

**SECTION 9
CLOSURE AND FINANCIAL ASSURANCE**

MIXED WASTE FACILITY
RCRA/TSCA PERMIT APPLICATION

PERMA-FIX NORTHWEST RICHLAND, INC.

RICHLAND, WASHINGTON

Mixed Waste Facility

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Attachments

Attachment 9-1 Closure Plan

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9.0 CLOSURE PLAN AND FINANCIAL ASSURANCE

[WAC 173-303-806(4)(a)(xiii), WAC 173-303-610, WAC 173-303-620, 40 CFR 264.142, 40 CFR 264.143, 40 CFR 264.151]

9.1 Closure Plan/Financial Assurance for Closure

[WAC 173-303-806(4)(a)(xiii), WAC 173-303-610(2)-(6), 40 CFR 270(b)(13), 40 CFR 264.111, 40 CFR 264.121]

The closure plan for the mixed waste facility (MWF) is provided in Attachment 9-1 (Closure Plan for MWF). The closure plan identifies the steps necessary to close the MWF at any point during its active life, and describes the procedures to achieve clean closure.

9.1.1 Closure Performance Standard

[WAC 173-303-610(2)(b), 40 CFR 264.111]

Closure performance standards for decontaminating dangerous waste management units and any impacted soils, groundwater, surface water, and air are described in Section 2.0 of the closure plan.

9.1.2 Closure Activities

[WAC 173-303-610(3)(a)(i)-(iv), WAC 173-303-610(5), WAC 173-300-630(10), WAC 173-303-640(5), 40 CFR 264.112(b)(1), 40 CFR 264.112(b)(4), 40 CFR 264.114, 40 CFR 264.178, 40 CFR 264.197]

Closure plan activities for the dangerous waste management units (DWMUs) i.e., the Non-Thermal area, the waste storage area, the vitrification system (future), the plasma furnace, and the rotary thermal desorber unit at the facility are described in Sections 3.0 and 4.0 of the closure plan. Section 3.0 describes the procedures for removal of waste inventory at the time of closure. Section 4.0 details the chronological procedures for closure of the MWF. Sections 4.2.1 through 4.2.3 describe the process for decontaminating the components of the DWMUs. Section 4.2.6 provides procedures for dismantling components. Sections 4.2.4 through 4.2.5 describe collection and analysis of verification samples to ensure that clean closure objectives for the structures are attained, and Section 4.3 describes verification sampling for soils. Analysis of verification samples and comparison of the measured constituent concentrations with applicable standards (Section 2.0 of the closure plan) will ensure that the facility is closed in accordance with clean closure requirements.

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9.1.2.1 Maximum Extent of Operation

DWG-SITE-CIVIL-001 is a site map indicating the extent of operations during the active life of the facility and the location of all DWMUs. Specifically, the extent of operations will be Building 13 and the future planned Building 20.

The table below lists the process equipment to be closed, and the installation status of each.

Unit #	Description	Existing / Future
TP-01	Size Reduction and Screening	Existing
TP-02	Cutting and Shearing	Existing
TP-13	Sorting System	Future
TP-14	Liquid Treatment	Future
TP-07	Compaction and Macro-encapsulation	Existing
TP-10	Extraction Mixers	Future
TT-01	High Capacity Mixing System	Future
TT-02	Low Capacity Mixing System	Existing
TT-03	In Container Mixer	Existing
TT-05	Physical Extraction (abrasive blasting of debris)	Existing
TT-07	Plasma-Arc Furnace	Existing
TT-08	Thermal Desorber	Existing
TT-09	Mercury Treatment (bulk and bench scale amalgamation)	Future
TT-10	Debris Washing	Future
TT-13	Vitrification System	Future
WSB-1	Waste Storage Building	Existing
WSB-2	Waste Storage Building	Existing
WSB-3	Waste Storage Building	Existing
WSB-4	Waste Storage Building	Existing
Building 13 Rooms SB-02 through SB09, SB-11, MWT-01, MWT-02 and MWT-04	Waste Storage Building	Existing
TT-13	Vitrification Feed	Future
Bldg. 20	Railcar Building.	Future

9.1.2.2 Removing Dangerous Wastes

As a mixed waste storage and treatment facility, the routine operations of the MWF involve receiving, storing, treating and shipping waste from the facility to either the generator or a predesignated disposal facility. (The final disposition of the waste will be determined prior to acceptance of the waste for treatment.) Therefore, procedures for removing dangerous wastes from the facility at closure will be identical to those for routine facility operations. At closure, generated closure wastes

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will potentially be managed to the extent practicable at the MWF for treatment onsite and then shipped to either a predetermined storage or disposal location as outlined below.

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 only wastes will be disposed of at US Ecology on the Hanford site.

Radioactive 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.

Bulk survey for release (BSFR) waste will be disposed of at the Chestnut Ridge Landfill Facility in Heiskell, Tennessee.

Non-radioactive RCRA regulated and/or TSCA regulated wastes will be disposed of at the Arlington Regional Landfill in Arlington, Oregon.

Procedures for removing, recycling, treating, storing, and transporting all dangerous wastes present in the DWMUs are included in Section 3.0 of the closure plan. Section 3.3.3 describes the type and locations of off-site DWMUs where the waste from the MWF may be sent at closure. Section 3.3.3 provides estimated distances from the MWF to the potential disposal sites.

9.1.2.3 *Decontaminating Structures, Equipment, and Soil*

Methods, equipment, and supplies (such as cleansing agents) used to decontaminate structures, treatment equipment, and ancillary components are provided in Section 4.2 of the closure plan. In general, gross contamination is removed using scrapers and wire brushes. Surfaces are decontaminated 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. Areas where PCB-contaminated waste is handled are decontaminated in accordance with

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the procedures outlined in Section 4.2.2 of the closure plan. Because the routine operation of the MWF involves waste treatment and decontamination of debris, personnel requirements for decontamination of the facility are the same as for routine operation of the facility.

Methods for verification sampling and disposal for these materials and equipment are provided in Sections 4.2.4, 4.2.5, and 4.2.6 of the closure plan. An estimate of the volume of material that will be removed and recycled, treated, or disposed of is found in Table 8 of the closure plan. Plans for disposal of materials are found in Section 3.3 of the closure plan (Containerization and Transport).

9.1.2.4 Sampling and Analysis to Identify Extent of Decontamination/Removal and to Verify Achievement of Closure Standard

Health and safety procedures to be followed during closure sampling activities are provided in Section 4.1.2 of the closure plan.

9.1.2.4.1 Sampling to Determine the Extent of Contamination

Procedures for sampling and testing to ensure that the extent of contamination is defined and cleanup standards for clean closure have been met are provided in Section 4.2 and 4.3 of the closure plan and in Appendix 9-A Sampling and Analysis Plan (SAP). As outlined in the closure plan, all wastes are stored and managed within enclosed structures and the floors of these structures will be 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. If the results of verification sampling indicate that the groundwater has been impacted, an amended closure plan will be prepared to investigate this impact.

9.1.2.4.2 Sampling to Confirm Decontamination of Structures and Soils

Procedures for sampling and testing to ensure that decontamination and/or removal activities have attained the closure standards are provided in Sections 4.2 and 4.3 of the closure plan and in the SAP.

9.1.2.5 Other Activities

[WAC 173-303-610(3)(vi)]

The MWF does not include any landfills, waste piles, or surface impoundments (i.e., no land-based units), so groundwater monitoring will not be required. Air emissions control during closure activities will be the same as those utilized during MWF operations as described in Section 4.0 of the closure plan. Run-on and run-off control will be maintained through the building structures and

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berms in place at the facility. The clean closure of the MWF and the removal of equipment will enable the facility to be used for applications for which it is zoned after closure.

9.1.3 Maximum Waste Inventory

[WAC 173-303-610(3)(a)(iii), 40 CFR 264.112(b)(3)]

An estimate of the maximum inventory of dangerous wastes in on-site storage and treatment at any time during the active life of the facility is provided in Section 3.1 of the closure plan. Maximum inventory is shown by location and type on Table 3-1. The types of waste on-site are listed in Table 3-2 of the closure plan.

9.1.4 Closure of Waste Piles, Surface Impoundments, Incinerators, Land Treatment, and Miscellaneous Units

Waste piles, surface impoundments, and land treatment units are not being permitted at the MWF. The proposed vitrification unit and the plasma furnace unit and the thermal desorber are being permitted as Subpart X thermal units. Closure of the thermal units is included in Sections 3.0 and 4.0 of the closure plan.

9.1.5 Closure of Landfill Units

Landfill units are not being permitted at the MWF; therefore, this section is not applicable.

9.1.6 Schedule for Closure

[WAC 173-303-610(3)(a)(vii), CFR 264.112(b)(6)]

The schedule for closure is provided in Section 5.1 of the closure plan. The sequence for closure of the various components of the MWF is illustrated in preliminary schedule (Figure 5-1 of the closure plan).

9.1.7 Extension for Closure Time

[WAC 173-303-610(4)(a),(b), 40 CFR 264.113(a),(b)]

The planned closure is not expected to exceed either the 90 day time period for treatment, removal, or disposal of waste inventory, or 180 days for completion of closure activities. However, if an extension of time is required, the facility will submit such request in accordance with WAC 173-303-610(4)(c).

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9.1.8 Closure Cost Estimate

[WAC 173-303-806(4)(a)(xv), WAC 173-303-620(3), 40 CFR 270.14(b)(15), 40 CFR 264.142]

The closure cost estimate is provided in Section 5.2 of the closure plan.

9.1.9 Financial Assurance Mechanism for Closure

[WAC 173-303-806(4)(a)(xv), WAC 173-303-620(4)and(10), 40 CFR 270.14(b)(15), 40 CFR 264.143, 40 CFR 264.151]

The facility has established a closure insurance for the financial assurance as required by WAC 173-303-620(4)(a). The amount covered under this closure insurance policy is at least in the amount of the current closure cost. The financial assurance provided is based on the existing units, as identified in the closure cost estimate. As additional proposed units are constructed, the financial assurance will be increased accordingly. Before the use of additional proposed storage and/or treatment units, the financial assurance will be increased accordingly. The closure cost estimate provided is divided into existing units and future proposed units.

9.2 Notice in Deed of Already Closed Disposal Units

[WAC 173-303-806(4)(a)(xiv), WAC 173-303-610(10), 40 CFR 270(b)(14), 40 CFR 264.117(c), 40 CFR 264.119]

The requirement to place a notice in deed for closed units applies to land-based disposal units. Because dangerous waste will not be left in place following operations, the requirement for a notice in deed is not applicable.

9.3 Post-Closure Plan

The plans are to clean close the dangerous waste container storage waste management units in accordance with WAC 173-303-610 and 630; therefore, post-closure activities are not applicable to this facility. However, should verification sampling conducted during closure indicate that clean closure is not practical; the closure plan will be modified to address required post-closure activities in accordance with WAC 173-303-610.

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9.4 Liability Requirements

[WAC 173-303-806(4)(a)(xvii), WAC 173-303-620(8), WAC 173-303-620(10), 40 CFR 270.14(b)(17), 40 CFR 264.147, 40 CFR 264.151]

9.4.1 Coverage for Sudden Accidental Occurrences

The facility currently has liability insurance to provide coverage in case of sudden accidental occurrence in the amount of at least \$1 million per occurrence with an annual aggregate of at least \$2 million, as specified in WAC 173-303-620(8)(a) and 40 CFR 264.147(a).

9.4.2 Coverage for Non-sudden Accidental Occurrences

[WAC 173-303-620(8)(a), 40 CFR 264.147(a),(f)]

No surface impoundments, landfills, land treatment facilities, or disposal units will be operated at the MWF; therefore, this section is not applicable.

9.4.3 Request for Variance

[WAC 173-303-620(8)(c) 40 CFR 264.147]

The owner/operator of the MWF is not requesting a variance from the required liability coverage.