



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

JAN 25 2017

OFFICE OF  
SOLID WASTE AND  
EMERGENCY RESPONSE

Mr. Brett Campbell  
Director of Stabilization Technologies  
Kurion, Inc.  
1355 Columbia Park Trail  
Richland, Washington 99352

Dear Mr. Campbell:

The Office of Resource Conservation and Recovery (ORCR) of the U.S. Environmental Protection Agency (EPA) grants approval to Kurion, Inc. (Kurion) to operate its GeoMelt<sup>®</sup> In Container Vitrification (ICV)<sup>™</sup> unit, a thermal alternative Polychlorinated Biphenyls (PCBs) disposal method, to destroy PCBs in contaminated soil, waste, and debris, contingent on the terms and conditions specified in the enclosed approval. This 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). This approval is applicable on a nationwide basis, since the GeoMelt treatment unit is mobile and could potentially operate in any state. The approval is effective upon the EPA's signature and, unless specified otherwise in Condition 23, expires five years from the aforementioned signature date.

Kurion conducted a treatment and disposal demonstration for PCB-contaminated soil at its facility in Richland, Washington, during the week of September 12, 2009, using its GeoMelt ICV unit. EPA representatives observed the demonstration and collected split samples of the waste feed and the vitrified waste material, produced by the GeoMelt ICV unit. Results of the analysis from the demonstration, which are summarized in Appendix III of this approval, indicate that Kurion's GeoMelt ICV 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 § 761.60(e)). This approval does not permit the treatment of the non-PCB components of PCB/radioactive wastes. Kurion must obtain all applicable approvals/permits for the non-PCB components of the waste, as appropriate, and comply with all applicable requirements for the non-PCB components of the waste. This approval is based upon the EPA's conclusion that Kurion's GeoMelt ICV unit, when operated in accordance with the applicable PCB regulations and in accordance with the conditions of this approval, does not pose an unreasonable risk of injury to health or the environment and achieves a level of performance equivalent to that achieved by incineration.

A violation of any condition of this approval or any applicable Federal regulations may subject Kurion 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) with respect to PCBs, or from new information gathered by Kurion and/or the EPA at, for example, a demonstration site or during subsequent jobs at other sites.

Please contact Karen Swetland-Johnson at (703) 308-8421 if you have any questions regarding this approval.

Sincerely,

A handwritten signature in blue ink that reads "Barnes Johnson". The signature is fluid and cursive, with a long horizontal stroke at the end.

Barnes Johnson, Director  
Office of Resource Conservation and Recovery

Enclosure

cc: EPA Regional PCB Coordinators

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF ) APPROVAL TO DISPOSE  
 )  
KURION, INC. ) OF POLYCHLORINATED  
 )  
1355 COLUMBIA PARK TRAIL ) BIPHENYLS (PCBs)  
 )  
RICHLAND, WA 99352 )

AUTHORITY

This approval is issued 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 (PCB) Regulation, 40 CFR 761.60.

Failure to comply with the approval conditions specified herein shall constitute a violation of §§ 761.60(e) and 761.50(a) and may also be a violation of other provisions of the PCB regulations in 40 CFR part 761. A violation of the regulations is a prohibited act under Section 15 of TSCA.

SUMMARY AND FINDINGS

Background information, process descriptions, demonstration test result summaries, and the Environmental Protection Agency's (EPA's) findings related to this approval are included in Appendices I through IV.

Kurion, Inc. (Kurion) is the sole owner of the GeoMelt® In Container Vitrification (ICV)<sup>TM</sup> unit which is designed to thermally destroy PCBs in contaminated soil, waste, and debris and produce a vitrified waste material. The EPA has carefully assessed Kurion's operations, and has audited and observed a demonstration of the GeoMelt ICV unit's treatment process capabilities and efficiency. The EPA finds that Kurion's GeoMelt ICV unit, when treating soil, waste, and debris containing PCBs in accordance with the conditions of this approval, provides PCB destruction equivalent to an approved TSCA incinerator, as required by 40 CFR 761.60(e).<sup>1</sup> Further, the

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<sup>1</sup> 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 §

EPA finds that Kurion's process, when operated in accordance with this approval, will not present an unreasonable risk of injury to health or the environment.

EFFECTIVE DATE

This approval to operate nationwide is effective upon signature by the Director of the Office of Resource Conservation and Recovery (ORCR) and shall expire five (5) years from the date of signature unless otherwise specified in Condition 23.

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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.

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## DEFINITIONS AND ACRONYMS

Definitions found in 40 CFR 761.3 apply unless otherwise noted below.

"Analytical data" means: (a) a formal report from a chemical analysis laboratory; or (b) appropriate chemical instrument print outs 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 Kurion's GeoMelt ICV unit, e.g., information submitted to the EPA by Kurion to define, represent, or describe proposed testing protocols, proposed design and operations, and operational limits of the GeoMelt ICV unit. This includes the request for approval required by 761.60(e) and such data and materials submitted in relation to both the demonstration and operating approval applications. This includes Kurion's "Permit Application for the GeoMelt In-Container Vitrification PCB Destruction Unit," dated February 7, 2008.

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

"Facility" means all contiguous land and structures (such as a single manufacturing plant) at which Kurion's GeoMelt ICV unit disposal operations are conducted.

"Facility location" means a street address or a directional description which would allow a facility to be found by an EPA inspector, as opposed to a P.O. Box that is not indicative of the location of the facility where the treatment unit will be located.

"HQ" means EPA Headquarters.

"Job" means all Kurion GeoMelt ICV disposal operations for a single customer within fifty road miles of a central location. A job may consist of Kurion's GeoMelt ICV disposal operations at several different facilities for a single customer.

"Lost-time injury" or "lost workday injury" means an injury related to the operation of Kurion's GeoMelt ICV 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 Kurion's GeoMelt ICV unit or process.

"Mobile operations" means those operations where Kurion's GeoMelt ICV unit operates at a facility for less than 180 total cumulative days in any year. Cumulative days do not have to be consecutive to count towards the 180 days. The 180 cumulative day compilation starts on the first day any component of Kurion's GeoMelt ICV unit begins operating at the facility.

"Operations" means the process of treating PCBs  $\geq 50$  ppm, (or PCBs  $< 50$  ppm that were originally  $\geq 50$  ppm and subsequently diluted to levels  $< 50$  ppm), including start-up (e.g., powering up, running any oil through the equipment) of Kurion's GeoMelt ICV unit, preparation of PCB waste feed, and decontamination of Kurion's GeoMelt ICV unit and supporting components once treatment is terminated.

"ORCR" means the Office of Resource Conservation and Recovery, located at EPA Headquarters.

"PCB" means polychlorinated biphenyls as defined in § 761.3.

"Permanent operations" means those operations where Kurion's GeoMelt ICV unit operates at a facility for 180 total cumulative days or longer in the same year. The 180 cumulative day compilation starts on the first day any component of Kurion's GeoMelt ICV unit begins operating at the facility. Cumulative days do not have to be consecutive to count towards the 180 days.

"Process waste" means wastes generated by Kurion's GeoMelt process.

"RA" means EPA Regional Administrator in the Region in which the GeoMelt ICV unit is or will be operating.

"Regional PCB Coordinator" means the contact listed on the following website for the EPA Region in which the GeoMelt ICV unit is or will be operating: <https://www.epa.gov/pcbs/epa-regional-polychlorinated-biphenyl-pcb-programs>.

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

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

"Total PCBs" is defined as the PCB concentration quantified using EPA Methods 8082 and 680 for non-aqueous and aqueous samples, respectively.

"Year" means any 365 consecutive days except in the occurrence of a leap year, which contains 366 days. The year does not necessarily begin on January 1st.

## CONDITIONS OF APPROVAL

Per 40 CFR 761.60(e), this approval waives otherwise applicable requirements of §§ 761.60(a) and 761.70. This approval may reference additional requirements of part 761 but Kurion 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 document shall govern.

### 1. Feedstock Restrictions

- a) Kurion may treat PCB-contaminated soil, waste, and debris using the mobile GeoMelt unit, including liquids that have been absorbed by solids, and process waste pursuant to Condition 8(a).
- b) Kurion may treat soil and other solid material containing PCBs in concentrations no greater than 30,000 ppm.
  - 1) Kurion shall not dilute soil containing PCBs in concentrations greater than 30,000 ppm to reduce the concentration to below 30,000 ppm. To the extent practicable, Kurion shall not dilute allowable feedstocks (less than or equal to 30,000 ppm).
- c) Kurion may not treat the following:
  - 1) Liquid PCBs (unless absorbed by glass forming materials such that the liquid is no longer flowable).
  - 2) Materials in sealed, intact containers including drums and tanks, unless the sealed containers contain material that are of a known PCB concentration (or known to be within allowable limits included in this Approval), materials that are not flowable, and are adequately punctured to prevent the accumulation of pressure when heated.
  - 3) Aqueous liquid wastes or water (unless absorbed by glass forming materials such that the liquid is no longer flowable).
  - 4) Any wastes that may cause an explosion under the conditions present in the GeoMelt ICV unit.
- d) Kurion shall use coarse sand or glass former (e.g., recycled glass) that does not contain PCBs as the cover layer to minimize dispersion of fine dust whenever a heavy object impacts the cover layer.
- e) Prior to treatment, Kurion shall characterize the feedstock for PCBs (Aroclor type and concentration) using EPA Method 8082A (SW-846). The feedstock shall be sampled and analyzed by gas chromatography in accordance with the procedures described in Kurion's application.

- f) Whenever feedstock is handled in containers outside of the GeoMelt ICV treatment container, such as when treating bulk quantities of soil, the containers must be clearly labeled in accordance with 40 CFR 761 subpart C so as to distinguish them from treated product containers.
- g) Kurion may propose a modification to this condition in the future, should it successfully demonstrate to EPA through an approved demonstration test that Kurion's GeoMelt process is capable of treating higher concentrations of PCBs. Authorized EPA representatives will witness the demonstration and obtain split samples for verification of analytical results.

## 2. Operating Condition Restrictions

Operation of the GeoMelt ICV unit shall be subject to the conditions of this approval and shall be consistent with the information included in Kurion's application dated February 7, 2008.

### a) Treatment Unit Shutdown

The GeoMelt ICV unit shall be immediately and automatically shut down if any of the following conditions occur:

- 1) Excess O<sub>2</sub> value is lower than 11% for more than one (1) minute.
- 2) Burner flameout occurs.
- 3) Off-gas hood attains ambient pressure or greater.

After an automatic shutdown due to occurrence of any of these conditions, Kurion 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 year, as defined in the definitions section of this document, Kurion shall follow the requirements in Condition 5. Any one (1) occurrence of one of the conditions counts towards the three (3).

Kurion shall also immediately shut down the GeoMelt ICV unit upon failure of the monitoring and/or recording equipment for the parameters specified in Condition 8(a)(5). Shutdown should be conducted in a manner that is most protective of human health and the environment. After such a shutdown is triggered, Kurion shall not resume treatment operations until the equipment is repaired or replaced with functional equipment.

### b) Melt Temperature

Kurion shall operate the GeoMelt ICV unit as a batch process (i.e., not a continuous flow through process). Batch melt temperature shall be no less than 1000°C for more than one minute once startup of the process is complete.



c) Minimum Operating Temperature for the Thermal Oxidizer

Kurion shall terminate power to the electrodes if the temperature drops below 1320°F for one (1) minute when treating wastes containing PCB concentrations equal to and greater than 500 ppm and terminate power to the electrodes if the temperature drops below 1120°F for one (1) minute when treating wastes containing PCB concentrations less than 500 ppm.

3. Sampling Plan and Feedstock Concentration

Kurion shall follow the sampling plan in the submitted application for sampling contaminated feedstock at each facility to ensure compliance with Condition 9 of this permit.

4. Treatment Verification and Disposal of Soil or Vitrified Waste Material That Could Not be Adequately Treated

a) Kurion shall take representative samples of each batch of vitrified waste material at the facility where the GeoMelt ICV unit is conducting the treatment and analyze the samples in duplicate by EPA Method 8082A (SW-846) for the concentration of PCBs in accordance with the procedures described in Kurion's application.

b) If the concentration of PCBs in the vitrified waste material is  $\geq 2$  ppm PCBs, Kurion shall either:

- 1) Repeat treatment of the vitrified waste material in the GeoMelt ICV unit for up to three (3) treatments until the concentration of PCBs in the vitrified waste material is less than 2 ppm PCBs; or
- 2) Dispose of the vitrified waste material 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 Kurion's.

5. Requirements Upon Repeated Failure to Achieve PCB Treatment Levels of  $< 2$  ppm

Immediately upon the third incidence of failure to achieve the required treatment levels (as described in Condition 4(b)) within any year, Kurion shall cease operation of the GeoMelt ICV unit and shall notify the ORCR Headquarters contact identified in Condition 13 and the Regional PCB Coordinator by phone within three (3) business days after the third incidence of failure. Kurion shall also submit a written report to the ORCR Headquarters contact identified in Condition 13 and the Regional PCB Coordinator within seven (7) days of ceasing operation. The written report shall include information on the conditions under which the treatment 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 unit, and the estimated time before the unit is able to perform as specified in this approval. In such instances, the malfunctioning GeoMelt ICV unit shall not resume operation until the problem has been corrected to the satisfaction of the ORCR Headquarters contact identified in Condition 13, and documented in writing.

## 6. Unit Damage

Kurion shall report any damage to the GeoMelt ICV unit that may impact the unit's ability to operate in accordance with this approval within two (2) business days by phone to the PCB Regional Coordinator and the ORCR Headquarters contact identified in Condition 13. Within five (5) business days, Kurion shall submit a written report that addresses such damage to the Director of ORCR and the PCB Regional 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 unit, and the estimated time before the unit is able to perform as specified in this approval. Kurion shall notify the PCB Regional Coordinator and the ORCR Headquarters contact identified in Condition 13 by phone and receive approval from ORCR via written or emailed correspondence before resuming operations. The EPA may require a performance demonstration or submittal of appropriate data and/or information before Kurion may resume operations to confirm that the unit has been fully repaired.

## 7. Process Waste Disposal and Handling Requirements

- a) Kurion shall sample and analyze any non-liquid and non-aqueous liquid process wastes generated by the GeoMelt ICV unit. Kurion shall dispose of non-liquid and non-aqueous liquid process wastes with PCB concentrations of  $\geq 2$  ppm PCBs (e.g., sludge, glass former, and disposable personal protective equipment) as if it contained the PCB concentration of the pre-treated feedstock (see §§ 761.60(a) and 761.60(b) for disposal options).

Kurion may dispose of non-liquid and non-aqueous liquid process wastes generated by the GeoMelt ICV unit with concentrations  $< 2$  ppm as a non-regulated PCB material, but final disposition of such waste must comply with all local, state, and federal regulations.

- b) Kurion shall sample and analyze any aqueous liquid process wastes.
- 1) For aqueous liquid process wastes containing  $< 0.5$  ppb PCBs, Kurion 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  $\geq 0.5$  ppb and  $< 3$  ppb, Kurion shall dispose of these wastes in compliance with § 761.50(a)(3). For aqueous liquid process wastes containing  $\geq 3$  ppb, Kurion shall dispose of these wastes as if they contained the PCB concentration of the pre-treated feedstock that was being treated at the time the aqueous liquid process waste was generated.
- c) Kurion shall comply with the labeling and marking requirements for storage, holding, and process tanks (PCB Containers) at §§ 761.40 and 761.45 for all aqueous liquid process wastes which contain PCB levels  $\geq 3$  ppb and for non-liquid and non-aqueous wastes that contain PCB levels  $\geq 2$  ppm.

## 8. Monitoring, Recordkeeping, and Reporting Requirements

- a) Kurion shall monitor, record, and maintain the following GeoMelt ICV unit operating parameters and information:
  - 1) Quantity of contaminated soil, waste, and debris treated for each treatment batch;
  - 2) Concentration of PCBs in the contaminated feedstock for each treatment batch;
  - 3) Amount of clean soil or glass formers used in each treatment batch and per job;
  - 4) Post-treatment concentrations of PCBs in the vitrified waste material for each treatment batch;
  - 5) Temperature of the melt volume and vacuum pressure within the off-gas containment hood in Kurion's GeoMelt ICV unit every sixty (60) seconds during each treatment batch beginning before any heating is done, and ending when the treated vitrified waste material is about to be removed;
  - 6) Quantity of PCB wastes generated at each job, including vitrified waste material that could not be successfully treated to achieve levels below 2 ppm PCBs;
  - 7) Identification of facilities used to dispose of the PCB wastes listed in Condition 8(a)(6), and method of disposal;
  - 8) Identification of facilities used to dispose of the vitrified waste material listed in Condition 8(a)(4), and method of disposal;
  - 9) Date, time, and duration of treatment batches;
  - 10) Name and business address of the GeoMelt ICV unit operator and supervisor for each treated batch;
  - 11) The name and address of each client whose PCB-contaminated soil, waste, and debris was treated by the GeoMelt ICV unit;
  - 12) A copy of the raw data, gas chromatograms, and final results from the tests required by Conditions 1, 4, and 7;
  - 13) A summary of the total volume of contaminated soil, waste, and debris treated by the GeoMelt ICV unit during the previous year; and,
  - 14) Any and all reports required by Conditions 5, 6, and 10.
- b) Kurion shall develop, compile, and maintain the records in Condition 8(a) in a paper log or electronically as follows:

- 1) Kurion shall maintain the records for all ongoing and past PCB treatment jobs conducted by the unit in the previous five (5) years in the GeoMelt ICV unit trailer and make them available for inspection;
  - 2) Kurion shall compile the records for each facility within three (3) days of the end of treatment at that facility (i.e., the end of a job) and keep these documents at its main office in Richland, Washington, until Kurion is allowed to dispose of the records under Condition 8(b)(4) below;
  - 3) Kurion shall make the records available for inspection by authorized representatives of the EPA upon request; and
  - 4) Kurion shall maintain at its main office the records for at least ten (10) years after the treatment date of the last job performed by the unit.
- c) If Kurion initiates and completes closure of the GeoMelt ICV unit while this approval is in force or if the approval expires, Kurion shall electronically submit all records to the Director of ORCR within 90 calendar days of certifying closure or the expiration, whichever comes first.
- d) Kurion shall maintain annual records on the disposition of all PCBs and submit them annually to the Director of ORCR in compliance with § 761.180(b).

## 9. Advance Notification of Operations

### a) 30-Day Advance Notification of Operations

In conjunction with the requirements listed in § 761.60(f), Kurion shall, at least 30 days prior to locating its GeoMelt ICV unit at a facility, send non-confidential, written notifications of its intent to treat PCBs at such facility to the ORCR HQ contact identified in Condition 13, and to the appropriate EPA Regional PCB Coordinator, state environmental agency, and local governmental environmental entities (if applicable) based on the location where operations will occur.

### b) Information to be Contained in 30-Day Advance Notification of Operations

- 1) The following information shall be included in the 30-day advance written notification discussed in Condition 9(a). The information contained in the notification will be available to the public (see Condition 13) and may be used to schedule EPA TSCA inspections and to facilitate oversight of operations.
  - A. Company Identifications: 1) name, address, telephone number, and brief description of the facility where Kurion will be operating; and 2) name(s), base (e.g., corporate office) address, and telephone number(s) of the Kurion corporate office contact(s) responsible for oversight of the mobile unit personnel, and a brief description of Kurion;

- B. Personnel Identification: 1) Kurion contact name(s), email address(es), and telephone number(s) of personnel who are responsible for oversight of the Kurion operations at the facility; 2) name(s) and telephone number(s) of facility representatives/personnel where Kurion will be operating whom Kurion reports to and who are responsible for oversight of Kurion's operations at their facility;
- C. The number to a phone that is dedicated to the GeoMelt ICV unit that the Kurion unit operator(s) have access to and that goes with the GeoMelt ICV unit to each facility;
- D. Description of the nature of the PCB disposal activity, including estimates of the amount of soil, waste, and debris contaminated with PCBs and estimates of PCB concentration in the soil, waste, and debris that will be treated. The estimates shall be based on analytical data provided by the customer and/or analytical data from Kurion;
- E. The date the PCB treatment/disposal activity is scheduled to begin, and the estimated duration (in days) of the operations; and
- F. The vehicle identification number (VIN) or state Department of Motor Vehicle license plate number for the GeoMelt ICV unit (if applicable).

An acceptable example of a 30-day advance written notification of intent to operate is included in Appendix IV.

## 2) Changes to 30-Day Advance Notifications

If a change or changes to the information submitted in the original 30-day advance notification for a particular facility is, or are, necessary before operations have begun under that notification, Kurion shall (with the exceptions of changing the schedule to an earlier treatment operations start date and changing the facility location - see below) send an email that describes the change or changes to those required to be notified by Condition 9(a) in advance of the operating start date that is stated in the original 30-day notice. Kurion may initiate the treatment/disposal activities as originally scheduled after they have submitted the change(s) provided the change(s) do(es) not require modification of this operating approval.

If a change or changes to the information submitted in the original 30-day advance notification for a particular facility is, or are, necessary after operations have begun under that notification, Kurion shall (with the exceptions of changing the facility location - see below) send an email that describes the change or changes to those required to be notified by Condition 9(a). Kurion may continue the treatment/disposal activities after submitting the change(s) provided the change(s) do(es) not require modification of this operating approval.

If Kurion wishes to operate at a facility other than the facility identified in the submitted 30-day notification or change the scheduled treatment operations start date to an earlier date, Kurion shall submit a new 30-day advance notification to those required to be notified by Condition 9(a) (which may differ from those notified by the original notice). Kurion shall also notify those individuals to whom the original notice was submitted of the date or location change. In such circumstances, Kurion shall not initiate treatment/disposal activities earlier than 30 days prior to submitting the new advance notification.

c) Additional Advance Notifications

In addition to the advance notifications prescribed in Condition 9(a) of this approval, Kurion shall provide three types of advanced notifications:

- 1) Kurion shall provide a non-confidential written notification of intent to operate 30 days in advance to the local fire departments and other applicable local emergency response authorities in the jurisdiction where Kurion intends to operate. These additional advance written notifications shall include all information described in Condition 9(b) and also specify the following information:
  - A. Safety Data Sheets (SDS) for the principal chemicals in the treatment unit, and/or to be treated in the treatment unit (including PCBs and any other chemicals, if applicable);
  - B. The approximate quantities of principal chemicals in each treatment unit, and/or to be treated in the treatment unit; and
  - C. General location of Kurion's GeoMelt ICV unit scheduled to be at the facility.
- 2) Kurion shall provide a non-confidential written notification of intent to operate posted in a location where the community located nearest the facility will likely see it (for example, the local newspaper, news website, etc.). This notification shall include the following information:
  - A. Contact information for a Kurion representative;
  - B. Contact information for a facility representative;
  - C. General location of Kurion's GeoMelt ICV unit scheduled to be at the facility;
  - D. Brief description of the type of waste being treated;
  - E. Brief description of the Kurion treatment process; and
  - F. Anticipated dates of operation at the facility.

- 3) Before treating PCB-contaminated soil, waste, and debris in the GeoMelt ICV unit, Kurion shall post this approval document prominently on its website where visitors would reasonably expect to see announcements on environmental projects. Kurion shall also post all non-confidential written notifications of intent to operate (described in Condition 9(c)(2)) on the same web page as the approval. Both the approval and the non-confidential notifications of intent to operate shall remain posted until 60 days after:
  - A. This approval is terminated and permanent closure has been completed in accordance with Condition 17;
  - B. This approval expires (provided Kurion has not followed the procedures described in Condition 23 to allow the approval to continue in force); or
  - C. The unit is closed in accordance with Condition 17.

10. PCB Spills

In the event Kurion believes, or has reason to believe, that a spill (as defined in the EPA's PCB Spill Cleanup Policy in 40 CFR 761.123) of PCBs has, or may have, occurred from any activities or devices related to Kurion's GeoMelt ICV unit or from storage units and their connecting equipment (e.g., containers, forklifts) feeding into Kurion's GeoMelt ICV unit, Kurion shall notify the Regional PCB Coordinator and the ORCR HQ contact identified in Condition 13 by phone immediately after initial response actions have been taken to ensure the protection of human health and the environment. Kurion shall control and clean up any spills of PCBs or other fluids as provided in the Spill Prevention, Control and Countermeasure Plan provided in the application.

In addition, Kurion shall submit a written report to the appropriate Regional PCB Coordinator and the Director of ORCR 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 Kurion implemented to prevent such spills from occurring in the future. Kurion may submit the report specified by Condition 11(g) in place of the spill report described in this condition.

Kurion shall not feed any PCB material into Kurion's GeoMelt ICV unit until the cause of the spill has been determined and corrected to the satisfaction of the EPA. Kurion shall not resume PCB treatment operations until written or emailed approval is received from the ORCR HQ contact identified in Condition 13.

Kurion shall also report PCB spills in accordance with applicable federal, state, and local requirements.

11. Health and Safety

- a) Kurion shall maintain and operate its GeoMelt ICV unit 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 human health or the environment.

- b) Kurion shall take all necessary precautionary measures to ensure the operation of the GeoMelt ICV unit 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. Kurion shall report by phone to the Regional PCB Coordinator and the ORCR HQ contact identified in Condition 13 by the end of the business day immediately following any incident that resulted in any lost-time injury occurring as a result of Kurion's GeoMelt ICV equipment or operations. Kurion shall submit a written report describing the incident to the Director of ORCR and ORCR HQ contact within five (5) business days.
- c) At all times, Kurion 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.
- d) Kurion 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.
- e) Site-Specific Safety Plan

Before treating any PCB-contaminated soil, waste, and debris, Kurion shall develop and maintain at the facility a site-specific safety plan for the activities covered by this approval. Kurion shall also provide a copy of the site-specific safety plan to the emergency coordinator of the facility where Kurion intends to operate prior to Kurion's GeoMelt ICV unit arriving at the facility. Kurion shall notify the facility where it will operate of the possible fire hazards associated with Kurion's GeoMelt ICV unit. At a minimum, Kurion shall include the following site-specific information in each site-specific safety plan:

- 1) Scope of work (description of the treatment process, maximum volume of contaminated soil, waste, and debris that might be found at any given time within Kurion's GeoMelt ICV unit or in directly associated storage containers, and any hazardous materials to be used);
- 2) Project personnel, including roles, responsibilities and qualifications, name of on-site safety coordinator, and name(s) of any on-site cardiopulmonary resuscitation (CPR)/First-Aid certified person(s);
- 3) Emergency contact information, including local authorities (e.g., local fire and police departments) and nearest medical facility that would accept patients contaminated with chemicals;
- 4) Hazard identification (e.g., potential for reactions/fires) and control/mitigation measures;



- 5) Names of all chemicals used at the facility where the GeoMelt ICV unit will be located along with approximate quantities and the corresponding safety data sheets (SDS);
- 6) Emergency action plan(s) specifying the following:
  - A. Contact information – project and property management, and the persons responsible for handling emergencies (with 24-hour a day contact in the event of an emergency), including both phone numbers and email addresses;
  - B. Evacuation plan(s);
  - C. Response procedures for reasonable emergency scenarios
  - D. First aid location(s);
  - E. Eye-wash station location(s);
  - F. Fire extinguisher location(s);
  - G. Location of SDS;
  - H. Flammable storage area(s); and
  - I. Smoking/non-smoking areas.

Kurion shall submit a copy of the site-specific safety plan to the ORCR HQ contact identified in Condition 13 or the applicable EPA Regional office upon request. Kurion shall immediately revise the site-specific safety plan if any of the relevant information in this approval or the safety plan itself changes.

f) Emergency Coordinator

Kurion shall, at all times, have at least one designated employee either at the operating site premises or on call (i.e., available to respond to an emergency by reaching the operating site 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 GeoMelt ICV unit's site-specific safety plan, operations and activities at the site, the location and characteristics of waste handled, and the facility layout, including the hazards associated with the facility location where the unit is operated.

g) Emergency Procedures

- 1) 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:

- A. Activate internal facility alarms or communication systems, where applicable, to notify all facility personnel; and
- B. Notify appropriate Federal, State and/or local emergency response entities (e.g., fire departments) if their help is needed.

The Emergency Action Plan described in Condition 11(e)(6) should be used as a resource to expedite the emergency coordinator's response.

- 2) 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 identify the character, exact source, amount, and real extent of any released materials. The emergency coordinator shall also 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).
- 3) If the emergency coordinator determines that the GeoMelt ICV unit has had a release of PCBs or emergency incident which presents or may present an unreasonable risk of injury to health or the environment outside the site or facility, he/she must report the findings as follows:
  - A. If the assessment indicates that evacuation of local areas may be advisable, the emergency coordinator shall immediately notify appropriate local authorities; and
  - B. The emergency coordinator shall immediately notify either the government official designated as the on-scene coordinator for that geographical area, or the National Response Center (using their 24-hour toll free number 1-800-424-8802). The notification must include:
    - i. Name and telephone number of reporter;
    - ii. Name and address of facility;
    - iii. Time and type of incident (e.g., release, fire);

- iv. Name and quantity of material(s) involved, to the extent known;
  - v. The extent of injuries, if any; and
  - vi. The possible hazards to human health, or the environment, outside the facility.
- 4) During an emergency, the emergency coordinator shall coordinate with the facility emergency coordinator and take all reasonable measures necessary to ensure that releases or emergency incidents do not recur or spread to other PCB waste at the operating site. These measures must include, where applicable and when possible, safely shutting down the GeoMelt ICV unit, collecting and containing released waste removing or isolating containers and equipment, and other measures that can be implemented to protect health and the environment.
  - 5) The emergency coordinator shall coordinate with the facility's emergency coordinator to assess if any facility operations/processes need to be suspended or if any immediate measures should be taken to minimize the risk of injury (e.g. from the release of toxics or the spread of fire) that could occur due to the nature of facility operations and chemicals/products stored at the facility.
  - 6) Immediately after a release or emergency incident has been contained, Kurion shall provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release or emergency incident at the facility.
  - 7) Kurion shall notify the Regional PCB Coordinator and the ORCR HQ contact identified in Condition 13 of the release or emergency incident by phone immediately after initial response actions have been taken to ensure the protection of human health and the environment.
  - 8) Kurion shall submit a written report to the appropriate EPA Regional PCB Coordinator, ORCR HQ contact, and the Director of ORCR no later than 15 business days after the emergency incident occurred that describes the: a) incident; b) cause(s) of the incident, c) operations that were being conducted prior to, and during, the emergency; d) cleanup actions conducted; and e) changes in operations that Kurion implemented or will implement to prevent such incidents from occurring in the future.
  - 9) Kurion shall not feed any PCB material into the GeoMelt ICV unit until the cause of the emergency incident has been determined and corrected to the satisfaction of the EPA. Kurion shall not resume PCB treatment operations until written or emailed approval is received from the ORCR HQ contact identified in Condition 13.
  - 10) Kurion shall also report PCB emergency incidents in accordance with applicable federal, state, and local requirements.

h) Fire Suppression System

If operating indoors, Kurion shall locate and operate its GeoMelt ICV unit only at a facility that 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 Kurion's GeoMelt ICV unit 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 Kurion to evaluate whether the fire suppression system is appropriate to address the specific hazards based on the design and location of Kurion's GeoMelt ICV unit at the facility. Kurion also shall only operate in a building that is in compliance with applicable federal, state, and/or local fire suppression requirements.

i) Fire Detection System

If operating indoors, Kurion is only permitted to locate and operate its GeoMelt ICV 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. Kurion's GeoMelt ICV 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.

j) Fire Extinguishers

Kurion 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 Kurion's GeoMelt ICV unit. Labeling shall be based on the compatibility of the extinguisher with the fire hazard and shall be available at the GeoMelt ICV 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 Kurion's GeoMelt ICV unit and the wastes that it treats. All fire extinguishers shall have the following:

- 1) Annual inspection tag;
- 2) A gauge indicating fully charged;
- 3) Pin with security seal; and
- 4) Instructions on how to use.

k) Treatment Unit Placement

The GeoMelt ICV unit shall be located at an adequate safety distance so that operations will not pose unreasonable risk of injury to health or the environment. For

example, the GeoMelt ICV unit shall be located at least 20 feet away from any storage area for flammable or combustible materials (e.g., flammable liquid storage tanks or drums) or the minimum necessary to prevent releases and emergency incidents, whichever is greater. The GeoMelt ICV unit shall not be placed in or next to a sensitive ecosystem if the treatment unit is operated outdoors.

12. Security

Kurion shall ensure its GeoMelt ICV unit is secure (e.g., with a fence, alarm system, signage) such that only those individuals authorized to conduct operations and approved visitors are allowed in the area of Kurion's GeoMelt ICV unit regardless of whether the unit is operating.

13. Notifications and Reports

Notifications or reports required to be mailed to the Director of ORCR shall be mailed to: Director of ORCR, 1200 Pennsylvania Avenue N.W., Mailcode: 5301P, Washington, D.C. 20460. For electronic submission to the Director of ORCR or ORCR HQ contact, Kurion shall email the information to [ORCRPCBs@epa.gov](mailto:ORCRPCBs@epa.gov). Whenever practical, email is preferable to phone and mail communication, except where specified otherwise.

Phone numbers for the EPA Regional PCB Coordinators can be found on the following website: <https://www.epa.gov/pcbs/epa-regional-polychlorinated-biphenyl-pcb-programs>. The ORCR HQ contact is Karen Swetland-Johnson, 703-308-8421 or [ORCRPCBs@epa.gov](mailto:ORCRPCBs@epa.gov).

14. Agency Approvals/Permits:

Operation of Kurion's GeoMelt ICV unit may not commence until Kurion and/or the facility has obtained all required approvals/permits from federal, state, and local government entities, including the Nuclear Regulatory Commission. Kurion shall not operate the GeoMelt ICV unit at the facility unless Kurion has verified that both Kurion and the facility (as applicable) have been granted any necessary approvals/permits. Once Kurion has verified that both it and the facility (as applicable) have been issued all required approvals/permits, Kurion shall document that verification in its operating records, which are described in Condition 8(a).

15. Personnel Training

Kurion shall ensure that personnel directly involved with the operation of the GeoMelt ICV unit are familiar with the requirements of this approval.

a) In this regard, Kurion shall keep copies of the following documents with the GeoMelt ICV unit at all times:

1) This operating approval;

- 2) Kurion's operating approval application;
  - 3) Kurion's demonstration test approval request and associated demonstration test approval issued by the EPA;
  - 4) The Spill Prevention, Control and Countermeasure Plan; and
  - 5) Kurion's sampling and analytical procedures.
- b) Kurion shall also maintain a copy of the sampling and analytical procedures in the laboratory conducting the analyses. At a minimum, Kurion shall train personnel on the following:
- 1) The type of material which may be treated using Kurion's GeoMelt ICV unit, and the upper PCB concentration limits for the material which may be treated;
  - 2) The recordkeeping, notification and reporting requirements identified in Condition 8 required by this approval, and the location of records and retention times;
  - 3) The handling and/or PCB waste disposal requirements as described in Conditions 4, 5, and 7 for process waste and other materials generated during the operation of Kurion's GeoMelt ICV unit;
  - 4) The safety, operating, and maintenance procedures;
  - 5) The procedures for using, inspecting, repairing, and replacing Kurion's (and the facility's, if applicable) emergency and monitoring equipment, with an emphasis on the fire suppression equipment; and
  - 6) The Spill Prevention, Control and Countermeasure Plan.

16. Waste and Equipment Transport Between Jobs Sites

Kurion shall not transport untreated PCB-contaminated material off-site in Kurion's GeoMelt ICV unit. Kurion shall comply with any applicable U.S. Department of Transportation (US DOT) requirements in 49 CFR part 172 when transporting PCB-contaminated equipment (e.g., reactors, tanks) off-site on the unit. Kurion shall comply with applicable marking requirements for PCB containers in 40 CFR 761.40 and decontaminate the unit by:

- a) Rinsing all hoses and pipes with clean solvent three times prior to transporting the GeoMelt ICV unit from the site and treating the spent solvent in accordance with Condition 7; or
- b) Flushing all hoses and pipes with liquids containing PCBs in concentrations less than 50 ppm into the reactor of Kurion's GeoMelt ICV unit and treating the flushed liquids in accordance with Condition 7.

17. Closure Cost Estimate and Plan, Financial Assurance, and Permanent Closure

a) Closure Cost Estimate and Plan

- 1) Prior to issuance of this approval, Kurion submitted to ORCR a written closure plan and closure cost estimate that identified the steps and quantified the estimated costs for the activities Kurion shall conduct to permanently close the GeoMelt ICV unit. The provisions of 40 CFR 761.65(e)(4)-(8) and (f)(2)-(4) shall apply, except as otherwise provided in the Conditions of this approval.
- 2) The EPA may require Kurion to adjust the closure plan or closure cost estimate to ensure there would be no unreasonable risk of injury to health or environment.

b) Financial Assurance

- 1) Financial assurance shall be obtained by Kurion and submitted to the Director of ORCR 60 days prior to commencing PCB treatment operations at any facility and maintained until closure activities have been completed. Kurion shall apply the financial assurance requirements in § 761.65(g) for commercial storage facilities to its GeoMelt ICV unit and comply with such requirements. Kurion shall not operate its GeoMelt ICV unit without the necessary financial assurance. 40 CFR 761.65(g) references the financial assurance mechanisms specified in of 40 CFR 264 subpart H of the Resource Conservation and Recovery Act regulations. Kurion may choose any of the financial assurance mechanisms or combination of mechanisms provided for in the regulations. The EPA may require variations in the wording of the instruments from that found at § 264.151.
  - 2) Kurion shall provide evidence of the increased value of the financial assurance mechanism whenever necessary (e.g. annual inflation adjustment, change in closure cost estimate triggered by modification of closure plan) as required in § 264.143, which is incorporated by reference in § 761.65(g).
  - 3) Kurion shall also obtain financial assurance for the compensation of third parties for bodily injury and property damage caused by sudden and nonsudden accidental occurrences from, or related to, Kurion's GeoMelt ICV unit operations by complying with the RCRA regulations that address third-party financial assurance liability requirements (i.e., § 264.147).
- c) If Kurion wishes to change the closure plan, closure cost estimate, or financial assurance mechanisms due to factors other than inflation, Kurion shall submit an adjusted plan, cost estimate, or financial assurance mechanism (as applicable) to the ORCR HQ contact. EPA will review the change(s) and may require Kurion to revise the adjusted closure plan, closure cost estimate, or financial assurance mechanism prior to approving it.

d) Permanent Closure

- 1) Failure to submit a request for renewal as described in Condition 23 will be treated as evidence of intent to close Kurion's GeoMelt ICV unit. If Kurion does not submit a request for renewal before the time specified in Condition 23, Kurion shall initiate closure procedures within 60 days of the last treatment of soil, waste, and debris containing PCBs  $\geq$  50 ppm by Kurion's GeoMelt ICV unit.
- 2) In the event that Kurion ceases operations of its GeoMelt ICV unit prior to the date of expiration of this Approval or any renewal granted pursuant to Condition 23, Kurion shall initiate closure procedures within 60 days of the last treatment of PCB-contaminated soil, waste, and debris by the GeoMelt ICV unit.
- 3) Kurion shall notify the Director of ORCR, in writing, at least 60 days prior to the date on which final closure of its GeoMelt ICV unit is expected to begin (see § 761.65(e)(6)(i)).
- 4) Within 60 days of completion of closure of Kurion's GeoMelt ICV unit, Kurion shall submit by registered mail, a certification to the Director of ORCR that the GeoMelt ICV unit has been closed in accordance with the closure plan (see § 761.65(e)(8)).
- 5) During the closure activity period, Kurion shall dispose of all contaminated system component equipment in accordance with the disposal requirements of 40 CFR 761 subpart D or decontaminate the equipment in accordance with § 761.79.
- 6) Kurion shall submit records to the Director of ORCR within 90 days of concluding closure as required in Condition 8(c).

18. Ownership Transfer

- a) If Kurion intends to transfer ownership of Kurion's GeoMelt ICV unit and the transferee wants to operate the GeoMelt ICV unit under the same or similar terms as this approval, Kurion shall notify the Director of ORCR, in writing, at least 90 days before transferring ownership of Kurion's GeoMelt ICV unit. Kurion shall also submit to the Director of ORCR, at least 90 days before such transfer, a notarized affidavit signed by the transferee that states the transferee is seeking an approval to operate the GeoMelt ICV unit. Failure of Kurion to provide the EPA with this required written documentation of the transfer within the specified time frame would be a violation of this approval and the approval would immediately terminate upon the transfer of ownership.
- b) After receiving notification the EPA may:
  - 1) Issue an amended operating approval substituting the transferee's company name for Kurion's name;
  - 2) Require the transferee to conduct a demonstration test and/or apply for a new PCB disposal approval by either submitting a complete operating approval request or a partial application request (e.g., that focuses on information that demonstrates



the transferee has the ability to comply with the terms and conditions of this approval, such as a summary of company personnel qualifications and previous training that are relevant to complying with the terms and conditions of this approval, or a summary of previous compliance history, if applicable); or

- 3) A combination thereof.
- c) So that there will be no lapse in financial assurance for the transferred facility, the transferee shall establish financial assurance for closure compliant with Condition 17 and submit it to the ORCR HQ contact before the approval will be amended to transfer ownership. The transferee must select one of the financial assurance mechanisms listed in the PCB regulations at § 761.65(g). The EPA may require variations in the wording of the instruments from that found at § 264.151. The financial assurance mechanism must be effective as of the date of final approval of the transfer (i.e., the date the amended approval is signed by the Director of ORCR).
- d) The transferee shall not operate the mobile unit unless the EPA either has amended this approval to allow for such operation or has issued a new approval to the transferee.

19. Additional Unit(s)

- a) Kurion shall only conduct PCB treatment operations, under the conditions of this approval, with the GeoMelt ICV unit used in the October 2009 demonstration test. Kurion shall not conduct PCB treatment operations in other GeoMelt ICV units not covered by this approval until Kurion submits a request to the Director of ORCR to modify this approval (i.e., to add the new GeoMelt ICV unit(s) to this approval) and Kurion receives approval from the Director of ORCR. Kurion may conduct an EPA approved demonstration test, if required, however, prior to receiving approval to conduct PCB treatment operations in the new GeoMelt ICV unit(s).
- b) Requests under Condition 19(a) to modify this approval shall include a written pre-operation report containing, at a minimum, the following information:
  - 1) Date of manufacture of the new GeoMelt ICV unit;
  - 2) Identification and/or serial number of the new GeoMelt ICV unit;
  - 3) Certification by an independent, registered professional engineer that the new GeoMelt ICV unit is substantially identical to the original GeoMelt ICV unit in terms of engineering design, hardware, process capacity, quality and workmanship;
  - 4) Certification by the Chief Executive Officer of Kurion that the construction of the new GeoMelt ICV unit has been completed in compliance with Condition 19(b)(3); and

- 5) A list of all non-substantive changes made to the design and construction of the new GeoMelt ICV unit which are not identical to the original GeoMelt ICV unit (i.e., changes made to the unit even though the unit is considered substantially identical as described in Condition 19(c) above).
- c) The EPA, at its discretion, may:
- 1) Request additional information about the new GeoMelt ICV unit(s);
  - 2) Require Kurion to conduct a demonstration test for the new GeoMelt ICV unit(s) prior to making a determination on the modification request to ensure the new GeoMelt ICV unit(s) is capable of complying with the terms and conditions of this approval;
  - 3) Approve the modification request by relying on engineering information and other data/information provided in Condition 19(a) and (b) and determine demonstration testing is not required prior to, or after, the new GeoMelt ICV unit begins treatment operations; or,
  - 4) Deny Kurion's approval modification request to add a new GeoMelt ICV unit to this approval because the EPA, based on available data and information, concludes the new GeoMelt ICV unit is not capable of, or has not demonstrated the capability of, achieving the required performance standards and operating in a manner that does not present unreasonable risk of injury to health and the environment.

20. Process/Equipment Modifications

Kurion shall not make major modifications (e.g., changes of engineering design, ancillary hardware, or process capacity) to its GeoMelt ICV unit prior to receiving written approval from the Director of ORCR. If Kurion desires such major modifications, Kurion shall submit an approval modification request to the Director of ORCR. The Director may, depending on the nature of the major modification request, require Kurion to conduct a demonstration test to ensure the GeoMelt ICV unit continues to be in compliance with the applicable performance standards included in this approval and to ensure the GeoMelt ICV unit continues to operate in a manner that does not present unreasonable risk of injury to health and the environment.

21. Unit Operators

Operation of Kurion's GeoMelt ICV unit shall be managed and overseen by a qualified Kurion employee during all times the GeoMelt ICV unit is operated.

22. Approval Expiration Date

This approval shall become effective upon signature of the Director of ORCR and expire five (5) years from the date the approval becomes effective except as otherwise specified below.

### 23. Approval Renewal

If Kurion intends to continue to operate beyond the expiration date of this approval, Kurion shall submit a complete approval renewal application request to the Director of ORCR at least 180 days prior to the expiration date of this approval. Upon submission of a complete approval renewal application, EPA will inform Kurion 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 Kurion submits this information to the Director of ORCR 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. Kurion shall not operate under revised operating conditions until the EPA issues Kurion a fully renewed, and revised, operating approval. If Kurion does not submit this information to the Director of ORCR in accordance with the stated deadlines, this approval will expire as specified in Condition 22.

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. For example, if Kurion is seeking approval to treat another type of PCB material or soil containing concentrations of PCBs  $\geq 30,000$  ppm, the approval application and demonstration test plan shall reflect those changes.

The EPA may require Kurion to conduct another demonstration test to assure the EPA that Kurion will continue to operate its GeoMelt ICV unit in accordance with the applicable performance standards and in a manner that does not present an unreasonable risk of injury to health or the environment. As a result, Kurion is encouraged to contact the ORCR HQ contact identified in Condition 13 in advance of 180 days prior to the expiration date of this approval if Kurion intends to renew this approval in order to ascertain whether the EPA would require Kurion to conduct a new demonstration test. This is especially important if Kurion wants to make changes to its operating parameters.

### 24. Mobile versus Permanent Operation

This approval is for mobile operation of Kurion's GeoMelt ICV unit. If Kurion operates the GeoMelt ICV unit at a facility for 180 cumulative days or longer within any year, then such operations are considered permanent operations requiring a separate approval, with the following exception. Kurion may, pursuant to the provisions in Condition 24(b), request the EPA to waive the requirement to obtain a separate approval for permanent operations and, if approved, instead operate pursuant to the terms and conditions of this approval and other applicable requirements discussed in Condition 24(b).

- a) Advance Notification and Approval Process for Transitioning From Approved Mobile Operations to Approved Permanent Operations

The following requirements are applicable only if Kurion intends to operate the GeoMelt ICV unit at a site for greater than 180 cumulative days in a year, and apply irrespective of whether Kurion, pursuant to the provisions in part (a)(2) of this Condition, requests the EPA to waive the requirement to obtain a separate approval for permanent operations:

- 1) Notification Requirements Prior to Transitioning from Approved Mobile Treatment Operations to Approved Permanent Treatment Operations
  - A. Kurion shall provide advance written notification of their proposed intent to change to permanent operating status at least 90 days prior to the 180<sup>th</sup> cumulative day of operations to the Director of ORCR and the EPA Regional PCB coordinator.
  - B. This notification shall indicate whether Kurion anticipates conducting operations in more than one EPA Region after leaving the permanent operations facility. If Kurion anticipates conducting operations in more than one EPA Region after leaving the permanent operations facility, Kurion shall include in the notification whether such anticipated treatment activities will use:
    - i. The GeoMelt ICV unit covered by this approval;
    - ii. New GeoMelt ICV units that are identical to the unit covered by this approval; or
    - iii. New GeoMelt ICV units that are designed differently than the unit covered by this approval.

Kurion's future operating plans can impact whether the permitting authority will be EPA HQ or the EPA Region pursuant to § 761.60(e). § 761.60(i) also gives the EPA the discretion to assign the authority to review and approve any aspect of a disposal system to the Director of ORCR in EPA HQ or to the RA.

- 2) Approval Requirements and Process for Transitioning from Approved Mobile Operations to Approved Permanent Operations
  - A. Kurion shall not operate for more than 180 cumulative days in a year at a facility without first obtaining a separate approval from the applicable EPA approval issuance authority to operate a permanently-based unit.
  - B. In such situations, Kurion shall submit a demonstration test plan, a demonstration test report (if required by the applicable EPA approval issuance authority), and an approval application for permanent operations to the Director of ORCR and the appropriate Regional PCB Coordinator for approval.

C. Requirements described in parts (a)(2)(A) and (a)(2)(B) of this Condition do not apply if Kurion operates pursuant to a waiver described in part (b) of this Condition.

b) Requirements and Process to Waive the Requirements in Part (a)(2) of this Condition

1) Waiver Request

A. Kurion may request EPA to waive the requirements in parts (a)(2)(A) and (a)(2)(B) of this Condition. If Kurion is submitting such a request, Kurion shall submit the request with the notification provided pursuant to part (a)(1) of this Condition or in a separate transmittal to the Director of ORCR at least 90 days prior to the 180<sup>th</sup> cumulative day operating at a particular facility.

B. If, pursuant to part (b)(1)(A) of this Condition, Kurion submits a request to the EPA to waive the requirements in parts (a)(2)(A) and (a)(2)(B) of this Condition and also submits notice pursuant to part (b)(1)(A), and the EPA has not yet made a determination on Kurion's request to waive the requirements in parts (a)(2)(A) and (a)(2)(B) of this Condition, then Kurion may continue operating after the 180<sup>th</sup> cumulative day at a facility pursuant to the conditions of this approval while the EPA processes Kurion request, provided that:

i. Kurion maintains and adjusts its required financial assurance coverage based on a revised cost estimate (if necessary) or based on the need to obtain a new or revised financial assurance instrument due to prolonged operations at the facility, consistent with the requirements in Condition 16; and

ii. Kurion submits, in a timely manner, additional information requested by EPA to ensure no unreasonable risk of injury to health or the environment. This information may include, but is not limited to:

(1) A facility description,

(2) A list of personnel that will be operating the GeoMelt ICV unit and their position titles,

(3) An updated summary of disposal activities to be conducted at the facility,

(4) A new, updated, or more detailed safety measure description,

(5) Emergency preparedness and contingency plans,

(6) Information relating to PCB waste transportation routes to the GeoMelt ICV unit, if applicable, and

(7) An exposure/hazard assessment.

- C. If the EPA has not yet made a determination on the waiver request as described later in part (b)(3)(A) of this Condition, and if Kurion's operating time at the facility encompasses this approval's expiration date and Kurion wants to renew this operating approval, then Kurion shall, consistent with the requirements in Condition 23, submit renewal applications to both the Director of ORCR and the RA no later than 180 days prior to this approval expiration date, unless EPA directs Kurion to submit the renewal applications to one and not the other.
- D. If the EPA decides, pursuant to part (b)(2) of this Condition, to require public notification and participation due to the change in operating status at the facility, the EPA may allow Kurion to continue to operate while the public participation process is occurring, so long as Kurion is following all other applicable requirements related to operating pursuant to the waiver request.
- E. If granted, such a waiver does not release a facility from any regulatory requirements to obtain other TSCA PCB approvals (e.g., a commercial storage approval).

## 2) Public Participation

The EPA may require Kurion to conduct public participation activities prior to making a determination on the waiver request. If the EPA notifies Kurion that public participation is required, the EPA may require Kurion to make relevant documents, such as updated facility evaluations and updated approval applications, available to the public. The public participation activities may include providing a public notice to the community via an established treatment facility public mailing list or an ad in a local newspaper and conducting a public meeting using procedures similar or identical to those described in § 270.42(b)(2-5). The EPA may also, based on the level of interest or anticipated level of interest, require Kurion to, in addition to the activities discussed above, hold a public hearing using procedures similar to those described in §§ 124.12(a)(1), (2) and (4) and 124.12(b), (c) and (d).

## 3) EPA Decision on a Waiver Request

### A. The EPA may:

- i. Approve the waiver request and allow Kurion to continue to operate pursuant to the conditions of this approval;
- ii. Approve the waiver request and allow Kurion to continue to operate pursuant to modified conditions of this approval; or
- iii. Deny Kurion's waiver request.

B. If the EPA approves the waiver request and allows Kurion to continue to operate pursuant to modified conditions of this approval, the EPA may allow for a transition period in which Kurion may operate pursuant to the conditions of this approval for a predetermined time before Kurion becomes subject to the revised approval conditions.

4) **Renewing an Approval That Allows Kurion to Operate Pursuant to the Waiver Provisions**

If the EPA issues Kurion a waiver as described in part (b)(3) of this Condition and Kurion anticipates continuing to operate pursuant to the waiver (and this approval) after the expiration date of this approval, Kurion shall comply with the requirements of Condition 23 and may continue operating beyond the expiration date if the requirements of Condition 23 are met.

c) **Transitioning Back to Mobile Operation Status after Approved Permanent Operations Have Concluded**

- 1) Kurion shall submit a notification 45 days in advance of mobilization to both the Regional EPA Administrator and the Director of ORCR if Kurion would like to resume mobile operations.
- 2) Prior to mobilization, Kurion shall comply with any applicable closure and decontamination requirements that are specified in the waiver and the applicable operating approval.
- 3) The EPA may modify this approval based on information that becomes available prior to allowing Kurion to transition from permanent operation status to mobile operation status. Kurion may also request the EPA to modify certain approval conditions that may not be appropriate or necessary for mobile operations.
- 4) If Kurion anticipates transitioning back to mobile operation status after the expiration date of this approval, Kurion shall submit a renewal application to the EPA no later than 180 days prior to the expiration date of this approval if they wish to ensure they can operate pursuant to this approval in the event the EPA does not make a final decision on the renewal application prior to this approval's expiration date.

DECISION TO APPROVE KURION'S REQUEST TO CONDUCT PCB TREATMENT OPERATIONS

1. Approval to dispose of PCBs is hereby granted to Kurion, Inc. (Kurion), of Richland, Washington, subject to the conditions expressed in this approval and consistent with the materials and data included in the application and demonstration test plan and report submitted to the EPA by Kurion.
2. The EPA finds that Kurion's GeoMelt ICV unit achieves a level of performance equivalent to a TSCA PCB incinerator and finds that, as reflected in the performance test results and as a result of the design aspects of the treatment system and the operating parameters and safety requirements included in this approval, the treatment unit operations will not present an unreasonable risk of injury to health or the environment when operated in accordance with applicable regulations and the conditions of this approval.
3. The EPA reserves the right to impose additional conditions or revoke this approval when it has reason to believe that Kurion's GeoMelt ICV unit is not achieving the relevant performance standards; continued operation of Kurion's GeoMelt ICV unit presents 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.


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

4. Any departure from the conditions of this approval or the terms expressed in the application must receive prior written authorization from the Director of ORCR.
5. Kurion shall be responsible for the actions of its employees and contractors that operate or assist in the operation of its GeoMelt ICV unit when those actions are related to performance of the GeoMelt ICV unit, including operating or moving the equipment.
6. Kurion shall assume full responsibility for compliance with this approval and all federal, state and local requirements that apply to Kurion's operation of the GeoMelt ICV unit, including, but not limited to, any malfunction, spill, pollutant release, incident, or other reporting requirements.
7. The EPA reserves the right for its employees or agents to inspect Kurion's PCB treatment/disposal activities associated with the GeoMelt ICV unit at any location at any reasonable time.



8. Violations of any applicable regulations or conditions of this approval 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 also 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.

1/25/2017  
Date

  
Barnes Johnson  
Director  
Office of Resource Conservation and Recovery

## APPENDIX I

### COMPANY BACKGROUND

In 1995, Geosafe Corporation received a national TSCA approval to use the GeoMelt technology to treat PCBs using an in-situ application. In 2000, AMEC acquired worldwide exclusive rights to the GeoMelt technology from Geosafe Corporation. Also in 2000, the existing TSCA permit was renewed and transferred to AMEC. On November 26, 2007, AMEC submitted a demonstration test plan, "(Preliminary) Demonstration Test Plan PCB Destruction Unit GeoMelt In-Container Vitrification, Oak Ridge, TN" requesting authorization to conduct a field demonstration test of their GeoMelt ICV PCB mobile destruction unit at the Impact Services, Inc. site located at the East Tennessee Technology Park (ETTP), near Oak Ridge, Tennessee, during the first half of calendar year 2008. However, during that year the GeoMelt technology was pursued by several potential buyers and the demonstration test to renew the TSCA authorization was put on hold. In March 2009, Impact Services, Inc. purchased the GeoMelt business from AMEC, including all rights under the license to the GeoMelt technology, which caused a delay in completing the demonstration. Directly after the purchase of the GeoMelt business, Impact continued the process of renewing the GeoMelt TSCA approval.

In October 2009, Impact Services, at their facility in Richland, Washington, conducted a demonstration test in the presence of EPA ORCR and Region 10 representatives to verify the capability of its mobile ICV unit, in accordance with applicable TSCA requirements, to treat/destroy liquid PCBs that were absorbed by a solid. Results of the demonstration are included in the document entitled "Final Report of Demonstration GeoMelt In-Container Vitrification Treatment of Polychlorinated Biphenyls," dated March 3, 2010.

On June 3, 2012, ORCR was notified that the GeoMelt Division of Impact Services was purchased by the Kurion Corporation on May 17, 2012. A name change in the approval was requested. Kurion, Inc., located in Richland, Washington, services the power distribution equipment needs of entities such as municipalities, industrial companies, and military installations.

ORCR was notified that on April 14, 2016, Kurion was acquired by Veolia. With over 174,000 employees worldwide, the Veolia group designs and provides water, waste, and energy management solutions. Kurion will retain its existing management team and will be part of Veolia's Global Enterprises zone.

## APPENDIX II

### PROCESS DESCRIPTION

#### **GeoMelt Technology**

The Kurion GeoMelt ICV unit is a mobile treatment unit designed to treat/destroy PCBs in contaminated soil. Components of the GeoMelt ICV unit include the following:

1. ICV container and hood;
2. Power supply system; and
3. Off-gas treatment system.

#### Process Description

The GeoMelt ICV process is a repetitive batch treatment process in which a predetermined volume of contaminated soil is thermally treated in a refractory-lined container. The container may be re-used for subsequent melts or disposed of after a melt. The GeoMelt ICV process uses Joule heating to raise the contaminated soil waste matrix above its melting point and convert it to an inert and stable glass-like product.

To initiate the GeoMelt ICV process, four electrodes (typically) are inserted into the ICV container (through the off-gas hood) in a square pattern. The off-gas hood is then secured over the container, which is maintained at negative pressure during processing, the electrical cables are attached to the electrodes, and the power supply system is activated. Electric current passes through the soil/waste matrix and begins melting the matrix. During the melt process, organic contaminants contained in the soil/waste matrix are either destroyed in place by pyrolysis or dechlorination reactions, or captured and/or treated/destroyed in the off-gas treatment system (OGTS). Non-volatile and semi-volatile inorganics are dissolved to solubility limits during processing and are retained in the melt. Any remaining inorganic residuals are captured and processed in the OGTS.

The OGTS filters, scrubs, cools and thermally treats the captured exhaust emissions prior to release into the environment. The OGTS consists of (in series): hood, baghouse, high-efficiency particulate arrestance (HEPA) prefilters, venturi scrubber, hydro-sonic scrubber, process scrub tank and recirculation pumps, water separator, heater to prevent condensate carryover, final HEPA filter bank, process off-gas blower fan to create pressure drop across entire OGTS system, and thermal oxidizer for polishing. Kurion does not anticipate that the scrub water will require permitting for disposal.

#### Sequence of Events at Unit Startup

- An off-gas containment hood is installed on the top of the melt container to collect vapors and gases generated by the melting process.
- A flow of electrical current is initiated between the electrodes through the starter path.
- The current flow in the path melts surrounding glass formers.
- During processing, off-gases are drawn from the off-gas containment hood for treatment by the OGTS.

- The electrical current flow is maintained typically for two to three days until the contents of the container are processed. Completion is determined by temperature sensors (thermocouples) embedded in the sides and bottom of the melt container's liner.
- The melt is allowed to cool and solidify.
- The hood is removed, the electrodes uncoupled, and a lid installed on the container.
- The container with the vitrified waste material is prepared for disposal or the vitrified product is removed for disposal separately and the container is prepared for re-use.

Many of the operating parameters for the GeoMelt ICV mobile unit are computer controlled and continuously monitored by the distributed control system. Should a malfunction occur that requires termination of the melt operation, an operator will shut off power at the transformer, either by using the emergency shut-off switch or by powering down the electronic potentiometers and opening the disconnect.

APPENDIX III

SUMMARY OF DEMONSTRATION TEST RESULTS  
FOR THE GEOMELT IN CONTAINER VITRIFICATION PROCESS

PCB Demonstration Information, September 21-23, 2009

OPERATING CONDITIONS

Total cubic meters of soil/feed treated	5.09 m <sup>3</sup>		
Total kilograms of soil/feed treated		7345 kg	
Layer #1 volume and mass	0.34 m <sup>3</sup>	515 kg	
Layer #2 volume and mass	0.34 m <sup>3</sup>	515 kg	
Layer #3 volume and mass	0.34 m <sup>3</sup>	515 kg	
Concentration of pyranol (spiking solution)		530,000 ppm	
Average concentration of PCBs in feed		40,000 ppm as determined by Impact	
Melt temperature in ICV unit, range		1000-1300°C	
Thermal oxidizer temperature, average		870°C	

<u>Parameters</u>		<u>LAYER 1</u>	<u>LAYER 2</u>	<u>LAYER 3</u>
Soil PCB Level, ppm	(Impact <sup>2</sup> )	45,000	35,000	40,000
	(EPA Lab)	23,224	24,761	22,794

Average soil PCB level as determined by an average of EPA sample results, ppm 23,583

Post-Test PCB in Vitrified waste material, ppm 7.62E-04 1.37E-05 4.70E-06

**From the 0010 MM5 Train**

PCB Stack Emissions, kg/hr	5.10E-08	1.49E-09	9.64E-09
PCB DRE	>99.9999896%	>99.9999948%	>99.9999949%
Isokinetic rate	94%	103%	109%
Average PCB Stack Emission as determined by EPA sample results, kg/hr			1.78E-08

**From the 0023A (Dioxin) Train in Run 1**

PCB Stack Emissions, kg/hr	4.47E-08	7.26E-09	6.61E-09
PCB DRE, %	>99.999990%	>99.999994%	>99.999994%
Isokinetic rate, %	90%	98%	102%
Average PCB Stack Emission as determined by EPA sample results, kg/hr			1.95E-08

<sup>2</sup> At the time of the demonstration, the GeoMelt ICV Mobile unit was owned and operated by Impact Services. Impact Services was purchased by the Kurion Corporation on May 17, 2012.

Although the probe for the 0010 MM5 sampling train was broken at the end of the run, the facility extracted the XAD resin and measured the PCB concentration per the procedures for both the 0010 MM5 and 0023A trains. The PCB data for the 0023A train for layer 1 was accepted by ORCR in place of the PCB data for the broken 0010 MM5 sampling train upon further investigation.

<b><u>Dioxins/Furans</u></b>	<b><u>Measured</u></b>	<b><u>Max Allowable</u></b>
Total Run 1-3 HpCDD, ng/dscm	0.00967	0.20
Total Run 1-3 OCDD, ng/dscm	0.0224	0.20
Sum PCDD ng/dscm	0.0321	0.20
Total Run 1-3 2,3,7,8-TCDF ng/dscm	0.00355	0.2
Total Run 1-3 HxCDF ng/dscm	0.00725	0.20
Total Run 1-3 HpCDF ng/dscm	0.0267	0.20
Sum PCDF ng/dscm	0.03750.20	Sum of PCDD and PCDF
ng/dscm	0.0695	0.20

According to EPA's laboratory results, Impact demonstrated treatment with 23,593 ppm feedstock. Impact measured the concentration of the feedstock as 40,000 ppm in their laboratory. Based on the demonstration test performance and in consideration of the acceptable range in PCB testing, EPA has confidence that treating feedstock up to 30,000 ppm will present no unreasonable risk of injury to health or the environment.

The GeoMelt ICV 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) for PCBs. The Agency has determined that if this level of performance is achieved, the operation of this alternative thermal technology will not present an unreasonable risk of injury to health or the environment with respect to PCB emissions.

APPENDIX IV

SAMPLE THIRTY DAY NOTIFICATION FORM FOR CONDITION NO. 9

Company

Name: Kurion, Inc

Address: \_\_\_\_\_

Contact Person Name and Phone: \_\_\_\_\_

VIN or License Plate Number of Unit: \_\_\_\_\_

Phone dedicated to the unit that the unit operator(s) have access to that goes with the unit to each site: \_\_\_\_\_

Company that Owns the Facility where the Unit Will be Operating

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Contact Person Name and Phone: \_\_\_\_\_

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

EPA ORCR Contact: Karen Swetland-Johnson, EPA ORCR, PCB Approval Writer, 703-308-8421, ORCRPCBs@epa.gov

EPA Regional Contact: \_\_\_\_\_

State Contact: \_\_\_\_\_

Local (Town/City/County) Contact: \_\_\_\_\_

Location Where Treatment Will Occur:

Street Address or Other Identifier for Site: \_\_\_\_\_

Facility Manager: \_\_\_\_\_

Phone Number for Facility Manager: \_\_\_\_\_

Brief Description of the Facility/Site: \_\_\_\_\_

Nature of the Disposal Activity:

Type of PCB Disposal Process: \_\_\_\_\_

Type(s) of Material Being Treated: \_\_\_\_\_

Volume of PCB-Contaminated Material Being Treated: \_\_\_\_\_

Concentration of PCBs in the Material Before Treatment: \_\_\_\_\_

Date Treatment Operations are Expected to Begin: \_\_\_\_\_

Estimated Duration of the Treatment Operations (in Days): \_\_\_\_\_