(1) of the Toxic Substances Control Act ("TSCA") and the federal PCB Regulations, 40 CFR § 761.60(e)¹.

The Approval is based upon the demonstrated ability of the LTTDS to remove and destroy PCBs to a level below one (1) part per million ("ppm") total PCBs in treated waste, the demonstrated capability of the LTTDS to achieve a 99.9999% destruction and removal efficiency ("DRE"), and the United States Environmental Protection Agency's ("EPA's") determination that operation of the LTTDS to treat PCB-contaminated waste with less than or equal to (" \leq ") 40 ppm will not present an unreasonable risk of injury to health or the environment.

¹ The regulations at 40 CFR § 761.60(e) allow for the destruction of PCBs using methods other than incineration, provided the alternative method can achieve a level of performance equivalent to an incinerator approved under § 761.70 or a high efficiency boiler operating in compliance with § 761.71. The level of performance required for non-thermal destruction is measured differently than for thermal methods. It is the Agency's policy that thermal methods operating under § 761.60(e) that destroy 99.9999% of PCBs as calculated by the Destruction Removal Efficiency (DRE) meet an equivalent level of performance to an incinerator approved under § 761.70 or a high efficiency boiler operating in compliance with § 761.71. See "Draft Guidelines for Permit Applications and Demonstration Test Plans for PCB Incinerators." August 21, 1986. See Approval Appendices I thru III for company background, facility operations, and summary of demonstration test results.

The Approval is effective upon the EPA's signature date and expires 10 years from the signature date, except as otherwise specified in the Approval. EPA retains its right to modify, revoke or otherwise suspend the Approval if at any time EPA has reason to believe that the CECT disposal activities present an unreasonable risk of injury to health or the environment. EPA reserves the right to inspect as necessary, the Facility and the records that CECT is required to maintain under the federal PCB regulations and the Approval during operation and at other reasonable times.

Please note that Condition G, Closure Plan and Financial Assurance Requirements, of the Approval requires CECT to submit a financial assurance instrument that is sufficient to cover the cost for PCB closure of the Facility, prior to operation of the LTTDS to treat *PCB remediation waste* as defined at 40 CFR 761.3.

It is the responsibility of CECT to comply with all applicable provisions of TSCA (the federal PCB regulations); appropriate state and local regulations; and, the conditions of the Approval in processing, storing, and disposing of PCBs. The Approval does not relieve CECT of any responsibility to comply with all applicable federal, state and local regulations or ordinances for operation and maintenance of the LTTDS and Facility.

Questions regarding the attached Approval should be directed to:

Kimberly Tisa, PCB Coordinator (OSRR07-2)
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912
Telephone No: (617) 918-1527
Tisa.kimberly@epa.gov

A violation of any condition of the Approval or any other applicable federal regulations may subject CECT to enforcement action and may be grounds for modification, revocation, or suspension of this Approval. Modification, revocation, or suspension of this Approval may also result from future EPA rulemaking(s), or from new information gathered by CECT or the EPA.

Sincerely,

Bryan Olson, Director
Office of Site Remediation & Restoration

Enclosures: **PCB Commercial Alternative Disposal Approval**
Attachments: Appendices I - III

Cc: Josh Smeraldi, USEPA/ORCR
William Sigmund, CTDEEP
Gary Trombly, CTDEEP

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

IN THE MATTER OF:

CLEAN EARTH OF CARTERET, LLC
d/b/a CLEAN EARTH OF CONNECTICUT
d/b/a PHOENIX SOIL |
A CLEAN EARTH COMPANY
58 NORTH WASHINGTON STREET
PLAINVILLE, CONNECTICUT

) APPROVAL TO COMMERCIALY
) DISPOSE OF POLYCHLORINATED
) BIPHENYLS (PCBS) BY LOW
) TEMPERATURE THERMAL
) DESORPTION (LTTD)

AUTHORITY

This Approval to commercially dispose of PCB waste is issued to Clean Earth of Carteret, LLC d/b/a Clean Earth of Connecticut and d/b/a Phoenix Soil – A Clean Earth Company (henceforth “CECT”) pursuant to Section 6(e)(1) of the Toxic Substances Control Act of 1976 (“TSCA”), Public Law No. 94-469, and the federal Polychlorinated Biphenyls (“PCBs”) Regulations 40 CFR § 761.60(e). Background and LTTD operating processes related to this Approval are attached as Appendices I and II.

CECT is granted approval to engage in the commercial alternative disposal of PCBs as specified in the Application, subject to the conditions specified in this Approval. Failure to comply with the Approval conditions specified herein shall constitute a violation of 40 CFR §§ 761.60(e) and 761.50(a) and may be a violation of other provisions of the PCB regulations in 40 CFR Part 761. A violation of the PCB regulations is a prohibited act under Section 15 of TSCA.

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I. APPLICABLE REGULATIONS

This Approval incorporates, and is issued in accordance with, applicable requirements of the PCB Regulations at 40 CFR Part 761. The rules applicable to the alternative disposal of PCBs are codified at 40 CFR § 761.60(e). The PCB regulations require, among other things, that commercial disposers of PCB waste obtain a written approval issued by the Regional Administrator for the region in which the disposal facility is located. On May 15, 2008, the authority of the EPA Region 1 Regional Administrator was delegated to the Director of the Office of Site Remediation and Restoration (“Director OSRR”).

II. FINDINGS

Upon review of the CECT Application and the Demonstration Test Report, EPA has determined that the criteria for approval to engage in the commercial disposal of PCB waste set forth in 40 CFR § 761.60(e) have been met. Specifically, the Application demonstrates that the CECT LTTDS operations, PCB waste storage, employee qualifications, and closure plan for Facility closure, satisfy applicable requirements and that operation of the Facility, when conducted in accordance with the conditions of this Approval and all applicable provisions of the PCB regulations, will not pose an unreasonable risk of injury to health or the environment.

III. EFFECTIVE DATE

This Approval to operate is effective immediately upon signature by the Director OSRR and shall remain in effect for ten (10) years from the date of signature, unless modified, renewed, suspended, or terminated in accordance with 40 CFR Part 761 or the Approval conditions herein.

IV. DEFINITIONS

All terms and abbreviations used herein shall have the meanings as defined in 40 CFR § 761.3 unless otherwise defined below.

"Analytical data" means: (a) a formal report from a chemical analysis laboratory; or (b) appropriate chemical instrument printouts from a chemical instrument that have appropriate controls, standards, and written instrumental operating parameters and conditions. Technical judgment or experience is not considered analytical data.

"Application" means all data and materials upon which the EPA based its decision to approve CECT's Low Temperature Thermal Desorption System (“LTTDS” or “LTTD unit”), e.g., information submitted to the EPA by CECT to define, represent, or describe proposed testing protocols, proposed design and operations, and operational limits of the LTTD unit. This includes the request for approval required by 40 CFR § 761.60(e) and such data and materials submitted in relation to both the demonstration and operating approval applications. This includes CECT's “Permit Application PCB Destruction Utilizing Low Temperature Thermal Desorption Treatment Technology” dated November 6, 2018, as revised November 9, 2018.

"Day" means a calendar day, unless otherwise specified.

"EPA" means the United States Environmental Protection Agency.

"EPA R1" means the United States Environmental Protection Agency, Region 1.

"Facility" means all contiguous land and structures (such as a single manufacturing plant) at which CECT's LTDD unit is located and disposal operations are conducted.

"Lost-time injury" or "lost workday injury" means an injury related to the operation of CECT's LTDD unit which results in an employee not performing his/her normal assignments during the workday and/or any successive workday following the day of injury.

"Major modification" means any change to capacity, design, operations, or any other changes significantly affecting, or having the potential to significantly affect, overall PCB destruction efficiency, performance, or environmental impact of CECT's LTDD unit or process.

"Operations" means the process of treating less than or equal to (\leq) 40 parts per million ("ppm") PCB remediation wastes as defined at 40 CFR 761.3, including start-up (e.g., powering up, running any oil through the equipment) of CECT's LTDD unit, preparation of PCB waste feed, and decontamination of CECT's LTDD unit and supporting components once treatment is terminated.

"Process waste" means wastes generated by CECT's LTDD process.

"RA" means EPA Regional Administrator Region 1.

"Site" has the same definition as "Facility."

"Spill" has the same meaning as "Spill" as defined in EPA's PCB Spill Cleanup Policy in 40 CFR § 761.123.

"Total PCBs" is defined as the PCB concentration quantified using EPA Methods 8082 and 608 for non-aqueous and aqueous samples, respectively, with the following exception. In the event an Aroclor(s) pattern does not exist for purposes of quantification using the prescribed method(s), the PCB concentration shall be quantified as congeners or homologues using EPA Method 1668A by high resolution GC/MS or EPA Method 680 by low resolution GC/MS, or another method approved by EPA.

V. CONDITIONS OF APPROVAL

A. GENERAL CONDITIONS

1. Site Location

- a. This Approval to dispose of non-liquid PCB wastes as defined at 40 CFR § 761.3 (i.e., soil, sediment, etc.) with less than or equal to (“≤”) 40 parts per million (“ppm”) PCBs using the LTTDS applies only to the Facility located at 58 North Washington Street in Plainville, Connecticut. Under this Approval, CECT shall only conduct PCB treatment/disposal operations at the Facility and with the LTTDS used in the April 2016 Demonstration Test and documented in the June 2016 Demonstration Test Report. CECT shall not conduct PCB treatment/disposal operations in any other LTTDS not covered by this Approval.
- b. In the event that re-location of the LTTDS is proposed, CECT shall submit a request to the EPA to modify this Approval in accordance with General Condition 9. EPA may require that CECT conduct an EPA-approved demonstration test in accordance with any proposed major modification, which may include relocation of the existing LTTDS and/or operation of a new LTTDS.

2. Scope of Work

CEPT is permitted under this Approval to treat non-liquid PCBs containing less than or equal to (“≤”) 40 ppm, which meet the definition of a *PCB remediation waste*, as defined at 40 CFR § 761.3, subject to the terms and conditions contained in this Approval and in conformance with the Application. The PCB waste shall be treated using the CECT LTTDS unit. Prior to treatment in the LTTDS unit, CECT may process PCB waste through equipment to make it suitable for feedstock for the LTTDS unit. PCB waste with less than (“<”) 50 ppm also may be processed by blending with lower PCB concentration waste to achieve the required PCB concentration of ≤ 40 ppm for treatment.

3. Restrictions on PCB Waste Acceptance for Storage and Treatment/Disposal

- a. CECT shall not accept *PCB remediation waste* with concentrations greater than or equal to (“≥”) 50 ppm for storage and/or treatment/disposal at its Facility.
- b. At the time of closure, CECT shall not accept any PCB waste that CECT cannot treat at the time the waste materials arrive at the CECT facility (40 CFR § 761.65(e)).

4. Compliance with Federal Regulations

- a. CECT must comply with all applicable federal state, and location regulations in the storage, handling, and disposal of all PCB wastes, including PCBs, PCB Items, and decontamination wastes generated under this Approval..
- b. This Approval does not relieve CECT from compliance with the federal PCB Regulation at 40 CFR Part 761, including but not limited to:
 - 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 761 Subpart G - PCB Spill Cleanup Policy;
 - vi. 40 CFR, section 761.180 - records and monitoring; and,
 - vii. 40 CFR, section 761, Subpart K, PCB waste disposal - records and reports.
- c. Operation of the LTTDS may not commence until CECT has obtained all required approvals/permits from federal, state, and local governmental entities. CECT shall not operate the LTTD unit at the Facility unless CECT has verified that both CECT and the Facility (as applicable) have been granted any necessary approvals/permits. Once CECT has verified that both it and the Facility (as applicable) have been issued all required approvals/permits, CECT shall document that verification in its operating records, which are described in Condition D.1.
- d. Compliance with Approval Conditions does not establish a defense to any other law that provides protection from any unreasonable risk of injury to health and the environment.
- e. Issuance of this Approval does not convey property rights or any exclusive privilege, nor does it authorize any injury to persons such as CECT employees, agents, or contractors, or any property damage, any invasion of other private rights, or any infringement of state or local laws or regulations.
- f. CECT is responsible for the actions of all officers, employees, agents, contractors, subcontractors, and others who are involved in activities conducted under this Approval. If at any time CECT has or receives information indicating that CECT or any other person has failed, or may have failed, to comply with any provision of this Approval, it must report the information to EPA in writing within 24 hours of having or receiving the information.
- g. All PCB wastes generated as a result of the activities authorized under this Approval shall be disposed of in accordance with 40 CFR Part 761, unless otherwise authorized under this Approval.

5. Approval Suspension/Revocation

- a. Violations of any applicable regulations or Approval Conditions may be subject to enforcement action and may result in termination of this Approval. Violation of any requirement of this Approval is a violation of 40 CFR §§ 761.60(e) and 761.50(a) and may be a violation of other provisions of 40 CFR Part 761. A violation of the regulations is a prohibited act under Section 15 of TSCA.
- b. This Approval may be revoked, modified or otherwise altered for any violation of the conditions of this Approval or of 40 CFR Part 761, including EPA's PCB Spill Cleanup Policy under 40 CFR Part 761 Subpart G or other applicable rules and regulations.
- c. Any misrepresentation of material fact in the Application or Closure Plan, or failure by CECT to disclose all relevant and material facts, shall constitute cause for revocation or modification of this Approval.
- d. EPA reserves the right to impose additional conditions or to revoke or otherwise modify this Approval when EPA has reason to believe that: the LTTDS is not achieving the relevant and/or required performance standards; continued operation of the LTTDS poses an unreasonable risk of injury to health or the environment; new information requires changes; and/or the EPA issues new regulations or standards that impact necessary conditions of this Approval.

6. Severability

In the event of any variation between this Approval and the Application, the conditions of this Approval shall govern. If any provision of this Approval is determined to be invalid, CECT shall be subject to all remaining conditions as appropriate based on the applicability of those conditions.

7. Entry and Inspection

CECT shall allow any authorized representative of the Administrator of EPA to inspect its Facility and to inspect records and take samples as may be necessary to determine compliance with 40 CFR Part 761 and this Approval. Any refusal by CECT to allow such an inspection (as authorized by Section 11 of TSCA) shall be grounds for revocation of this Approval.

8. Transfer of Ownership or Operational Control

- a. This Approval is granted to CECT and is not transferrable without prior written authorization from the Director OSRR or his/her designee. Any departure from the conditions of this Approval without prior, written authorization from EPA may result in revocation, suspension or termination, and/or enforcement under TSCA.

- b. CECT shall notify EPA at least 120 days before transferring ownership or operational control of the Facility. CECT also shall notify the state and local authorities of the transfer of ownership. Such notification shall include the name, address, and telephone number of the new entity acquiring such interest in the Facility and the information detailed in General Condition 8.c, below.
- c. The EPA shall recognize the transfer of this Approval to a new owner/operator if all of the following conditions are met:
- i. The new owner/operator submits an amended or new and complete application for the alternative disposal of PCBs using the LTTDS, including all operational specifications and the elements listed in 40 CFR § 761.65(d);
 - ii. The new owner/operator has established 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 Facility. The EPA may require variations in the wording of the instruments from that found at 40 CFR § 264.151. The financial assurance mechanism must be effective no later than the date of transfer of the Facility or the Approval, whichever comes first; and,
 - iii. The new owner/operator submits a signed and notarized affidavit which states its acceptance of and intention to comply with the terms and conditions of the Approval or new approval, should EPA deem a new approval is necessary. The Approval or new approval may be withdrawn if the EPA does not receive signed and notarized affidavit of its acceptance of, and intention to comply with, the terms and conditions of the Approval or new approval within thirty (30) days of its receipt of the Approval or the new approval. Under such circumstances, all terms and conditions of this Approval will continue to be binding on CECT until closure of the Facility in accordance with the Closure Plan.
- d. The new owner/operator shall not operate the LTTDS until EPA either has amended this Approval to allow for such operation or has issued a new approval to the new owner/operator.
- e. In any sale or release of operation control of the Facility, CECT shall retain sufficient access rights to enable it to continue to meet the obligations under this Approval, except as provided above.
- f. Failure by CECT or the new owner/operator to comply with any provision of the conditions as denoted in General Condition 8 shall render this Approval null and void.

9. Modifications

- a. CECT shall notify EPA in writing of any proposed modification to this Approval or CECT's approved Application, including the Closure Plan and Financial Assurance. A major modification to this Approval or to the approved Application shall be made only after written approval by the Director OSRR. EPA may, depending on the nature of the major modification request, require CECT to conduct a demonstration test to ensure the LTTDS continues to operate in compliance with the applicable performance standards included in this Approval and to ensure the LTTDS continues to operate in a manner that does not present an unreasonable risk of injury to health and the environment. A minor modification to this Approval or to the approved Application shall be made only after written concurrence by the Chief, Remediation & Restoration II Branch.
- b. An equipment modification, replacement in kind, may be made to a process without prior written approval from 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, LTTDS components, such as monitoring instruments and hard piping, and equipment such as the pug mill or screening equipment, may be replaced without prior written EPA authorization provided that the replacement equipment is equivalent to the original equipment.
- c. Requests to modify operational conditions as established in the Application, to relocate, to operate a new LTTDS or to add major components shall be considered a major modification. For a major modification, CECT shall provide any and all pertinent information to EPA to support the proposed major modification.
- d. Based on EPA's review of the information submitted for the major modification, EPA shall:
 - i. Require CECT to conduct a demonstration test prior to making a determination on the modification request;
 - ii. Approve the modification request by relying on engineering information and other data/information provided in General Condition 9.c. to determine that a demonstration test is not required prior to, or after, the modification is implemented; or,
 - iii. Deny CECT's modification request because EPA cannot, based on available data and information, determine that the modification will not affect the required performance standards and that the LTTDS operations will not present unreasonable risk of injury to health and the environment. In this instance, CECT may submit any additional information necessary to EPA to support that the modification will not impact the performance

standards and will not present an unreasonable risk of injury to health and the environment.

- e. The EPA will make best efforts, taking into account the nature of the risk, to provide reasonable advance notice to CECT and to provide opportunity for CECT to comment on any EPA proposed modifications to or termination of this Approval. The EPA may require CECT to immediately suspend operations while the EPA is deciding whether to impose Approval modifications or to terminate this Approval.

10. PCB Releases and Spills

- a. CECT shall conduct daily inspections of the PCB waste handling areas including, but not limited to the loading/unloading areas, waste bin and pretreatment areas, screening and crushing areas, and LTTDS area. A record of all inspections, including date/time of inspection, name of inspector and observations made shall be recorded and kept on file.
- b. In the event that CECT believes, or has reason to believe that a spill or release has occurred, which meets any of the criteria under 40 CFR § 761.125(a)(1) paragraphs (i)-(iii), CECT shall notify the PCB Coordinator by phone immediately after initial response actions have been taken. CECT also shall report the identified PCB spill/release in accordance with all other applicable federal, state, and local requirements. CECT shall control and immediately begin cleanup of PCB spills in accordance with 40 CFR Part 761, Subpart G.
- c. CECT shall submit a written report to the PCB Coordinator no later than 15 business days after the spill occurred that describes the: a) spill; b) known or suspected cause(s) of the spill; c) operations that were being conducted prior to, and during, the spill; d) cleanup actions conducted; and, e) changes in operations that CECT has implemented to prevent such spills from occurring in the future.

11. Health & Safety

- a. CECT shall assume full responsibility for compliance with this Approval and all federal, state and local requirements that apply to CECT's operation of the LTTDS, including, but not limited to, any malfunction, spill, pollutant release, incident, or other reporting requirements.
- b. CECT shall maintain and operate its LTTDS in a way that minimizes the possibility of a fire, explosion or any unauthorized release of PCBs to air, soil or surface water which may present an unreasonable risk of injury to health or the environment.
 - i. CECT shall take all necessary precautionary measures to ensure the operation of the LTTDS is in compliance with applicable health and safety

standards, as required by this Approval and other applicable federal, state and local laws, regulations and ordinances. CECT shall report by phone to the PCB Coordinator by the end of the business day immediately following any incident that resulted in any lost-time injury occurring as a result of the LTTDS equipment or operations. CECT shall submit a written report describing the incident to the Director OSRR and PCB Coordinator within five (5) business days of the incident.

- ii. At all times, CECT shall have a device such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency assistance from local fire departments, police departments, or state or local emergency response teams.
- iii. CECT shall test and maintain (to the extent necessary to assure its proper operation in time of emergency) all facility communications or alarm systems, fire protection equipment and spill control equipment.
- iv. The Facility shall be secured (e.g., fence, etc) to ensure that only those individuals participating in the operations and approved visitors are allowed in the Facility, including the LTTDS area.

12. Personnel Training

- a. Operation of CECT's LTTDS shall be managed and overseen by a qualified CECT employee during all times the LTTDS is being operated.
- b. CECT 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. All workers with access to the PCB waste handling operations shall complete annual refresher training, which at a minimum, must include:
 - i. implementation of the facility contingency plan titled "Emergency Plan and Preparedness Measures" or as otherwise titled;
 - ii. the types of PCB waste that may be treated using the LTTDS and the upper limits established by this Approval for PCB treatment;
 - iii. basic recordkeeping requirements under this Approval and the location of records;
 - iv. notification requirements;
 - v. disposal requirements for treated soil, residuals and other wastes generated during the operations of the LTTDS;
 - vi. safety, operation, and maintenance procedures;
 - vii. procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment; spill prevention and cleanup plan; and,
 - viii. reporting requirements.

- c. CECT shall keep copies of the following documents onsite with the LTTDS at all times:
 - i. this operating Approval and any associated other federal, state, and local permits required for the LTTDS operations;
 - ii. the Application;
 - iii. the Demonstration Test Approval Request and associated Demonstration Test Approval issued by the EPA;
 - iv. the Emergency Plan; and,
 - v. the sampling and analytical procedures.
- d. CECT shall ensure that a copy of the sampling and analytical procedures are maintained in the laboratory(ies) conducting the PCB analyses required under this Approval.

B. STORAGE OF PCBS

1. CECT is authorized to receive and store *PCB remediation waste* with concentrations less than (<) 50 ppm as described in its Application. CECT is responsible for ensuring that it follows the procedures and requirements as specified in its state permits for receipt of contaminated waste to ensure PCB concentrations in the received waste are < 50 ppm.
2. No more than a combined total of 2,640 cubic yards of untreated < 50 ppm *PCB remediation waste* and previously treated *PCB remediation waste* in the LTTD unit that result in a concentration > 1ppm PCBs shall be stored at the CECT Facility. CECT may propose to increase the PCB storage limits as authorized under General Condition 9 and Condition G.
3. Fugitive emissions shall be kept to a minimum to comply with applicable state and local air laws and regulations. Untreated *PCB remediation waste* in the PCB waste storage area(s) or handling areas of the LTTDS building, shall be wetted down as necessary, to control/minimize fugitive emissions.

C. OPERATING AND DISPOSAL CONDITIONS USING THE LTTDS

1. In accordance with 40 CFR § 761.60(e), this Approval waives otherwise applicable requirements of 40 CFR §§ 761.60(a) and 761.70. This Approval may reference additional requirements of 40 CFR Part 761, but CECT should not rely solely on this Approval for all requirements related to PCBs or the disposal of PCB waste. In the event that the information contained in the Application or other supporting documents differs from the conditions specified in this document, the conditions of this Approval shall govern.

2. PCB Remediation Waste Feedstock Restrictions

- a. CECT may treat non-liquid PCB wastes as defined at 40 CFR § 761.3 at concentrations less than or equal to (\leq) 40 ppm using its LTTD unit, as demonstrated during the demonstration tests conducted on April 12-13, 2016.
 - b. PCB wastes (e.g., soil and sediment) containing < 50 ppm PCBs may be blended with other PCB waste containing lower PCB concentrations to achieve the feedstock maximum PCB concentration limit of ≤ 40 ppm for treatment through the LTTDS.
 - c. Any oversized PCB-contaminated waste that is larger than a two-inch screen size shall be either crushed and rescreened for treatment or shall be disposed off-site in accordance with 40 CFR §§ 761.61(a)(5)(i)(B)(2)(ii) or (iii).
 - d. CECT may propose a modification to the PCB concentration limit for treatment in the future, should it successfully demonstrate to EPA through an approved demonstration test that CECT's LTTDS is capable of treating higher concentrations of PCBs. In this event, EPA shall require that CECT provide concurrence from the state and local authorities for the demonstration test. Authorized EPA representatives will be onsite to witness the demonstration test and to obtain split samples for verification of analytical results.
 - e. CECT may not treat the following in the LTTDS under this Approval:
 - i. PCB wastes contaminated with hazardous wastes, radioactive wastes or mixed radioactive waste.
 - ii. Materials in sealed, intact containers including drums and pails.
 - iii. Any wastes that may cause an explosion under the conditions present in the LTTD unit.
 - iv. Liquids containing PCBs at concentrations regulated for disposal under 40 CFR Part 761.
3. CECT shall follow its waste acceptance procedures to ensure PCB waste received at the Facility contains < 50 ppm PCBs, and its sampling plan for sampling contaminated feedstock as described in the Application, to ensure that the PCB concentration in the feedstock is ≤ 40 ppm prior to treatment through the LTTDS using EPA Methods 3540 and 8082 of SW-846. The PCB analytical results, including any analyses required under the state permits, shall be recorded and kept on file.

4. When PCBs are being treated in the LTTDS, CECT shall take a representative sample of the treated PCB waste. This consists of a grab sample on the conveyer belt every hour and these grab samples shall be composited per every twenty-four (24) hours. This 24-hour composite sample shall be extracted and analyzed in accordance with extraction and analytical methods 3540C/8082B of *Test Methods for The Evaluation of Solid Waste, Physical/Chemical Methods SW-846*. The analytical results shall be compared with the pre-treatment feedstock PCB concentration and shall be recorded and kept on file.
5. Operating Condition Restrictions
 - a. Operational Parameters
 - i. The waste feed rate for soils and solids shall not exceed 22 tons per hour (on an hourly rolling average) as measured on a weight basis with the PCB concentration not to exceed 40 ppm (≤ 40 ppm).
 - ii. The percent carbon dioxide (“CO₂”) and carbon monoxide (“CO”) in the stack gas shall be measured and the combustion efficiency shall be calculated on a continuous basis.
 - iii. The percent oxygen (“O₂”) shall be measured continuously.
 - iv. Treatment of *PCB remediation waste* through the Primary Treatment Unit (“PTU”) shall not begin until the Secondary Treatment Unit (“STU”) achieves a minimum operating temperature of 2200°F.
 - v. The PTU temperature shall be no less than 387 °C (or 729°F) based on a 1-hour rolling average once steady state is achieved for LTTDS operations.
 - vi. The STU temperature shall be no less than 2200°F based on a 1-hour rolling average once steady state is achieved for LTTDS operations.
 - vii. CECT shall operate the LTTDS as a continuous process and under a minimum negative pressure of 0.04-inch water column to avoid leakage to the atmosphere. Pressure in the combustion zone shall be monitored and recorded on a continuous basis.
 - viii. Treated waste generated from the LTTDS process which contains ≤ 1 ppm PCBs shall be a non-regulated PCB material under 40 CFR Part 761, but final disposition of such waste must comply with all local, state, and federal regulations. See Condition C.5.g. if the treated waste has a PCB concentration > 1 ppm.
 - ix. Any water used to wet or reconstitute the treated or processed waste (e.g., soil with ≤ 1 ppm) shall not contain a PCB concentration greater than or equal to (“ \geq ”) 0.5 ppb and the water must have a pH range of 7.0 to 9.0.

- b. CECT shall measure and record the combustion gas flow rate. Sufficient data shall be collected and recorded whenever PCBs are being treated/disposed in the LTTDS. Such records must demonstrate the combustion gases were retained (“dwell time”) in the STU for two (2) seconds or greater during PCB destruction at a temperature of 2200°F based on a 1-hour rolling average . The method used for calculating the dwell time shall be recorded and kept on file.
- c. The continuous carbon monoxide (“CO”) and excess oxygen (“O₂”) monitors shall meet the certification requirements of 40 CFR Part 60, Appendix B. The temperature thermocouple shall have an accuracy range within three (3) percent.
- d. The waste feed shall be immediately and automatically cut off to the LTTDS if any of the following conditions occurs:
 - i. the PTU temperature drops below 387°C (or 729°F) based on a 1-hour rolling average, or the PTU temperature drops below 348°C (or 658°F) at any instance;
 - ii. the STU temperature drops below 2200°F based on a 1-hour rolling average, or the STU temperature drops below 1085°C (or 1985°F) at any instance as measured by the thermocouple located in the "hot duct" leading to the wet scrubber;
 - iii. the CO concentration in parts per million (“ppm”), dry basis, corrected to seven percent (7%) O₂, exceeds ten (10) times the percent carbon dioxide (“CO₂”) concentration in the exit duct gases or 100 ppm maximum. Monitors shall be calibrated at least once each 24-hour day during PCB processing by certified zero and span gases;
 - iv. the excess O₂ drops below three percent (3%) (the monitor shall be calibrated once each 24-hour day by certified zero and span gas, and there shall be a minimum of 28 hours between routine calibrations);
 - v. the pressure remains positive for 10 consecutive seconds. PCBs shall not be re-introduced into the LTTDS until the unit returns to negative pressure.
 - vi. there is a loss of primary combustion air to the burner or loss of secondary air to the secondary burner;
 - vii. there is a loss of water to the quench; or,
 - viii. combustion efficiency is <99.9% for longer than one minute.

- e. After an automatic shutdown due to occurrence of any of these conditions, CECT shall take corrective measures to prevent further occurrences before resuming operations. If automatic shutdowns due to any of these conditions occur more than three (3) times within a calendar year, CECT shall follow the procedural requirements in Condition C.5.h. Any one (1) occurrence of one of the conditions counts towards the three (3).
- f. CECT shall immediately shut down the LTTDS upon failure of the monitoring and/or recording equipment for the parameters specified in Condition C.5. Shutdown should be conducted in a manner that is most protective of human health and the environment. After such a shutdown is triggered, CECT shall not resume treatment operations until the equipment is repaired or replaced with functional equipment.
- g. Treatment Verification and Disposal of Soil or Processed Soil That Could Not Be Adequately Treated
- i. CECT shall take representative samples of each run of PCB waste processed/treated through the LTTDS as described in Condition C.4. The results of this analysis shall be recorded and kept on file.
- ii. If the concentration of PCBs in the processed/treated waste is > 1 ppm PCBs, CECT shall either:
- (1) Repeat treatment of the processed soil in the LTTDS for up to three (3) treatments until the PCB concentration in the processed/treated waste is less than or equal to (" \leq ") 1 ppm PCBs;
- or,
- (2) Dispose of the processed/treated waste in accordance with 40 CFR Part 761, Subpart D as if it contains the PCB concentration of the pre-treated feedstock. The burden of ensuring proper disposal (including shipment to an appropriate disposal facility) shall be the responsibility of CECT.
- h. Requirements Upon Repeated Failure to Achieve PCB Treatment Levels of ≤ 1 ppm

Immediately upon the third incidence of failure to achieve the required treatment levels (as described in Condition C.5.g.) within any calendar year, CECT shall cease operation of the LTTDS and shall notify the PCB Coordinator in Condition F. by phone within three (3) business days after the third incidence of failure. CECT shall submit a written report to the PCB Coordinator within seven (7) days of ceasing operation. The written report shall include information on the conditions under which the treatment(s) failed, the likely cause(s) of the treatment failure, the final disposal location of the waste, steps being taken to improve the

performance of the LTTD unit, and the estimated time before the LTTD unit is able to perform as specified in this Approval. In such instances, the malfunctioning LTTDS shall not resume operation until the problem has been corrected to the satisfaction of the PCB Coordinator and documented in writing.

i. Unit Damage

CECT shall report any damage to the LTTDS that may impact the LTTDS's ability to operate in accordance with this approval within two (2) business days by phone to the PCB Coordinator. Within five (5) business days, CECT shall submit a written report that addresses such damage to the OSRR Director and the PCB Coordinator. The written report shall include information on the incident causing the damage, the cause(s) of the incident, steps being taken to repair the LTTDS, and the estimated time before the LTTDS is able to perform as specified in this Approval. CECT shall receive approval from EPA via written or emailed correspondence before resuming operations. The EPA may require a performance demonstration or submittal of appropriate data and/or information before CECT may resume operations to confirm that the LTTDS has been fully repaired.

j. Process Waste Disposal and Handling Requirements

- i. CECT shall sample and analyze any non-liquid and non-aqueous liquid process wastes generated by the LTTDS. CECT shall handle non-liquid and non-aqueous liquid process wastes with PCB concentrations of ≥ 1 ppm PCBs (e.g., soil, sediments, media) as required under 40 CFR Part 761, Connecticut Regulations 22a-454 and 22a-133k, and its state permits.
- ii. CECT may dispose of non-liquid and non-aqueous liquid process wastes generated by the LTTDS with concentrations < 1 ppm as a non-regulated PCB material, but final disposition of such waste must comply with all local, state, and federal regulations.
- iii. CECT shall sample and analyze any aqueous liquid process wastes.
 - (1) For aqueous liquid process wastes containing < 0.5 ppb PCBs, CECT may manage these wastes as non-regulated PCB materials, but final disposition of such aqueous liquid process streams must comply with all local, state, and federal regulations.
 - (2) For aqueous liquid process wastes containing PCBs at concentrations ≥ 0.5 ppb, these liquid wastes shall either be treated in the LTTDS unit or managed in compliance with 40 CFR Part 761.

- iv. CECT shall comply with the labeling and marking requirements for storage of PCB wastes at 40 CFR §§ 761.40 and 761.45 for all aqueous liquid process wastes which contain PCB levels > 0.5 ppb and for non-liquid and non-aqueous wastes that contain PCB levels > 1 ppm.

D. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

- 1 CECT shall monitor, record, and maintain the following LTTDS operating parameters and information:
 - a. quantity of contaminated soil, waste, and debris treated for each treatment day;
 - b. concentration of PCBs in the contaminated feedstock for each treatment day;
 - c. quantity of clean soil at ≤ 1 ppm PCBs produced in each treatment run;
 - d. Post-treatment concentrations of PCBs in the processed soil for each treatment run;
 - e. temperature of STU and vacuum pressure within the air pollution control devices in the LTTDS every sixty (60) seconds during each treatment run beginning before any heating is done, and ending when the PCB waste is finished being treated;
 - f. quantity of PCB wastes generated, including processed soil that could not be successfully treated to achieve levels < 1 ppm PCBs;
 - g. identification of facilities used to dispose of the PCB wastes listed in Condition C.5.g.(2), and method of disposal;
 - h. identification of facilities used to dispose of the processed/treated wastes listed in Condition D.1.c, and method of disposal;
 - i. date, time, and duration of each treatment run;
 - j. names of the LTTDS operator and supervisor for each treated run;
 - k. name and address of each client whose *PCB remediation waste* was treated using the LTTDS;
 - l. copies of all PCB analytical data for incoming, feedstock, and processed/treated PCB waste, including in-house screening and laboratory worksheets, instrument outputs, and tracking documents;

- m. a summary of the total volume of PCB remediation waste treated by the LTTDS each calendar year; and,
 - n. any and all reports otherwise required under the Approval conditions.
2. CECT shall develop, compile, and maintain the records in Condition D.1. in a paper log and electronically as follows:
- a. CECT shall maintain at the Facility, the records for PCB treatment conducted by the LTTDS in the previous five (5) years in the Facility office and shall make these records available for inspection by authorized representatives of the EPA upon request;
 - b. If CECT initiates and completes closure of the LTTDS while this Approval is in force or if the Approval expires, CECT shall electronically submit all records to the EPA within 90 calendar days of certifying closure or the Approval expiration date, whichever comes first.
 - c. CECT shall maintain annual records on the storage and disposition of all PCBs and submit these records annually to the EPA in accordance with 40 CFR § 761.180(b).
 - d. Records of inspections, maintenance, cleanup and disposal must be maintained in accordance with 40 CFR §§ 761.180(a) and (b) and shall be made available to EPA upon request.
 - e. CECT shall monitor and record such 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).
 - f. An authorized representative of CECT shall certify all reports and other information requested and/or required by EPA.
 - g. CECT 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 EPA, notwithstanding any other provision of this Approval or the federal PCB regulations at 40 CFR Part 761.
 - h. CECT shall prepare a Certificate of Disposal for the PCB waste treated (disposed) in the LTTDS as required under 40 CFR § 761.218.

E. EMERGENCY PROVISIONS

1. Emergency Coordinator

CEPT shall, at all times, have at least one designated employee either at the Facility or on call (i.e., available to respond to an emergency by reaching the Facility within a short period of time) with the responsibility for coordinating all emergency response measures. This Emergency Coordinator shall be thoroughly familiar with all aspects of the LTTDS site-specific safety plan, operations and activities at the Facility, the location and characteristics of waste handled, and the Facility layout, including the hazards associated with the Facility location.

2. Emergency Procedures

- a. CEPT shall comply with the procedures described in its Emergency Preparedness Plan ("Emergency Plan") as modified May 2017 or as otherwise revised, in the event of fires, explosions or any unplanned sudden or non-sudden release of hazardous or regulated waste constituents to air, soil, or water.
- b. Whenever there is an imminent or actual release of PCBs to air, soil, or surface water, or an incident that results or may result in injury to health or the environment, for example from fire, spill, or explosion, the Emergency Coordinator (or his/her designee when the Emergency Coordinator is on call) shall immediately:
 - i. activate internal facility alarms or communication systems, where applicable, to notify all Facility personnel;
 - ii. notify appropriate federal, state and/or local emergency response entities (e.g., fire departments) if their help is needed; and,
 - iii. report PCB emergency incidents in accordance with this Approval and applicable federal, state, and local requirements.
- c. Whenever there is an imminent or actual release of PCBs to air, soil, or surface water, or an incident that results or may result in injury to health or the environment, for example from fire, spill, or explosion, the Emergency Coordinator shall as soon as practical:
 - i. identify the character, exact source, amount, and real extent of any released materials; and,
 - ii. assess possible hazards to health or the environment that may result from the release or emergency incident. This assessment shall consider both direct and indirect effects of the release or emergency incident (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or

the effects of any PCB surface water run-off from water or chemical agents used to control fire and heat-induced explosions).

- d. If the Emergency Coordinator determines that there has been a PCB release from the LTTDS or that an emergency incident has occurred which presents or may present an unreasonable risk of injury to health or the environment outside the Facility, he/she must report the findings as follows:
- i. If the assessment indicates that evacuation of local areas may be advisable, the Emergency Coordinator shall immediately notify appropriate local authorities; and,
 - ii. The Emergency Coordinator shall immediately notify the Region 1 PCB Coordinator and the National Response Center (using their 24-hour toll free number 1-800-424-8802). The notification must include:
 - (1) Name and telephone number of person reporting incident;
 - (2) Name and address of Facility;
 - (3) Time and type of incident (e.g., release, fire);
 - (4) Name and quantity of material(s) involved, to the extent known;
 - (5) The extent of injuries, if any; and,
 - (6) The possible hazards to human health, or the environment outside of the Facility.
 - iii. During an emergency, the Facility Emergency Coordinator shall take all reasonable measures necessary to ensure that releases or emergency incidents do not recur or spread to other PCB waste at the Facility. These measures must include, where applicable and when possible, safely shutting down the LTTDS, collecting and containing released waste, removing or isolating containers and equipment, and any other measures that can be implemented to ensure that the PCBs do not pose an unreasonable risk of injury to health or the environment.
- e. Fire Suppression System

CECT shall ensure that the Facility has adequate fire suppression capabilities (e.g., sprinkler, standpipe or other specialized system). Separate and distinct fire suppression systems may be necessary based on the location of the LTTDS relative to the location of the other chemicals in the building and based on the compatibility of the fire suppression system with the fire risk that is being mitigated in that particular area. It is the responsibility of CECT to evaluate whether the fire suppression system is appropriate to address the specific hazards based on the design and location of the LTTDS at the Facility. CECT shall ensure that the building housing the LTTDS is in compliance with all applicable federal, state, and/or local fire suppression requirements.

f. Fire Detection System

CECT is only permitted to locate and operate its LTTD unit at a facility that has an active (24 hours/day) fire detection system (such as smoke alarms) that immediately notifies facility workers, occupants, facility emergency responders (whether they are on-site or off-site), and local emergency responders (e.g., fire department) of a fire emergency. CECT's LTTD unit shall have its own active (24 hours/day) fire detection system that also meets the requirements discussed in this paragraph, for all indoor and outdoor operations.

g. Fire Extinguishers

CECT shall maintain and clearly label fire extinguishers and other firefighting equipment that are capable of suppressing fires that may be associated with materials treated by CECT's LTTD unit. Labeling shall be based on the compatibility of the extinguisher with the fire hazard and shall be available at the LTTD unit and within 25 feet of all hot work activities and operations. Multiple types of fire extinguishers and firefighting equipment may be necessary to address different fire hazards posed by CECT's LTTD unit and the wastes that it treats. All fire extinguishers shall have the following:

- i. annual inspection tag;
- ii. a gauge indicating fully charged;
- iii. pin with security seal; and
- iv. instructions on how to use.

F. NOTIFICATIONS AND REPORTS

Notifications and reports required under this Approval shall be sent certified mail and electronically to the following:

Bryan Olson, Director OSRR (or successor in position)
USEPA
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

Kimberly N. Tisa, PCB Coordinator (OSRR07-2) (or successor in position)
USEPA
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912
Tisa.Kimberly@epa.gov

G. CLOSURE PLAN AND FINANCIAL ASSURANCE REQUIREMENTS

1. CECT must maintain a closure plan, 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 EPA a Closure Plan and Closure Cost Estimate as part of its Application. The Closure Plan and Closure Cost Estimate are deemed acceptable under 40 CFR § 761.65(e) and are incorporated by reference into this Approval. Verification of financial assurance shall be provided for funding of closure of this Facility.
2. Financial assurance shall be obtained by CECT for Facility closure and shall be submitted to the Director OSRR and PCB Coordinator 60 days prior to commencing PCB treatment operations at the Facility. CECT shall apply the financial assurance requirements in 40 CFR § 761.65(g) for commercial storage facilities to its LTTD unit and comply with such requirements. CECT also shall obtain financial assurance for the compensation of third parties for bodily injury and property damage caused by sudden and non-sudden accidental occurrences from, or related to, CECT's LTTD unit operations by complying with the RCRA regulations that address third-party financial assurance liability requirements (i.e., § 264.147).
3. CECT shall not operate its LTTD unit without the necessary financial assurance. Forty CFR § 761.65(g) references the financial assurance mechanisms specified in 40 CFR Part 264 Subpart H of the Resource Conservation and Recovery Act regulations. CECT may choose any of the financial assurance mechanisms or combination of mechanisms provided for in these regulations. The EPA may require variations in the wording of the instruments from that found at 40 CFR § 264.151 for the LTTDS closure.
4. Once established, CECT may not modify its mechanism for financial assurance without prior written approval from EPA. CECT shall submit proposed changes to its financial assurance mechanism to Director OSRR and the PCB Coordinator and shall not implement such modification until it receives written EPA approval.
5. CECT shall adjust the Closure Cost Estimate annually to reflect inflation as required by 40 CFR § 761.65(f)(2) within sixty (60) days prior to the anniversary date of the establishment of the financial assurance instrument used (or, if using the financial test or corporate guarantee, within 30 days after the close of CECT's fiscal year). CECT shall submit a copy of the annually adjusted Closure Cost Estimate to EPA no later than the annual anniversary of the effective date of this Approval. If the annual adjustment to the Closure Cost Estimate changes the required amount such that it exceeds the face value of the existing financial assurance mechanism, CECT shall make a corresponding increase to its financial assurance mechanism and shall submit documentation of such to the PCB Coordinator within 10 days of the change.

6. CECT shall modify the Closure Plan and Closure Cost Estimate whenever any changes in ownership, operating plans, maximum storage capacity or facility design affect the Closure Plan; whenever there is a change in the expected year of closure; or whenever unexpected events during closure require modification. If CECT becomes aware of information indicating that the estimated costs associated with performing closure of the Facility may exceed the current Closure Cost Estimate, CECT shall modify the Closure Plan and/or Closure Cost Estimate, as appropriate. CECT shall submit proposed modifications to its Closure Plan and/or Closure Cost Estimate to EPA and shall not implement such modification(s) until it receives written EPA approval. CECT shall base modifications to Closure Cost Estimates on maximum cost conditions, as specified in 40 CFR § 761.65(f)(i) - (iv), and shall submit them to EPA with a "certification," as defined in 40 CFR § 761.3.
7. When an EPA-approved modification to the Facility's Closure Plan increases the Closure Cost Estimate, or when EPA approves a modification (e.g., increasing Condition B. PCB waste storage limits), which increases the Facility's Closure Cost Estimate, CECT shall make corresponding increases to its financial assurance and provide documentation to EPA of such change no later than thirty (30) days after such modification is approved by EPA.
8. CECT shall keep a copy of the most recently approved Closure Plan, Closure Cost Estimate and financial assurance document(s) at the Facility and make such documents available to EPA authorized representatives, upon request.
9. CECT shall submit to Director OSRR and PCB Coordinator, a revised Closure Plan reflecting current conditions at the Facility at least 180 days prior to the anticipated beginning of closure activities. The revised Closure Plan must be approved in writing by U.S. EPA prior to implementation.
10. CECT may petition Director OSRR for permission to forgo submittal of a revised Closure Plan at least 180 days prior to the anticipated beginning of closure activities. In that petition, CECT shall demonstrate that there have been no significant changes to the conditions at the Facility that would warrant revisions to the Closure Plan. The requirement to submit a revised Closure Plan at least 180 days prior to the anticipated beginning of closure activities will only be waived upon a written notification from EPA to CECT granting the petition.

H. FACILITY CLOSURE

1. Failure to submit a request for renewal as described in Condition I will be treated as evidence of intent to close the LTTDS. If CECT does not submit a request for renewal before the time specified, CECT shall initiate closure procedures within 60 days of the last treatment of soil, waste, and debris containing PCBs < 50 ppm by CECT's LTTDS.

2. In the event that CECT ceases operations of its LTTDS prior to the date of expiration of this Approval or any renewal granted pursuant to Condition I, CECT shall initiate closure procedures within 30 days of its last receipt of PCB-contaminated soil, waste, and debris by the LTTDS.
3. CECT shall notify EPA in writing, at least 60 days prior to the date on which final closure of its LTTDS is expected to begin (see § 761.65(e)(6)(i)).
4. Within 60 days of completion of closure of the LTTDS, CECT shall submit by registered mail, a certification to the EPA that the LTTDS has been closed in accordance with the Closure Plan for disposal of PCBs regulated under 40 CFR Part 761 (see § 761.65(e)(8)).
5. During the closure activity period, CECT shall dispose of all contaminated system component equipment in accordance with the disposal requirements of 40 CFR Part 761 subpart D or decontaminate the equipment in accordance with § 761.79.

I. APPROVAL RENEWAL

Application for renewal of this Approval shall be made in writing at least 180 days, but not more than 270 days, prior to the expiration date. EPA may require the submission of additional information in connection with any renewal application. If CECT does not intend to seek a renewal of this Approval after the expiration date, CECT shall submit to EPA at least 180 days, but not more than 270 days, prior to the expiration date, a revised Closure Plan to initiate the closure process for the facility. See Condition G.

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

Upon submission of a complete approval renewal application, EPA will inform CECT if a demonstration test plan will be required. The demonstration test plan must be submitted at least 90 days prior to the expiration date of this Approval. If CECT submits this information to the EPA in accordance with the stated deadlines, this Approval continues in force (i.e., does not expire) until the EPA issues an approval renewal, a conditional approval renewal, or an approval request denial. CECT shall not operate under revised operating conditions until the EPA issues CECT a fully renewed, and revised, operating approval. If CECT does not submit this information to the EPA in accordance with the stated deadlines, this Approval will expire as specified in Conditions H and I.

A complete approval renewal application and complete demonstration test plan are considered to be, at a minimum, information that was submitted in previously approved operating approval requests and demonstration test plans, with appropriate modifications or updates based on proposed revisions to the original approval, which may include treatment unit design and operation changes, updated safety protocols, and revised operating and testing procedures. If CECT is seeking approval to treat another type of PCB material or soil containing concentrations of PCBs ≥ 50 ppm, the approval application and demonstration test plan shall reflect those changes.

VI. DECISION TO APPROVE THE CECT APPLICATION TO COMMERCIALY DISPOSE OF PCB WASTE BY LTTD

The EPA has carefully assessed CECT's operations and has audited and observed a demonstration of the LTTDS treatment process capabilities and efficiency. The EPA finds that CECT's LTTDS provides PCB destruction equivalent to an approved TSCA incinerator, as required by 40 CFR § 761.60(e).¹ EPA finds that based on the performance test results, the Closure Plan, and EPA's inspection of the facility and its operations, the alternative disposal of PCB remediation waste will not pose an unreasonable risk of injury to human health or the environment when conducted in accordance with the Application and the conditions of this Approval.

Approval to dispose of PCBs is hereby granted to CECT, Plainville, Connecticut, subject to the conditions expressed herein and consistent with the material and data included in the Application filed by the company. EPA reserves the right to impose additional conditions or to revoke or otherwise modify this Approval when EPA has reason to believe that: the LTTDS is not achieving the relevant performance standards; continued operation of the LTTDS poses an unreasonable risk of injury to health or the environment; new information requires changes; and/or the EPA issues new regulations or standards that impact necessary conditions of this Approval. Any such proposed additional conditions shall be preceded by reasonable advance notice to CECT and opportunity for CECT to comment on the proposed modifications.

This Approval does not waive or compromise EPA's enforcement and regulatory authority, nor release CECT from any applicable requirements of federal, state, or local law.

Date

Bryan Olson, Director
Office of Site Remediation & Restoration

¹ The regulations at § 761.60(e) allow for the destruction of PCBs using methods other than incineration, provided the alternative method can achieve a level of performance equivalent to an incinerator approved under § 761.70 or a high efficiency boiler operating in compliance with § 761.71. The level of performance required for non-thermal destruction is measured differently than for thermal methods. It is the Agency's policy that thermal methods operating under § 761.60(e) that destroy 99.9999% of PCBs as calculated by the Destruction Removal Efficiency (DRE) meet an equivalent level of performance to an incinerator approved under § 761.70 or a high efficiency boiler operating in compliance with § 761.71. See "Draft Guidelines for Permit Applications and Demonstration Test Plans for PCB Incinerators," August 21, 1986. See Approval Appendices I thru III for company background, facility operations, and summary of demonstration test results.

APPENDIX I

BACKGROUND

Section 6(e)(1)(A) of the Toxic Substances Control Act (“TSCA”) requires the U.S. Environmental Protection Agency (“EPA”) to promulgate rules for the disposal of Polychlorinated Biphenyls (“PCBs”). The rules implementing Section 6(e)(1)(A) were published in the Federal Register on May 31, 1979 (44 FR 31514), re-codified in the May 6, 1982 Federal Register (47 FR 19527), and amended in the June 29, 1998 Federal Register (63 FR 35384). Those rules require, among other things, that various types of PCBs and PCB Articles be disposed of in EPA-permitted disposal facilities, including chemical landfills (40 CFR 761.75), incinerators (40 CFR 761.70), high efficiency boilers (40 CFR 761.60), or a state-permitted landfill, depending upon the PCB concentration. These rules also allow disposal using alternative methods (40 CFR 761.60(e)) provided the alternative method demonstrates a level of performance equivalent to an EPA-approved incinerator or a high efficiency boiler provided the alternative methods does not present an unreasonable risk of injury to health and the environment.

The CECT Facility is located in a mixed light industrial and residential area and has been used for industrial purposes since the 1950s. Currently storage and disposal operations, including PCB wastes, at this location are subject to approvals issued by the Connecticut Department of Energy and Environmental Protection. In April, 2016, CECT acquired the Facility from Phoenix Soil, LLC (“Phoenix”). In 2017, CECT submitted an Application to EPA seeking to conduct treatment of PCB-contaminated soil that is regulated for disposal under the federal PCB regulations at 40 CFR Part 761, which must be approved by EPA. CEC’s Application was based on a demonstration test previously conducted by Phoenix, as approved by EPA.

On April 4, 2014 Phoenix submitted a demonstration test plan, “Demonstration Test Plan PCB Destruction Utilizing Low Temperature Thermal Desorption (“LTTD”) Treatment Technology, Phoenix Soil LLC, Plainville, CT” requesting authorization to conduct a field demonstration test of its LTTD unit at the Facility. Phoenix Soil, LLC has a state waste management permit to operate a contaminated media storage, treatment and recycling facility and a state air permit for operation of the LTTD unit, which includes treatment of soil containing ≤ 40 ppm PCBs. EPA approved the Demonstration Test Plan on July 1, 2015 (“Demonstration Test Approval”) and approved an extension of the Demonstration Test Approval on November 9, 2015.

Phoenix Soil conducted a treatment and disposal demonstration for PCBs at its facility in Plainville, Connecticut, during the week of April 13, 2016, using its LTTDS. EPA representatives observed the demonstration and collected split samples of the waste feed and the processed soil, produced by the LTTDS during the demonstration trial burns, which were designed to meet the testing criteria of 40 CFR § 761.70(b) for the treatment of contaminated soil with less than 50 ppm PCBs that are classified as PCB remediation waste as defined at 40 CFR § 761.3. The LTTDS soil feed was spiked with a PCB surrogate and emission tests were conducted for O₂, CO, CO₂, NO_x, HCl, total chlorinated organic content, the PCB surrogate and total particulate matter. The results of these analyses, which are summarized in Appendix III of the

Approval, indicate that CECT's LTTD unit achieved a final Destruction and Removal Efficiency ("DRE") of at least 99.9999%. The EPA considers this level of performance to be equivalent to that achieved by incineration, which is required by the PCB regulations (see 40 CFR § 761.60(e)). Results of the demonstration are included in the document entitled "Report: PCBs Treatment Demonstration Emissions Test" dated June 2016. A summary of the Demonstration Test Process and Test Results is provided in Appendices II and III, respectively.

DRAFT

APPENDIX II

PROCESS DESCRIPTION FOR LTTD DEMONSTRATION TEST RUNS

1. The LTTDS is a treatment unit used to dispose of non-liquid PCBs (e.g., PCB-contaminated soil and sediment). CECT proposes to remove PCBs at a maximum concentration of 40 ppm from contaminated soil. Components of the LTTDS include the following (see process diagram, page II-5):
 - a. Material feed system
 - b. Directly heated desorber
 - c. Multi-cone separator
 - d. Secondary treatment unit
 - e. Quench unit
 - f. Baghouse
 - g. Materials discharge system
 - h. Wet Scrubber

Process Description: The LTTDS employs a continuous process starting with the loading of contaminated soil into the material feed system. The LTTDS is essentially a direct thermal desorber which uses a rotary desorption chamber heated by a direct source to volatilize and steam-strip the contaminants from the soil media. These gases are then treated through a secondary oxidizer treatment system. There is a primary treatment system ("PTU") that acts as the direct thermal desorber with a temperature range of 500-900 degrees F. The secondary treatment unit ("STU") acts as a thermal oxidizer, operates at 2200 degrees F, and has a residence time of greater than 2 seconds. The gas stream from the STU is passed through a quench, a baghouse, and a wet scrubber before going through the stack.

Wet scrubber water and condensate from the gas treatment system combine and are stored in the wet scrubbers' holding tank. The water in the tank is pumped to the pugmill and mixed with the treated soil discharge system for cooling and for re-moisturizing the soil.

2. The LTTDS is designated as an alternate PCB disposal method or more appropriately, an alternate PCB thermal disposal process. Under 40 CFR § 761.60(e), an alternate PCB disposal process must demonstrate a PCB disposal equivalency to that of a PCB incinerator as specified under 40 CFR § 761.70. The current performance standard for EPA-approved PCB incinerators under 40 CFR § 761.70 is a 99.9999% destruction and removal efficiency ("DRE") for PCBs. Incinerators meeting these criteria have been shown not to pose an unreasonable risk of injury to health or the environment.
4. Many of the LTTDS operating parameters are computer controlled. Should a malfunction occur, the LTTD is designed to automatically shutdown. A shutdown sequence also may be initiated manually by the operator.

5. Due to the design aspects, operating parameters, and safety measures, EPA finds that a demonstration of the LTTDs is similar to a demonstration of a TSCA PCB incinerator and that the demonstration activity itself does not pose an unreasonable risk of injury to health or the environment.
6. PCDD/PCDF Emissions Criteria: The emission standard for PCDD/PCDF shall be less than (“<”) 0.174 ng/m³ level.
7. 1,2-DCB DRE Requirement: The stack emissions test for 1,2-DCB must be sensitive enough to prove a 99.9999% DRE at a 22-tons-per-hour of soil throughput with a soil 1,2 DCB concentration of 100 ppm. To demonstrate a 99.9999% DRE, the stack emissions test method detection limit must be 1.0×10^{-6} lb/hour or lower. The following tables show the achievable destruction efficiencies using both Method 0030/8260 and Method 0010/8270C.

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**Dichlorobenzene Destruction Efficiency Calculation Using
Stack Test Detection Limit and Maximum Soil Treatment Rate**

| | | | |
|----|--|----------|--------------------|
| 1 | Method 0010/8270 DL (dichlorobenzene) | 50 | ng |
| 2 | Gas Sample Volume | 4500 | L |
| 3 | Stack Concentration DL | 0.011 | ng/L |
| 4 | Stack Concentration DL | 0.314667 | ng/ft ³ |
| 5 | Stack Concentration DL | 6.9E-13 | lb/ft ³ |
| 6 | Stack Flow Rate | 25000 | dscfm |
| 7 | Stack Emission Rate DL | 1.0E-06 | lb/hour |
| 8 | Max Soil Treatment Rate | 20 | tons/hour |
| 9 | Max Soil Treatment Rate | 40000 | lb/hour |
| 10 | Max Chlorobenzene Contamination Level | 100 | ppm |
| 11 | Max Chlorobenzene Input Rate | 4.0 | lb/hour |
| 12 | Destruction Efficiency at Max Input and Stack DL | 99.99997 | % |

DL = detection limit

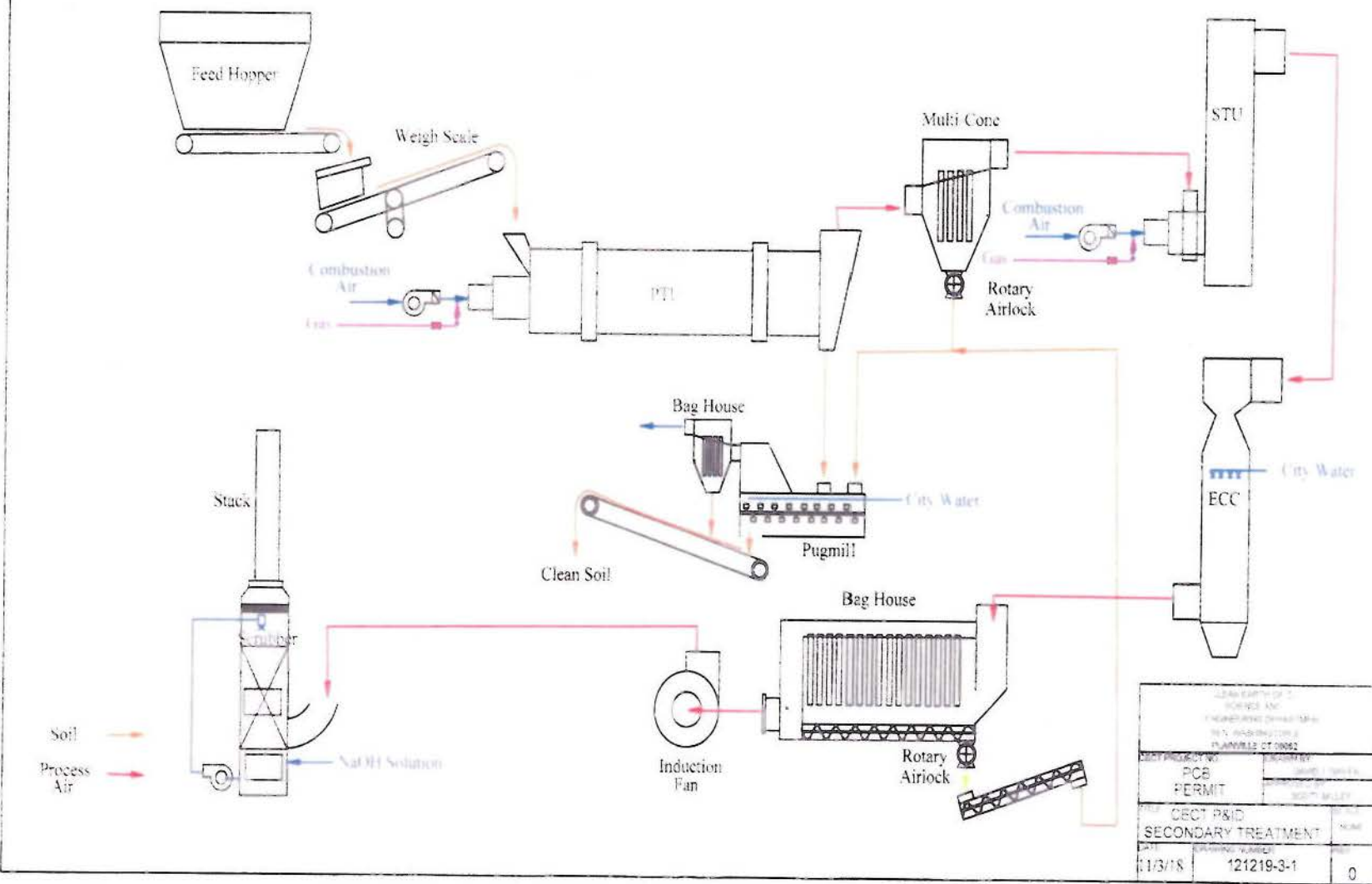
- 1 Equals the Detection Limit as shown on the labs data sheet for 1,2, Dichlorobenzene
- 2 Equals the volume of gas sampled in EPA method during the four hour test
- 3 Equals the Lab detectable level of 1,2 dichlorobenzene converted to each liter sampled
- 4 Equals the detection limit conversion of ng/l to ng/ft³
- 5 Equals the detection limit conversion of ng/ft³ to lb/ft³
- 6 Equals the Stack flow volume per minute as taken from previous Phoenix stack tests
- 7 Equals the conversion of the lab detection levels in the stack from minutes to hrs.
- 8 Equals the expected soil input rate into the treatment unit.
- 9 Equals the conversion from tons/hr to pounds/hr
- 10 Equals the suggested input concentration of 1,2 dichlorobenzene into the treatment unit
- 11 Equals the actual 1,2 dichlorobenzene level going into the treatment unit per hour
- 12 Equals the Destruction Removal Efficiency which can be achieved using the labs detection level compared to the input level of 1,2 dichlorobenzene

| Dichlorobenzene Destruction Efficiency Calculation Using Stack Test Detection Limit and Maximum Soil Treatment Rate | | |
|--|--|----------------------------|
| 1 | SW-846 Method 0030/8260 DL | 10 ng |
| 2 | SW-846 Method 0030 Gas Sample Volume | 20 L |
| 3 | Stack Concentration DL | 0.5 ng/L |
| 4 | Stack Concentration DL | 14.16 ng/ft ³ |
| 5 | Stack Concentration DL | 3.1E-11 lb/ft ³ |
| 6 | Stack Flow Rate | 25000 dscfm |
| 7 | Stack Emission Rate DL | 4.7E-05 lb/hour |
| 8 | Max Soil Treatment Rate | 20 tons/hour |
| 9 | Max Soil Treatment Rate | 40000 lb/hour |
| 10 | Max Chlorobenzene Contamination Level | 100 ppm |
| 11 | Max Chlorobenzene Input Rate | 4.0 lb/hour |
| 12 | Destruction Efficiency at Max Input and Stack DL | 99.9988 % |

DL = detection limit

- 1 Equals the Detection Limit as shown on the labs data sheet for 1,2, Dichlorobenzene
- 2 Equals the volume of gas sampled in EPA method during the four hour test
- 3 Equals the Lab detectable level of 1,2 dichlorobenzene converted to each liter sampled
- 4 Equals the detectable limit conversion of ng/l to ng/ft³
- 5 Equals the detectable limit conversion of ng/ft³ to lb/ft³
- 6 Equals the Stack flow volume per minute as taken from previous Phoenix stack tests
- 7 Equals the conversion of the lab detection levels in the stack from minutes to hrs.
- 8 Equals the expected soil input rate into the treatment unit.
- 9 Equals the conversion from tons/hr to pounds/hr
- 10 Equals the suggested input concentration of 1,2 dichlorobenzene into the treatment unit
- 11 Equals the actual 1,2 dichlorobenzene level going into the treatment unit per hour
- 12 Equals the Destruction Removal Efficiency which can be achieved using the labs detection level compared to the input level of 1,2 dichlorobenzene

FIGURE 3-1
PROCESS DIAGRAM



| | | | |
|--|---------|------------|-------|
| LEARNER'S OF C. HANCOCK AND ENGINEERS, INC. 100 W. MAIN STREET, SUITE 100, CHANSHIRE, CT 06022 | | | |
| PROJECT NO. | DATE | REVISION | SCALE |
| PCB PERMIT | 11/3/18 | 121219-3-1 | 0 |
| CECT P&ID SECONDARY TREATMENT | | PAGE 0 | |

APPENDIX III

SUMMARY OF DEMONSTRATION TEST RESULTS FOR THE LTTD PROCESS

PCB Surrogate Demonstration Information for April 12-13, 2016

PCB Surrogate: 1,2-Dichlorobenzene (DCB)

OPERATING CONDITIONS

Average soil 1,2-Dichlorobenzene concentration as determined by an average of sample results - 158.02 ppm

Molecular Weight 1,2-Dichlorobenzene 147.01 g/mol

Molecular Weight Arochlor 1260 - 360.9 g/mol

By calculation from surrogate, equivalent soil PCB concentration - 64.37 ppm

| | Run 1 | Run 2 | Run 3 | Average |
|----------------------|--------|--------|--------|---------|
| Soil Rate (TPH) | 22.337 | 22.835 | 21.292 | 22.155 |
| PTU Exit Temp F | 725.9 | 733.9 | 727.3 | 729 |
| STU Exit Temp F | 2203.3 | 2209.5 | 2192.2 | 2201.7 |
| Baghouse DP ("w.c) | 4.713 | 4.606 | 4.670 | 4.670 |
| Scrubber Water (gpm) | 22.392 | 22.011 | 21.617 | 22.007 |
| Scrubber pH | 8.2 | 8.2 | 8.2 | 8.2 |

| Soil Analytical Results | Run 1 | Run 2 | Run 3 |
|---|----------|----------|----------------|
| Post-Test 1,2-DCB in processed soil, ppm | ND | ND | ND |
| Post-Test PCB in processed soil, ppm | ND | ND | ND |
| From the 0010 MM5 Train | Run 1 | Run 2 | Run 3 |
| Surrogate Stack Emissions, lb/hr | 6.55E-06 | 8.58E-06 | 9.77E-06 |
| DRE, % | 99.99991 | 99.99985 | 99.99987 |
| Isokinetic rate, % | 98.3 | 98.1 | 100.8 |
| Average Stack Emissions as determined by sample results, lb/hr | | | 8.30-06 |

| From the 0023A (Dioxin) Train | Run 1 | Run 2 | Run 3 |
|---|--------------|--------------|----------------|
| Dioxin/Furans Concentration (ng/dscm) | 0.26307 | 0.11208 | 0.09403 |
| Isokinetic rate, % | 98.3 | 98.1 | 100.8 |
| Average Stack Emissions as determined by EPA sample results, lb/hr | | | 6.1E-06 |

| <u>Dioxins/Furans</u> | <u>Measured</u> | <u>Max Allowable</u> |
|-------------------------------------|------------------------|-----------------------------|
| Total Runs 1-3 HpCDD, ng/dscm | 0.00967 | 0.20 |
| Total Runs 1-3 OCDD, ng/dscm | 0.0224 | 0.20 |
| Sum PCDD ng/dscm | 0.0321 | 0.20 |
| Total Runs 1-3 2,3,7,8-TCDF ng/dscm | 0.00355 | 0.2 |
| Total Runs 1-3 HxCDF ng/dscm | 0.00725 | 0.20 |
| Total Runs 1-3 HpCDF ng/dscm | 0.0267 | 0.20 |
| Sum PCDF ng/dscm | 0.0375 | 0.20 |
| Sum of PCDD and PCDF ng/dscm | 0.0696 | 0.20 |

| From the 0010 MM5 Train | Run 1 | Run 2 | Run 3 |
|---|--------------|--------------|--------------|
| Particulate Emissions Concentration (gr/dscf at 7% O2) | 0.0013 | 0.0009 | 0.0004 |
| Stack Emissions, lb/hr | 0.119 | 0.085 | 0.039 |
| Average Stack Emission lb/hr | 0.081 | | |
| Stack Emission Limit (lb/hr) | 4.6 | | |

| HCl Emissions | Run 1 | Run 2 | Run 3 |
|-------------------------|--------------|--------------|--------------|
| Concentration (ppm-dry) | <0.17 | <0.17 | <0.17 |
| Emission rate (lb/hour) | <0.011 | <0.011 | <0.011 |

| Combustion Efficiency | Run 1 | Run 2 | Run 3 |
|------------------------------|--------------|--------------|--------------|
| CO2 Concentration (%) | 7.55 | 7.54 | 7.33 |
| CO Concentration (%) | 0.00014 | 0.00019 | 0.00012 |
| Combustion Efficiency (%) | 99.998% | 99.997 | 99.998% |

The LTTD disposal technology was demonstrated to meet or exceed the operating performance criteria for incineration of non-liquid PCBs under 40 CFR 761.70, as well as, the additional criteria noted as Permit Conditions in this TSCA Approval. The required performance level for EPA-approved TSCA incinerators is 99.9999% destruction and removal efficiency (“DRE”); and, Combustion Efficiency is 99.9%. Based on the test run results, the Agency has determined that as this level of performance was achieved. Accordingly, the operation of this alternative thermal technology, LTTD, will not present an unreasonable risk of injury to health or the environment with respect to PCB emissions.

Connecticut Department of Energy and Environmental Protection Air Management Permit only allows a maximum concentration limit of 40 ppm PCBs in material to be treated through the LTTDS. Therefore, the PCB limits for treatment of *PCB remediation waste* will reflect the state’s limits.

DRAFT

CERTIFICATION FORM

I, _____, _____ certify that I

Print Name

Title

have received and reviewed the *Approval to Commercially Dispose of Polychlorinated Biphenyls by Low Temperature Thermal Desorption ("LTTD")*, at the CECT Facility in Plainville, Connecticut on this ____ day of _____, and year of 20XX, and hereby, agree to abide with all conditions of the Approval.

Signature

Date

DRAFT