ATTACHMENT 9-1

CLOSURE PLAN

MIXED WASTE FACILITY
RCRA/TSCA PERMIT APPLICATION

RICHLAND, WASHINGTON

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CLOSURE PLAN

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1. INTRODUCTION

This closure plan has been developed for the mixed waste facility (MWF) located in Richland, Washington. The closure of the MWF will be performed in accordance with the Washington State Department of Ecology's (Ecology) Dangerous Waste Regulations (WAC 173-303) and the U.S. Environmental Protection Agency's (EPA) Toxic Substances Control Act (TSCA) regulations (40 CFR Part 761).

The MWF, located at 2025 Battelle Boulevard, Richland, Washington, treats mixed low-level waste from customers such as the U.S. Department of Energy (DOE), the U.S. Department of Defense (DoD), and commercial generators. Mixed waste is treated to meet Land Disposal Restrictions (LDRs) and TSCA requirements and shipped from the facility for disposal. No disposal of mixed waste or TSCA-regulated waste occurs at the facility.

1.1 Regulatory Basis

The MWF operates several dangerous waste management units (DWMU) requiring a written closure plan (WAC 173-303-610 and 40 CFR § 761.65(e), as applicable). The units are located in the Non-Thermal area, the waste storage area, and the Thermal area of Building 13. In addition, storage of dangerous wastes will occur in the proposed Building 20. The MWF closure plan covers the closure of each of these units. There are additional proposed units that are included in this closure plan.

1.2 Environmental Permits

The WDOH enforces state regulations adopted under the State Nuclear Energy and Radiation Act that set radiation exposure limits, concentration guidelines, and management procedures applicable to the radioactive component of mixed waste. WDOH has issued a radioactive materials license for the handling of low-level radioactive waste.

The facility has been issued a permit by the Washington Department of Ecology and EPA Region 10 for the storage and treatment of mixed waste and for storage and processing for disposal of mixed TSCA-regulated PCB wastes. The Benton Clean Air Authority has approved several new source construction applications for various equipment at the facility.

1.3 General Closure Approach

Dangerous waste closure activities covered under this plan are limited to the MWF and any soils determined to be contaminated solely from the operation of the MWF. This closure plan provides the details of the procedures to be employed to achieve clean closure of the MWF. Clean closure will require the removal or decontamination of all dangerous/PCB wastes, waste residues, or containers, construction materials, soils, or other materials containing or contaminated with dangerous/PCB wastes or waste residues to those levels specified in WAC 173-303-610(2)(b)(i) and (ii) and PCBs to those levels specified at 40 CFR § 761.61 and/or § 761.79. Specifically, the MWF closure will involve decontaminating or removing MWF components including equipment, piping, concrete, and steel structures, and conducting sampling of soil beneath the MWF to verify no contamination has occurred.

1.4 Closure Plan Overview/Organization

This closure plan has been prepared in accordance with applicable Ecology, WDOH, and EPA regulations. The applicable regulations are cited in the plan for each section where they apply. The plan is organized into five sections as follows:

- Introduction (Section 1.0)
- Closure Performance Standard (Section 2.0)
- Closure Procedures for the MWF (Section 3.0)
- Closure Schedule and Certification (Section 4.0)
- References (Section 5.0)

2. CLOSURE PERFORMANCE STANDARD

The performance standard for closure of dangerous waste management units (DWMUs) is specified in WAC 173-303-610(2). To comply with this standard, this closure plan will allow the owner/operator to close the MWF in a manner that:

- Minimizes the need for further maintenance;
- Controls, minimizes, or eliminates to the extent necessary to protect human health and the environment, post-closure escape of dangerous waste, dangerous waste constituents,

leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, groundwater, or the atmosphere; and

- Returns the land to the appearance and use of surrounding land areas to the degree possible given the nature of previous dangerous waste activity.

This closure plan will guide implementation of closure activities so that the closure can be certified as complete and consistent with regulatory requirements.

2.1 Clean Closure Levels

Any impacts to the environment will be identified at the time of closure, and clean closure levels for applicable environmental media will be determined using residential exposure assumptions according to the Washington Model Toxics Control Act (MTCA) standards (WAC 173-340) and, for PCBs according to requirements for PCB spill cleanup specified in 40 CFR §761.61 and/or §761.79. The MTCA regulations provide three options for establishing site-specific cleanup levels, MTCA methods A, B, and C. Numeric cleanup levels for the MWF will be determined according to residential exposure assumptions under MTCA method A or B, as found in WAC 173-340-700 through 760.

Both MTCA methods A and B use human health risk as the main factor in determining cleanup levels and data on environmental risk is considered when available. For cancer-causing substances, MTCA defines the acceptable risk level as the conservative estimate of a person's chances of developing cancer during a lifetime of constant exposure. Because many different constituents will be handled at the MWF, the total health risk from all cancer-causing substances will be considered when determining cleanup levels. For non-carcinogenic substances, the MTCA cleanup level for each constituent at the MWF must be below that which could cause illness in humans. Because more than one constituent will be managed at the MWF, the effect of these constituents combined will be considered in determining cleanup levels.

Soil and groundwater are the applicable environmental media for which cleanup standards will be determined. Surface water cleanup levels are not applicable because there are no surface water bodies in the vicinity of the site. Air quality will be protected through clean closure of the facility and underlying soils.

The MWF has been designed to operate in a manner that should prevent the contamination of soils beneath the facility. All wastes are stored and managed within enclosed structures, and the floors of these structures are coated and maintained to preclude releases to the environment in the event of a spill. Any spills will be addressed immediately to further reduce the potential for a release to the environment.

Actual impacts to the soil quality resulting from operation of the MWF will be determined as part of the closure activities as outlined in Section 4.3. "Clean closure" determinations with respect to the soils beneath the MWF will be made through comparison of measured soil concentrations of constituents stored and managed at the MWF with numeric soil cleanup levels calculated according to applicable MTCA Method A or B standards and the levels for PCBs specified under the TSCA regulations, as discussed above. The actual numeric cleanup standards for dangerous wastes and dangerous waste constituents will be determined, as outlined in the MTCA, at the time of cleanup because they are based on risk to human health and are subject to potential revision (due to continual new data regarding human risk assessment).

Ecology maintains a publicly-available searchable database entitled Cleanup Levels and Risk Calculations (CLARC), which lists cleanup levels, calculated in accordance with MTCA-specified methodology, for approximately 600 constituents. Constituent concentrations will be compared to the numeric soil cleanup levels using statistical procedures outlined in Ecology's guidance document entitled Guidance on Sampling and Data Analysis Methods (Ecology Publication No. 94-49, January 1995). For metals in soil, the constituent concentration will also be compared to the natural background concentrations (90 percentile) published in the publication No. 94-115, October 1994.

In the event that additional investigations are required (see Section 4.3) and potential impacts to groundwater are evaluated, the numeric cleanup levels for groundwater identified in the CLARC will be used for comparison to measured concentrations. These activities would be pursued under an amended closure plan.

2.2 MTCA Method A

MTCA Method A may be used if closure is "routine", as defined in WAC 173-340-200(7)(b), with relatively few constituents of concern that have associated numeric cleanup levels. Routine

cleanups may include one or more of the following activities: cleanup of aboveground structures; cleanup of below-ground structures; cleanup of contaminated soils where the cleanup will restore the site to cleanup levels; or cleanup of solid wastes, including containers.

2.3 MTCA Method B

MTCA Method B may be used to establish clean closure levels for any closure. When establishing clean closure levels under MTCA Method B, the excess cancer risk from individual carcinogens will not exceed one-in-one million (10^{-6}). For non-carcinogens, MTCA Method B clean closure levels will not exceed the concentration at which a constituent could cause acute or chronic toxic effects on human health as determined by the hazard quotient of dangerous waste constituents with similar toxic effects of less than or equal to one (1).

2.4 Cleanup Standards for PCB Waste

PCB-contaminated waste may be managed by the facility and will be regulated under the Toxic Substance Control Act (TSCA) regulations 40 CFR 761. PCB-contaminated wastes will be managed in the storage areas and miscellaneous units in the Non-Thermal area [Table 4-4 in Section 4 of the permit application describes where PCB-contaminated wastes may be stored].

40 CFR 761 requires different PCB-cleanup levels based on factors such as accessibility to contaminated area, PCB concentration within spills, and quantity of PCBs spilled. This closure plan assumes non-restricted, high-contact residential/commercial surfaces as defined at 40 CFR 761.123 in determining appropriate cleanup levels. Solid surfaces shall be cleaned to less than or equal to 10 µg/100 cm^2, as measured by wipe sample testing. Soil that is found to be contaminated with PCBs will be subject to both WAC 173-340-700 and 40 CFR 761.61(4). The soil cleanup criterion is ≤10 ppm PCBs by weight, provided that soil is excavated to a minimum depth of 10 inches. The excavated soil will be replaced with clean soil, i.e., containing less than or equal to 1 ppm PCBs. Soil sampling and wipe sampling procedures are discussed in Appendix 9-A, Sampling and Analysis Plan (SAP).

3. PROCEDURES FOR REMOVAL OF WASTES

The following sections describe the maximum amount of waste inventory that could be present in the MWF and the procedures used for removing, recycling, treating, and transporting all dangerous wastes present in the DWMUs.

3.1 Maximum Waste Inventory (WAC 173-303-610(3)(a)(iii))

A range of mixed wastes originating from the various off-site sources will be stored and/or treated in the MWF. In addition to the processed wastes, the materials used to construct the MWF and soils beneath the MWF have the potential to be classified as a regulated waste at the time of closure. The following paragraphs provide a description of the volumes and characteristics of the process wastes to be managed in the MWF and potential wastes resulting from operation of the MWF.

The maximum storage volume at MWF is 237,350 ft^3. The maximum volume of PCB waste stored is 138,400 ft^3. The maximum inventory capacity of the MWF divided by area and waste type are provided in Table 3-1.

The MWF will primarily manage liquid and solid matrix waste streams (primarily solid) generated by the United States government and commercial generators.

3.2 Inventory Handling Procedures (WAC 173-303-610(3)(a)(iv))

Prior to closure of the MWF, any in-process mixed waste inventories (i.e., wastes within pretreatment and treatment tanks) will be processed, containerized on-site, and then transported off-site for disposal in conformance with all applicable hazardous waste LDR and TSCA requirements. Mixed waste inventories that are not currently in treatment processes will be returned to the generator (This will be a contractual requirement.). A sample of this contractual agreement is contained in Figure 3-1. Following the depletion of the waste inventories, closure activities including decontamination and dismantling of treatment equipment and building structures will commence.

Options for the disposal of processed wastes will be limited by the characteristics of the waste. Options being considered are discussed in Section 3.3.3.

3.3 Containerization and Transport

To achieve clean closure, it is anticipated that impacted materials designated as regulated wastes can be containerized in either 55-gallon drums or steel burial boxes and disposed of in accordance with LDRs at an appropriately permitted landfill. The following sections discuss handling procedures for containerization, transport, and disposal of impacted materials.

3.3.1 Containerization

All impacted materials requiring disposal will be containerized in either SuperSacks, 55-gallon drums, or steel burial boxes lined with heavy-duty visqueen to prevent leakage. Prior to its decommissioning, the cutting and shearing (TP-02) and compaction systems (TP-07) in the Non-Thermal area will be used to reduce the volume of waste for disposal. Materials will be placed in the containers by hand or using the appropriate equipment. When full, the exterior of each box will be cleaned, labeled, and marked in accordance with applicable Department of Transportation (DOT) regulations on hazardous materials under 49 CFR § 172.

3.3.2 Off-Site Transport

The containerized materials removed from the MWF will be loaded onto tractor trailers and transported to the appropriate processing or disposal facility. Transport of the wastes will be conducted in accordance with the applicable DOT regulations for hazardous materials transport under 49 CFR § 172, Subpart F. Approximate transport distances to potential disposal sites are provided in the following section.

3.3.3 Off-Site Processing/Disposal Methods

In the event that closure prior to processing of all on-site wastes becomes necessary, all mixed waste inventories which are not currently in treatment process will be returned to the generator. This will be a contractual requirement (see Figure 3-1).

The disposition of materials shipped from the MWF at closure will be limited by the characteristics of the waste and based on the results of sample analyses following treatment and/or

decontamination. Facilities/locations being considered as sites for disposal of equipment and closure-generated wastes are as follows:

- Transport of materials that are neither dangerous nor low-level waste (LLW) and cannot be recycled or reused to a local (e.g., within Benton County) municipal solid waste landfill. The Benton County municipal landfill is approximately 10 miles from the MWF.
- Radioactive, dangerous and Toxic Substances Control Act (TSCA) regulated non-liquid PCB wastes will be disposed of at Energy Solutions in Clive, Utah.
- Radioactive and Toxic Substances Control Act (TSCA) regulated non-liquid PCB wastes will be disposed of at Energy Solutions in Clive, Utah.
- Radioactive wastes will be disposed of at US Ecology on the Hanford site.
- RCRA and TSCA regulated liquid wastes will be disposed of at Diversified Scientific Services, Inc. in Kingston, Tennessee.
- RCRA and TSCA regulated non-liquid wastes will be disposed of at US Ecology on the Hanford site.
- Bulk survey for release (BSFR) waste will be disposed of at the Chestnut Ridge Landfill Facility in Heiskell, Tennessee.
- Transport of non-dangerous LLW to the US Ecology facility on the Hanford Reservation for disposal. The US Ecology facility is located approximately 20 miles from the MWF.
- Transport of non-radioactive dangerous wastes satisfying the LDR to the Arlington Regional Landfill (Subtitle C permitted) in Arlington, Oregon for disposal. The Arlington Regional Landfill is located approximately 85 miles from the MWF. This landfill also accepts PCB wastes that are >50 ppm.

Additional options will be considered as they become available.

4. CLOSURE PROCEDURES FOR THE MWF

This section provides a detailed description of the closure activities to be implemented in completing the final closure of the MWF. These activities are discussed in their anticipated sequence of implementation.

The plans are to clean close the MWF in accordance with WAC 173-340-700; therefore, post-closure activities are not applicable. However, should verification sampling indicate clean closure

is not possible or is environmentally impractical, the closure plan will be modified to address required post-closure activities in accordance with WAC 173-303-610(7).

4.1 PRE-CLOSURE ACTIVITIES

4.1.1 Notification of Closure

Ecology will be notified at least sixty days prior to the date on which final closure activities are expected to begin. The EPA Regional Administrator will be notified at least sixty days prior to the date on which final closure of the units involved in handling PCBs are anticipated.

4.1.2 Health and Safety Requirements

A detailed health and safety plan (HSP) will be prepared for the closure activities. A health and safety officer will be designated for the closure activities. The health and safety officer shall maintain a copy of the HSP at the facility and shall make all personnel involved in closure activities aware of the health and safety requirements in this plan. The health and safety officer shall be responsible for implementing the health and safety plan, and will document any field deviation from the plan. Personnel involved in the closure operations involving hazardous waste will undergo training as specified in 29 CFR 1910.120.

4.2 MWF Closure to Meet Performance Standards (WAC 173-303-610(3)(a)(v) and 40 CFR 761)

Following the processing and elimination of the mixed waste inventory, the waste management areas at the MWF, including structural materials, treatment equipment, and ancillary components, will be inspected, decontaminated, evaluated, dismantled, and disposed of as necessary to achieve the clean closure objectives. It is anticipated that all structures will be decontaminated and clean closed in place and that demolition will not be necessary. Areas and equipment that have been exposed to PCB-contaminated waste will be decontaminated in accordance with 40 CFR 761.79 and/or 761 Subpart G. Equipment contaminated with dangerous waste will be treated in accordance with the alternative treatment standards for hazardous debris (40 CFR 268.45), primarily through physical extraction (abrasive blasting and/or high pressure steam and water sprays) and macroencapsulation.

In addition, soils beneath the concrete floor and in areas outside of the DWMU areas where spills were likely to have occurred will be sampled. If sample results indicate the soils have been

impacted by operations of the MWF (i.e., exceeding the closure performance standard specified in Section 2), the impacted soils will be excavated and treated or stabilized to the extent required for land disposal or, if possible, remediated on-site to meet the applicable MTCA cleanup levels and left on-site.

Clean closure of the MWF will require the removal and disposal of all dangerous waste present in the buildings, decontamination or removal of contaminated process equipment and contaminated structural components, decontamination of all impacted building surfaces, and removal of any contaminated soil within the facility boundary. Any materials, equipment, or structures removed from the MWF will be designated and disposed of accordingly. The MWF will be considered clean closed when the sampling of the structures (if required) and surrounding soil shows that the concentrations for all constituents analyzed are present at or below acceptable limits specified in Section 2.0.

4.2.1 Unit Inspection Prior to Decontamination

Before beginning decontamination, but after the wastes have been removed, a visual inspection of waste storage and processing areas, load/unload areas, and surrounding soils will be conducted. The inspection will identify and record locations:

- That have been discolored or visually altered by waste handling activities;
- Where cracks are apparent, epoxy and/or sealant coating appears to have been damaged, or any other openings through which waste, debris, or decontamination media could be released to the soil.

A record of the location and dimensions of these areas from a specified fixed point will be mapped and kept in the facility operating records for reference during the sampling. Areas of soil with these characteristics will also be marked using stakes.

Floor areas of the waste storage and processing areas that have been identified as potentially compromised will be repaired with the same or equivalent materials that were used for their original construction. If appropriate, an epoxy coating will be applied to the repaired areas. These measures should insure that the repairs are resistant to water and the cleaning solutions that will be used during decontamination.

4.2.2 Decontamination Procedures for PCB-Contaminated Waste Structures and Equipment

Equipment or containment areas contaminated with PCBs may be wipe-sampled and analyzed to determine if the clean closure criterion of 10 µg PCBs/100 cm^2 is met. If this criterion is met, no decontamination for PCBs will be performed. If not wipe-sampled, such equipment will be decontaminated, dismantled, and shipped off-site.

All areas and equipment that have been exposed to PCB-contaminated waste will be decontaminated in accordance with 40 CFR 761.79 and/or 761.61.

The decontamination solvent may be reused for decontamination until it contains 50 ppm PCB or more. All solvents and rinse waters will be captured by the built-in area of the floors, which are slanted to accommodate liquid collection. This liquid will then be pumped into a containers (e.g., 55-gallon drums) by a diaphragm or sump pump. All pumping and storage equipment will be designated for use in PCB-contaminated areas only until it can be decontaminated with these same procedures so that it can be used for decontaminating remaining non-PCB-contaminated areas. No equipment will be removed from these areas until this decontamination process and the verification sampling described is section 4.2.4 is completed. The MWF is constructed almost exclusively of nonporous media. As a result, decontamination of PCB-containing waste residues by the above-described procedures should be achievable.

4.2.3 Remaining MWF Decontamination

Decontamination of the MWF will include dismantling to decontaminate inaccessible portions of equipment and structures, removal of gross contamination using scrapers and wire brushes, decontamination of surfaces by steam cleaning augmented with brushes and abrasive blasting, where necessary, and where applicable, size reduction and compaction of equipment and structural debris requiring disposal.

The MWF is constructed almost exclusively of nonporous media. As a result, decontamination using steam cleaning to remove dangerous wastes should be achievable. Any equipment and structures outside the PCB-processing areas that can be adequately size-reduced will be decontaminated using on-site treatment (e.g., in container mixing (TT-03), physical extraction TT-05), debris washing (TT-10)). Equipment and structures that cannot readily be size-reduced will

be decontaminated in place, with the decontamination water being collected in the secondary containment area and pumped into temporary storage container (e.g., 55-gallon Drums, baker tanks) using sump or diaphragm pumps. Water required for the steam-cleaning process outside of the PCB-processing areas may be recycled through the liquid treatment system in TP-14. Sacrificial polyethylene sheeting will be utilized to isolate locations being decontaminated and prevent overspray and airborne migration of waste residues during the decontamination process. Grinding (for concrete) or abrasives blasting (for structural steel) may additionally be used for components that are not readily decontaminated by steam cleaning.

Some equipment may continue to be contaminated with LLW following decontamination procedures to remove dangerous wastes (i.e., radioactivity levels preclude free release). These components shall be dismantled and taken to the non-thermal area in Building 13 to be size-reduced (TP-01 & TP-02) and compacted (TP-07) and transported off-site for disposal at an LLW disposal facility.

Decontamination of the MWF will commence with the dismantling of equipment that is not essential to ongoing closure activities. Equipment considered essential to closure activities will include:

- The liquid treatment, liquid holding, and filtration systems to process water used for decontaminating the facility, (TP-14)
- The cutting and shearing system for breaking down equipment and structural components into manageable sized pieces for decontamination and/or disposal, (TP-02)
- The physical extraction unit for abrasive blasting of dismantled equipment, (TT-05)
- The compaction system to reduce the volume of debris for disposal, (TP-07)
- The in-container mixing system for immobilizing mixed waste equipment debris, (TT-03), and
- The heating, ventilation, and air conditioning (HVAC) system to control atmospheric conditions during closure activities

All other tanks, container storage areas, and equipment shall be dismantled, decontaminated, and recycled, reused, or processed and disposed in an appropriately permitted solid waste landfill. Equipment and structures that can be verified to not be LLW and not exhibit the characteristic of a dangerous waste will be recycled, reused, or disposed in an appropriately permitted solid waste

landfill. Sampling and analysis procedures to verify completion of the decontamination are presented in the SAP (Appendix 9-A).

Final closure activities are anticipated to commence with the concurrent decontaminating of the PCB waste treatment areas as described in Section 4.2.2, the container storage areas, and the non-essential systems in the MWF. First, all shelving, storage cabinets, modular flooring, and fire suppression systems in the MWF will be decontaminated and recycled, reused, or disposed in an appropriately permitted solid waste landfill. Next, all structural and base surfaces will be decontaminated and sampled (if necessary) to verify clean closure. If the sampling analytical results indicate it is required, structural and base components will receive additional decontamination prior to dismantling and recycling or disposal.

Concurrent with decontamination of the container storage areas, process and tank systems, including ancillary components, and their respective spaces within the MWF will be dismantled, decontaminated, sampled (as required), and recycled, reused, or disposed in an appropriately permitted solid waste landfill. Closure of systems that are not essential to the closure activities, as described above, will be performed first. The remaining systems and ancillary components are anticipated to be closed in the following order:

1. Cutting and shearing system, (TP-02)
2. The physical extraction system, (TT-05)
3. The compaction system, (TP-07)
4. The in-container mixing system, (TT-03)
5. Liquid treatment, liquid holding, and filtration system (TP-14), and lastly
6. The HVAC system

As each system is dismantled and decontaminated, it will be isolated from the remaining systems and necessary access paths using sacrificial polyethylene sheeting, at a minimum. The liquid and solid wastes resulting from the decontamination of these last six systems will be transported off-site for disposal.

Equipment in the thermal treatment area that is not associated with PCB-waste treatment will be dismantled and decontaminated in the following order:

1. Product gas treatment and solids handling systems
2. HVAC system

During closure activities, barriers will be constructed as needed to denote decontamination zones. All equipment used during closure of the MWF will be decontaminated prior to removal from the facility.

4.2.4 Verification Sampling for PCB-Contaminated Waste Structures and Equipment

Following decontamination of the PCB-contaminated waste processing equipment and storage areas, wipe samples will be collected from equipment and surfaces that have contacted PCB-containing wastes. If concentrations in a standard wipe sample exceed 10µg/100 cm^2, the surface will be decontaminated again using the same procedures but with a different cleaning solution. These areas will be scrubbed with other solutions, such as sodium triphosphate, until a wipe sample result below 10µg/100 cm^2 is obtained and the area is visibly clean. Further details on sampling procedures are outlined in the SAP (Appendix 9-A).

4.2.5 Verification Sampling for Remaining MWF

Following decontamination, equipment and structures will be examined to determine if any visible contamination exists (i.e., to determine if the surface is clean in accordance with the definition of a clean debris surface [40 CFR § 268.45]). If the surfaces are not clean, samples will be collected from equipment, structures, and subsoils to verify the components do not contain constituents of concern in concentrations above the applicable closure cleanup levels. The samples will be collected and submitted for confirmation analysis as outlined in the SAP (Appendix 9-A).

4.2.6 MWF Component Removal

In general, once laboratory analysis verifies MWF components have been decontaminated, the components that cannot be left on-site will be removed from the MWF, containerized (if necessary), and transported off-site for recycling, reuse, or disposal in an appropriately permitted solid waste landfill. Decontaminated equipment, piping, concrete, structural steel, and sheet metal designated as regulated (i.e., dangerous, and/or low level) wastes will be removed and containerized in steel burial boxes. Asphalt, concrete, and other construction materials will be removed by hand or using standard construction equipment. Equipment and construction materials will generally be treated in accordance with the alternate treatment methods for debris

under RCRA and be subsequently managed as non-dangerous solid or LLW. It is anticipated that most, if not all, building components will be decontaminated and clean-closed in place.

4.3 Subsoil Verification Sampling (WAC 173-303-610(3)(v) and -630(10)

Once decontamination procedures have been completed and all structural and base components have been removed or verified to meet applicable closure cleanup levels, sampling of subsoils will commence. Both biased and unbiased samples will be collected as outlined in the SAP. Samples will be collected from beneath areas where wastes are managed and treated (e.g., samples will be collected from beneath staging areas and the process chamber). Holes will be cored through concrete to access subsoils.

Since it has been decided to pursue clean closure of the MWF, sampling and analysis of subsoils beneath the building is required to demonstrate that such clean closure is attainable. Prior to decontamination, the concrete floors will be inspected for cracks, discoloring, and damaged epoxy coatings. If cracks or flaws are observed, their locations will be recorded in the operating record during the inspection. Soil sampling underneath the concrete can be performed in a number of ways depending on the location and surrounding structures. Whenever possible a core driller will be used. In some locations a jack hammer or diamond blade concrete saw may be more practical. After the concrete is removed, a hand auger will be used to collect soil samples. If no cracks, discoloring, or damaged epoxy coatings are noted during visual inspection, only unbiased sampling of the subsoils will be conducted. If such evidence of damage is noted, soils from beneath the MWF will be sampled in two phases, biased and unbiased.

The first sampling phase will involve collecting biased samples from the uppermost three inches of subsoil beneath the concrete and submitting them for confirmation analysis as outlined in the SAP. During the first phase, samples will be collected from the following areas: 1) locations where concrete sampling verified contamination, 2) beneath the location of the feed for each primary system component, 3) locations beneath the bottom of each system sump, 4) locations beneath apparent cracks in the concrete and where the epoxy coating appears to have been damaged, and 5) areas where wastes were managed and treated. These soil samples will be submitted for analysis for the constituents listed in Table 2-2 of the SAP (Appendix 9-A).

Should laboratory analysis of these samples indicate subsoils beneath the MWF have been impacted by its operation; the second phase of sampling described is Section 3.2.3 of the SAP (Hot Spot Analysis) will be performed to evaluate the extent of subsoil contamination and the potential for impacts to groundwater. If it is determined that there is a potential for impact to the ground water, an amended closure plan will be written to address this situation.

4.4 Soil Removal and Remediation

Based upon the evaluation, the impacted soils will be excavated by hand or using standard construction methods, treated (if necessary), containerized, and disposed of at an appropriately permitted facility.

4.5 Waste Management Building Restoration

Once analytical results indicate that concentrations of the constituents of concern are not in excess of applicable cleanup levels for samples collected from the structures that remain in place and subsoils beneath the building, the building will be certified as clean closed and eligible to be utilized for applications for which the property is zoned.

4.6 Ancillary Closure Activities

4.6.1 Security Systems

It is anticipated that existing security features will be maintained throughout the closure activities for the MWF. The perimeter fences and locked access gates restrict unauthorized entry to the operating portions of the MWF. Security regulates access to the facility through the front entrance. Employees and contractors are issued badges, and personnel and vehicles must pass through a visual inspection at the security entrance.

5. CLOSURE SCHEDULE AND CERTIFICATION

5.1 Schedule for Closure (WAC 173-303-610(3)(a)(vii))

Closure activities for the MWF will commence within 90 days after wastes stop being introduced to the facility. It is anticipated that all DWMUs at the MWF will be closed concurrently, i.e., at facility closure. Certain processes in the non-thermal area of Building 13 may be used to facilitate

closure (e.g., cutting and shearing process (TP-02) and compaction unit (TP-07)) to reduce the volume of materials to be disposed off-site. Closure of DWMU areas used for storage of PCBs is expected to commence within 30 days after the storage area receives its final quantities of PCB waste (40 CFR § 761.65).

Treatment and removal of all dangerous waste is scheduled to be accomplished within the 90-day time-frame specified at WAC 173-303-610(4)(a) and 40 CFR § 761.65(e)(6)(iii). Closure of the thermal treatment area is scheduled to be accomplished within the 180-day time-frame specified at WAC 173-303-610(4)(a) and 40 CFR § 761.65(e)(6)(iv). The sequence for closure of the various components of the MWF is illustrated in the preliminary schedule (Figure 5-1).

5.2 Closure Cost Estimate (WAC 173-303-620(3))

The estimated cost of employing a third party to implement closure of the MWF is presented in Appendix 9-B. Cost estimates are provided for engineering design, construction management, and construction activities. The cost estimates were developed based on previous project experience, information provided by construction contractors, and industry cost estimating manuals. The estimated costs are in current dollars. The cost estimate will be updated on an annual basis within 60 days of the anniversary date of the establishment of the financial instruments used to demonstrate financial responsibility for closure.

5.3 Financial Assurance Mechanism For Closure (WAC 173-303-620 (3))

Treatment, storage, and disposal (TSD) facilities must provide financial assurance for closure costs and for liability coverage for bodily injury and property damages to third parties caused by sudden accidental occurrences. The facility has established a closure insurance as required by WAC 173-303-620(4)(a). The financial assurance mechanism in effect is for the closure costs associated with existing units. As new units are constructed and used for managing waste, the financial assurance mechanism will be increased to reflect the closure cost associated with all active units.

Coverage for sudden accidental occurrences is established through a liability insurance policy providing coverage in the amount of at least $1 million per occurrence with an annual aggregate of at least $2 million, as specified in 40 CFR 264.147(a) and WAC 173-303-620(8).

5.4 Closure Certification (WAC 173-303-610(6))

Within 60 days of the closure or contingent closure of the waste management unit, or final closure of the facility, completion of closure certification by a qualified, independent, Washington-registered professional engineer will be submitted to Ecology and to the EPA Regional Administrator verifying that the waste management unit has been closed in accordance with the specifications of this closure plan (WAC 173-303-610(6) and 40 CFR 761.65(e)(8)). The certification will be signed by an authorized representative and by the certifying engineer.

6. REFERENCES

U.S. Environmental Protection Agency (USEPA). 1985. Guide for Decontaminating Buildings, Structures, and Equipment at Superfund Sites, USEPA Cincinnati, 600/2-85/028, March 1985.

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TABLE 2-1.
SUMMARY OF SAMPLE QUANTITY
MIXED WASTE TREATMENT FACILITY

	Sample Quantity					
Sample Type	Walls	Ceiling	Floors	Equipment	Soil	Hot Spots
Decontamination Verification	50	50	50	50		25
Sub Soil Verification					75	15
Not Shown On Sampling Grid						
HVAC				25		
Electrical lighting				2		
Total	50	50	50	77	75	40

Note: Typical sampling locations are identified; actual locations will be based on criteria in the Closure Plan

TABLE 3-1
ON-SITE WASTE STORAGE CAPACITIES
MIXED WASTE FACILITY

Building Name and RCRA Waste Storage Area	Previously Permitted Solid Vol. (ft^3)	Previously Permitted Liquid Vol. (ft^3)	Proposed Total Vol. (ft^3)
Waste Storage Area	24,223	2,220	
• Room WSB-01			22,076
• Room WSB-02			19,200
• Room WSB-03			19,200
• Room WSB-04 and SB-03			48,050
Non-Thermal areas of Building 13 (excluding rooms listed above)			43,392
Thermal treatment Area	1,982	115	19,968
Stabilization Building	4,681	2,098	
Building 20			65,464
TOTALS (RCRA Wastes)	**30,886**	**4,433**	**237,350**

PCB Wastes			
Waste Storage Area			
• Room WSB-01			8,800
• Room WSB-02			7,800
• Room WSB-03			7,800
• Room WSB-04 and SB-03	1,037		40,700
Non-thermal area of Building 13 (excluding rooms listed above)	534		26,500
Thermal treatment area			12,000
Building 20			34,800
TOTALS (PCB Wastes)	**1,571**		**138,400**

TABLE 3-2
ACCEPTABLE RCRA WASTE CODES FOR TREATMENT
MIXED WASTE TREATMENT FACILITY

REFER TO PART A
FOR WASTE CODES

FIGURE 3-1

Typically the Mixed Waste Facility generally agrees to complete processing of materials within 90 days of receipt. All waste shipped to the MWF shall have a properly executed manifest. All wastes in the MWF shall be promptly stored and/or prepared for lawful transportation, subject to any and all constraints placed on such storage, preparation, or transportation through license or permit conditions, or any law, regulation, ordinances, or governmental order.

In anticipation of or actual plant closure, the clients will be immediately notified of this event and set forth a reasonable cutoff date for receiving shipments. Further, the client will be notified that all shipments delivered for processing after the cutoff date will be refused for processing and returned to the client at the client's expense. The owner/operator will give its best effort and diligence to process all material on hand before the actual closure date. Any remaining unprocessed material on hand prior to the cutoff date will be packaged and marked for shipment in conformance with all applicable laws and regulations and will be returned to the client at the client's expense or shipped to an alternate facility designated by the client.

FIGURE 5-1
PRELIMINARY CLOSURE SCHEDULE

ITEM	DAYS FROM START OF CLOSURE
Dispose of Waste Inventories	90
Decontaminate PCB Storage and Treatment Areas	120
Decontaminate DWMU Equipment	120
Sample and Analyze	120
Re-decontaminate Hot Spots	120
Re-sample and Analyze	150
Dispose of Decontamination Residuals and Rinsates	150
Dismantle Equipment for Disposal	150
Sample and Analyze Soils	150
Remove Contaminated Soils	150
Complete Closure	180
Submit Certification of Closure to EPA and/or Ecology	240

APPENDIX 9-A

SAMPLING AND ANALYSIS PLAN