

SECTION 3

WASTE ANALYSIS

**MIXED WASTE FACILITY
RCRA/TSCA PERMIT APPLICATION**

PERMA-FIX NORTHWEST RICHLAND, INC.

RICHLAND, WASHINGTON

Mixed Waste Facility

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Attachments

Attachment 1 - Waste Analysis Plan

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3.0 WASTE ANALYSIS [C]

[WAC 173-303-806(4)(a)(ii) and (iii), WAC 173-303-300, 40 CFR 270.14(3), 40 CFR 264.13(b), (c)]

3.1 Chemical, Biological and Physical Analyses [C-1]

[WAC 173-303-806(4)(a)(ii), WAC 173-303-806(4)(b)(ii) and (v), WAC 173-303-806(4)(c)(x), WAC 173-303-140, WAC 173-303-300, WAC 173-303-395, WAC 173-303-630(7)(c) and (9), WAC 173-303-640(1)(b), WAC 173-303-640(2)(c), WAC 173-303-640(3)(a) and (10), 40 CFR 270.14(b)(2), 40 CFR 264.13(a), 40 CFR 268.7, and 40 CFR 268.9]

The Mixed Waste Facility (MWF) is a commercial waste storage and treatment facility. Treatment is achieved by one or more of the following methods: stabilization (STABL); neutralization (NEUTR); chemical oxidation (CHOXD); chemical reduction (CHRED); macro-encapsulation (MACRO) (alternative treatment standard for debris); deactivation (DEACT); carbon treatment (CARBN); physical extraction (alternative treatment standard for debris); chemical precipitation (PRECP); mercury amalgamation (AMLGM); mercury retorting (RMERC); solvent extraction; thermal desorption; ultra-violet (UV) oxidation and ion exchange. Descriptions of the different processes and treatment methods are provided in Section 5.0 of the Waste Analysis Plan (Attachment 1).

Wastes to be evaluated for acceptance are those designated under WAC 173-303-081 (discarded chemical products – U and P wastes), WAC 173-303-082 (dangerous waste sources – F and K wastes), WAC 173-303-090 (dangerous waste characteristics—D wastes), or WAC 173-303-100 (Washington State dangerous waste criteria – WT, WS, and WP wastes). Wastes to be evaluated for acceptance from sources outside the state of Washington will be those wastes designated under federal regulatory provisions (40 CFR Part 261) or the applicable regulatory provisions of the generator's state environmental agency.

Based on the treatment processes described above, the MWF can accept those wastes with the codes identified in Part A of the application. Dangerous waste codes listed in Part A were developed based on the following criteria:

- Acceptable wastes codes that have specified technology-based land disposal restriction (LDR) treatment standards identical or equivalent to the facility processes with technology codes of STABL, NEUTR, CHOXD, CHRED, MACRO, DEACT, CARBN, AMLGM,

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CMBST, PRECP, and INCIN as described in Table 1 of 40 CFR 268.42;

- Acceptable U.S. EPA waste codes that have concentration-based LDR treatment standards with associated constituents amenable to treatment by one or more of the treatment processes available at the MWF; and
- State only dangerous waste amenable to treatment by one or more of the treatment processes available at the MWF.

3.1.1 Waste in Piles [C-1a]

This section is not applicable; the MWF does not operate a waste pile.

3.1.2 Landfilled Wastes [C-1b]

This section is not applicable; the MWF does not operate a landfill.

3.1.3 Wastes Incinerated and Wastes Used in Performance Tests [C-1c]

This section is not applicable; the MWF does not operate an incinerator. The indirect-fire Thermal Desorber System provides thermal desorption and mercury retorting capabilities. However, these treatments are neither combustion nor incineration as the Thermal Desorber System only provides physical separation of liquids from solid materials and does not contain an after-burner unit.

3.2 Waste Analysis Plan (WAP) [C-2]

[WAC 173-303-806(4)(a)(iii), WAC 173-303-140, WAC 173-303-300(5) and (6), 40 CFR 270.14(b)(3), 40 CFR 264.13(b) and (c), 40 CFR 268.7, 40 CFR 268.9]

Off-site generators are responsible for completely and correctly identifying the dangerous constituents and characteristics of their waste and assigning the appropriate waste codes. If waste identification information provided by the generator is not complete, MWF management can either reject the waste, or assist the generator in the characterization of the waste in accordance with WAC 173-303-070. A waste analysis plan (WAP) has been developed for the MWF. The WAP is included as Attachment 1 and contains several appendices [e.g., sampling plan (SP), quality assurance program (QAP)]. The WAP, with its associated appendices, is a stand-alone document.

Waste acceptance criteria and protocols are provided in the WAP. These protocols include: 1) pre-acceptance procedures used to evaluate the characteristics and profile of waste from off-site generators prior to acceptance at the MWF; 2) identification of stabilization treatment formulation;

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3) and waste feed restrictions. Waste streams will not be accepted until properly characterized by the generator and/or MWF personnel. In addition to wastes received from off-site generators, waste can be generated on-site by virtue of the operation and maintenance of process equipment, receiving and storage areas; generation of treatment residues, etc. The on-site generated waste will be characterized to determine the appropriate on-site treatment or off-site transfer.

3.2.1 Detailed Chemical, Physical, and/or Biological Analysis [C-2a]

Any waste could be accepted for treatment or storage as long as all of the waste codes the waste carries are listed in the Part A Application. Typical waste types may include bulk solids (soil, gravel, granular solids, filter cake tank heel, container heel, etc.), metallic and non-metallic debris, bulk liquids (organic and inorganic, etc.), bulk metals (sheet metal, pipes, lead, etc.), heterogeneous solids (personal protective equipment, spill clean up kits, etc.).

Only wastes that can be safely managed at the MWF will be accepted. For example, a waste *must meet the minimum acceptance* criteria listed below to be considered for acceptance and management at the MWF.

- Wastes carrying waste codes listed in the Part A Application,
- Liquid waste with a flash point greater than or equal to 100°F, and
- Liquid waste with a flash point less than 100°F if received in containers with capacities less than or equal to 55 gallons.

And the following are examples of restricted wastes:

- Wastes carrying waste codes *not listed* in the Part A Application,
- Wastes classified as explosive or shock sensitive as defined by WAC 173-303-090(7)(a)(vi)-(viii), and
- Wastes classified as dioxin wastes (F020-F023 and F026-F028).

3.2.1.1 Parameters and Rationale [C-2a(1)]

[WAC 173-303-806(4)(b)(ii), WAC 173-303-140, WAC 173-303-300(2) and (5)(a) and (5)(f), WAC 173-303-395(1) and (2), WAC 173-303-630(7)(c), WAC 173-303-640(b) and (2)(c) and (3)(a), 40 CFR 270.15(b)(1), 40 CFR 270.24, 40 CFR 270.25, 40 CFR 264.13(b)(1) and (8), 40 CFR 264.17, 40 CFR 264.191(b)(2), 40 CFR 264.192(a)(2), 40 CFR 264.1034(d), 40 CFR 264.1063(d), 40 CFR 268.7]

Parameters and rationale selected to characterize and confirm the identity of each waste managed at the MWF are discussed in Section 2.0 of the WAP.

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3.2.1.2 Analytical Methods [C-2a(2)]

[WAC 173-303-110, WAC 173-303-300(5)(b), 40 CFR 264.13(b)(2) and (8), 40 CFR 264 Subpart BB]

3.2.1.2.1 Parameters and Methods [C-2a(2)(a)]

Sampling and testing methods used to characterize wastes are in accordance with Washington State requirements (WAC 173-303-110, Sampling and testing methods) and EPA SW-846 (Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods). Equivalent sampling and test methods may be used where relevant. Specific methods for individual parameters are referenced in Table 1a and Table 1b of the QAP (Appendix B of the WAP).

The methods required in 40 CFR Part 264 Subparts AA through CC will be used to determine compliance with the applicable air emission standards of those regulations.

3.2.1.2.2 Quality Assurance Program [C-2a(2)(b)]

The QAP (Appendix B to the WAP) describes the quality assurance requirements related to sampling and analytical laboratory work performed in support of the MWF WAP.

3.2.1.3 Generator-Supplied Analyses [C-2a(3)]

[WAC 173-303-300(3) and (5)(g) and (e), 40 CFR 264.13(b)(5)]

Information required from generators for waste acceptance is detailed in Section 3.0 (Pre-Acceptance) of the WAP. When generators do not provide sufficient information to properly manage the waste, MWF management will either not accept the waste for management or collect additional information according to the procedures outlined in Sections 2.0 and 3.0 of the WAP.

3.2.2 Additional Requirements for Wastes Generated Off-site [C-2b]

[WAC 173-303-806(4)(a)(iii), WAC 173-303-300(6), 40 CFR 264.13(c)]

Details of the incoming waste shipment procedure to be used when the MWF accepts waste generated off-site in Section 4.0 (Waste Receipt) of the WAP. When incoming wastes do not match the identity of the waste specified on the manifest or shipping paper, the waste shipment will be classified as a “non-conformance” shipment. In addition, it will be determined if the discrepancy is considered “significant,” i.e. difference in quantity or type shown on the manifest, etc., as defined by WAC 173-303-370(4).

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3.2.2.1 Parameters and Rationale to Confirm Identity of Off-site Waste [C-2b(1)]

[WAC 173-303-300(3) and (5)(a) and (5)(g), 40 CFR 264.13(a)(4) and (b)(1)]

Parameters and rationale selected to confirm identity of off-site waste are discussed in Section 2.0 of the WAP.

3.2.2.2 Analytical Methods to Confirm Identity of Off-site Waste [C-2b(2)]

[WAC 173-303-300(3) and (5)(b), 40 CFR 264.13(b)(2)]

Specific methods for individual parameters are referenced in the QAP (Appendix B of the WAP).

3.2.2.3 Representative Sampling of Incoming Off-site Wastes [C-2b(3)]

[WAC 173-303-300(3) and (5)(c), WAC 173-303-110(2), 40 CFR 264.13(b)(3), 40 CFR 261 Appx. I]

Representative sampling of incoming off-site wastes is detailed in Section A-1 (Sampling Strategy) and Section A-3 (Sampling Procedures) of the Sampling Plan (Appendix A to the WAP).

3.2.3 Methods for Collecting Samples for Detailed and Confirming Analyses [C-2c]

[WAC 173-303-300(5)(c), WAC 173-303-110(2), 40 CFR 264.13(b)(3), 40 CFR 264.1034(d), 40 CFR 261 Appx. I]

The methods and references for collecting detailed and confirming analysis are provided in Section A-3.2 (Sampling Procedures) of the Sampling Plan (Appendix A to the WAP). Representative sampling, maintenance and decontamination of sampling equipment, sample preservation techniques, chain of custody procedures, and sample holding times are detailed in Sections A-1 (Sampling Strategy), A-4 (Sample Preservation, Volumes, and Holding), A-5 (Equipment Decontamination), and A-6 (Sampling Documentation) of the Sampling Plan.

3.2.4 Frequency of Analyses [C-2d]

[WAC 173-303-300(4) and (5)(d), 40 CFR 264.13(b)(4)]

The frequency at which analyses will be repeated is detailed in Section 3.0 of the WAP. At a minimum analysis will be repeated, as prescribed by WAC 173-303-300, when one of the following occurs:

- A generator notifies MWF management that the process generating the waste has changed; or
- The results of inspection or analysis indicate that the waste received at the MWF does not match the identity of the waste designated on the accompanying manifest, shipping paper, or

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pre-acceptance documentation, and discussions with the generator indicate that the waste has permanently changed in composition and characteristics.

3.3 Manifest System [C-3]

[WAC 173-303-370, 40 CFR 264.71, 40 CFR 264.72]

3.3.1 Procedures for Receiving Shipments [C-3a]

[WAC 173-303-370(2) and (3) and (4), 40 CFR 264.71]

Procedures for receiving incoming shipments of waste are detailed in Section 4.0 of the WAP. At a minimum the following procedure is implemented for each waste shipment received at the MWF:

- Manifest or shipping paper is checked against the shipment to determine if there are any significant manifest discrepancies as defined by WAC 173-303-370(4)(a).
- The manifest or shipping paper is signed and dated.
- The transporter is given at least one copy of the signed manifest or shipping paper before leaving the MWF.
- A copy of the signed manifest or shipping paper is sent to the generator within 30 days after delivery at the MWF.
- A copy of the manifest or shipping paper is retained at the facility for at least three years from date of delivery.

3.3.2 Response to Significant Discrepancies [C-3b]

[WAC 173-303-370 (4), 40 CFR 264.72]

Procedures to resolve discrepancies found with receiving incoming shipments of waste are detailed in Section 4.0 (Waste Receipt) of the WAP. At a minimum, MWF management will discuss and attempt to resolve with the generator any significant discrepancy between the received waste and that shown on the manifest. If the significant discrepancy cannot be resolved within 15 days after receiving the waste, MWF management will notify the Washington State Department of Ecology (Ecology) in writing of the discrepancy and the attempts to reconcile it, and provide a copy of the manifest at issue.

3.3.3 Provisions for Non-acceptance of Shipment [C-3c]

[WAC 173-303-370(5)]

3.3.3.1 Non-acceptance of Undamaged Shipment [C-3c(1)]

[WAC 173-303-370(5)(b)]

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MWF management may reject waste shipments during incoming waste shipment for any of the following reasons:

- The MWF is not capable of properly managing the type(s) of dangerous waste in the shipment;
- The generator's paperwork is not in order;
- A manifest discrepancy cannot be resolved to the generator's and MWF management's satisfaction; or
- The shipment has arrived in a condition that presents an unreasonable hazard to facility operations or to facility personnel.

If an undamaged shipment is denied acceptance, the generator will be contacted to discuss the following options: 1) the shipment may be returned to the generator, 2) the shipment may be directed to another TSD.

3.3.3.2 Activation of Contingency Plan for Damaged Shipment [C-3c(2)]

[WAC 173-303-370(5)(c)]

Each container and each bulk shipment will be visually inspected for proper labeling, damage, and leaking or open containers. MWF management will determine if waste shipments with damaged, leaking, or open containers should be accepted. Should the damaged shipment present a potential hazard to the public health and the environment, the MWF Contingency Plan will be put into effect immediately.

3.4 Tracking System [C-4]

[WAC 173-303-380]

Dangerous waste received or generated at the MWF will be tracked from the point/time of receipt or generation through shipment off-site by assigning a unique identification number to each container of dangerous waste either received from off-site or generated on-site. Assigning a unique identification number to each container allows tracking each container or waste shipment as it moves through the facility (e.g., receiving, storage, processing, and shipment off-site).

3.4.1 Container Identification [C-4a]

Each waste container received at the MWF is assigned a unique identification number and is entered into the facility electronic tracking system. Waste information (e.g., waste profile, management

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method, and storage location) for each container received, processed, or generated at the MWF is linked to this identification number.

3.4.1.1 *Locating A Container In Storage Using the Waste Tracking System [C-4a(1)]*

Known information about the waste (e.g., generator name, waste name, date received, or management method) are used to locate the waste's manifest.

From the information in the operating record one can find the unique identification number of each waste container. By accessing the electronic tracking system or storage records one can identify the storage location of the container.

3.4.2 *Facility Record Keeping [C-4b]*

A written operating record will be kept at the facility in accordance with WAC 173-303-380. The operating record will be maintained until closure of the facility (except where indicated below). Information in the facility operating record includes the following:

- A description of and the quantity of each dangerous waste received or generated on-site;
- Manifests of received waste for at least three years from the delivery date;
- Methods and dates of storage, treatment, and/or shipment off-site;
- The location of each waste within the facility;
- Quantity of each waste within the facility;
- The complete treatment path for each waste accepted for treatment;
- Records and results of waste analyses including mixed waste profile records, analytical data, treatment evaluation results, waste rejection records, and treated waste verification information;
- LDR notices and certification;
- Summary reports and details of all incidents that require implementing the Contingency Plan;
- Records and results of inspections as required by WAC 173-303-320(2)(d) for at least five years;
- Closure cost estimate for the facility;
- Copies of notices to generators that the facility has all appropriate permits as required by WAC 173-303-290;

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- Copies of notices, certifications, and demonstrations, if applicable, required by the generator or the facility under 40 CFR 268.7; and,
- A certification by the permittee no less than annually that the permittee has a program in place to reduce the volume and toxicity of hazardous waste they generate to the degree determined by the permittee to be economically practicable; and the proposed method of treatment, storage, or disposal is that practicable method currently available to the permittee that minimizes the present and future threat to human health and the environment
- Written annual document logs for TSCA-regulated PCB wastes as required by 40 CFR 761.180(b)(i). These annual document logs will be retained for at least 3 years after the MWF ceases to store/process TSCA-regulated waste at the MWF.

In accordance with WAC 173-303-380(2)(a), each dangerous waste received, stored, or treated at the facility will be described by its common name and by its dangerous waste number(s) from WAC 173-303-080 through WAC 173-303-104. For wastes containing more than one process waste or waste constituent, the waste description will include all applicable dangerous waste numbers. Each waste description will include the following:

- The waste's physical nature (i.e., liquid, solid, sludge, or contained gas);
- The weight, or volume and density, of the dangerous waste in one of the units of measure specified in WAC 173-303-380, Table 1; and
- The date(s) and method(s) of management for each dangerous waste received or managed (stored, treated, recycled, or disposed) shall be recorded, using the handling code(s) specified in WAC 173-303-380, Table 2.

All facility records will be furnished upon request and made available at all reasonable times for inspection by any officer, employee, or representative of Ecology. During the course of any unresolved enforcement action regarding the facility, or as requested by Ecology, the retention period for all facility records will be extended. There will be no waste disposal at the facility, so submittal of disposal location records to the relevant authorities upon closure of the facility will not be necessary.

3.4.2.1 Land Disposal Restrictions [C-4b(1)]

Waste received at the facility will be subject to a review of the LDR notification, if accompanied with the shipment, along with the preliminary inspection given to the wastes. Any discrepancies in

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the LDR notification will result in the shipment being ineligible for acceptance until the generator clarifies the discrepancies.

Wastes resulting from treatment processes at the facility that exceed applicable LDR treatment are treated further to meet LDR treatment standards or shipped off-site for treatment/disposal. LDR notification is supplied to off-site facilities containing the information and at the frequency required under 40 CFR 268.7 and incorporated by reference in WAC 173-303-140 (2)(a). In addition to the LDR notification, any additional relevant information obtained from the generator is also supplied to the off-site treatment facility.

Wastes that are determined to meet treatment standards as specified in 40 CFR 268 and incorporated by reference in WAC 173-303-140 (2)(a) are either returned to the generator (in accordance with the generator's instruction to MWF management) or shipped to an approved land disposal facility. An LDR notification and certification, including appropriate analytical records to support the certification, will be supplied to the generator and/or receiving land disposal facility, in accordance with 40 CFR 268.7.