

**SECTION 3**

**WASTE ANALYSIS**

**ATTACHMENT 1  
WASTE ANALYSIS PLAN**

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

**PERMA-FIX NORTHWEST RICHLAND, INC.**

**RICHLAND, WASHINGTON**

# Mixed Waste Facility

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## **1.0 INTRODUCTION**

In accordance with the regulatory requirements of Washington State Administrative Code (WAC) 173-303-300, *Waste Analysis*, this Waste Analysis Plan (WAP) has been developed for the Mixed Waste Facility (MWF). A copy of this WAP is available at the facility.

### **1.1 Purpose**

The purpose of this WAP is to provide information necessary for the safe management of dangerous waste, hazardous waste, and Toxic Substances Controlled Act (TSCA) regulated polychlorinated biphenyl (PCB) waste (all of which is herein referred to as waste) at the Mixed Waste Facility (MWF). This plan establishes the process and procedures that will be used for waste analysis from pre-acceptance, receiving, storage, treatment, and final disposition of received waste or generated waste.

The plan divides the control of waste into the following three activities:

- 1) Pre-acceptance (Section 3.0),
- 2) Waste receipt (Section 4.0), and
- 3) Waste process control (Section 5.0).

Pre-acceptance identifies the procedures used to evaluate a generator's waste stream prior to accepting the waste stream for treatment. Pre-acceptance evaluations allow facility management to determine whether a generator's waste can be safely managed and properly treated within the bounds of the facility permit, applicable regulatory requirements, and facility treatment capabilities.

Waste receipt identifies the procedures used to accept a waste shipment from a generator. Waste receipt allows facility management to confirm that a generator's waste shipment received at the facility is the same waste that was approved during the pre-acceptance evaluation.

Waste process control identifies the process limitations and parameters of each treatment process. Waste process control allows facility management to identify the waste characteristics necessary to properly manage and treat a generator's waste within the bounds of the facility permit and treatment capabilities, and to determine whether such treatment has met all applicable treatment standards.

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## **1.2 Waste Acceptance Criteria**

Any waste carrying a dangerous waste code listed in the MWF Part A Application could be accepted for treatment or storage. Typical waste types may include bulk solids (soil, gravel, granular solids, filter cake, tank heels, etc.), debris, bulk liquids (organic and inorganic), bulk metals (sheet metal, pipes, lead, etc.), and heterogeneous solids (personal protective equipment, spill clean up kits, etc.). Each waste will be treated by one of the treatment processes discussed in Section 5.0 (Waste Process Control).

## **1.3 Restricted Wastes**

Certain waste will not be treated at the MWF. These wastes are defined as restricted; Table 1 (Wastes Restricted from MWF) identifies these excluded wastes.

In the event the MWF inadvertently receives a restricted waste, the waste will be stored in a permitted storage area until the waste can be transferred back to the generator or transferred to another facility permitted and equipped to manage the waste.

## **1.4 Process Limits**

Tolerance limits have been developed for each treatment process unit describing the range of wastes that each process unit can treat based on the unit's design. Wastes that do not fall within the process tolerance limits for a specific unit will not be approved for processing through the unit unless pre-treatment of the waste at the MWF or at the generator's site brings it within the tolerance of the process. Tolerance limits and their rationale for each process unit are provided in Table 2. In addition, tolerance limits for waste storage and their rationale are provided in Table 2a.

## **2.0 ANALYTICAL RATIONALE AND PARAMETERS**

The parameters chosen for screening and detailed analysis of the expected MWF waste streams are described below. The analytical procedures and sampling are discussed in Appendix A, Sampling Plan (SP), Appendix B, Quality Assurance Plan (QAP) and Appendix D, Analytical Procedures for Treatment Formula Development. Samples are analyzed to:

- Confirm generator-supplied waste profile information;

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- Verify pre-existing waste characterization;
- Determine the applicable management requirements for the waste;
- Comply with the MWF acceptance criteria;
- Define operational parameters for various treatment processes; and
- Confirm the applicable land disposal treatment standards are met.

The MWF management selects the appropriate parameters noted in Section 2.1 to provide sufficient information to safely store and manage received waste according to the requirements for: 1) pre-acceptance (Section 3.0), 2) incoming waste shipment verification (Section 4.0), and 3) process control (Section 5.0). Parameter analyses performed during receipt are not repeated unless there has been an intermediate-processing step that changes the characteristic of the waste in a manner such that facility management deems it necessary to retest the waste to maintain safe and compliant operations.

All incoming waste identification samples are subject to the selected parameter analyses as a first step in verification of the waste. Additional parameters may be used to obtain information required for efficient process control, safe and compliant operations, or to further evaluate the waste.

This program allows a tiered approach to waste identification and parameter selection to adequately identify the waste or to define operational parameters for the various treatment processes.

### **2.1 Parameters**

Parameters include screening procedures, or “fingerprints,” performed to identify the waste and indicate the most appropriate management. Fingerprint parameters include, but are not limited to, the following:

**Physical Description** identifies waste by describing the general physical properties of the waste (e.g., color, turbidity, physical state).

**Ignitability** indicates the fire-producing potential of the waste. This test identifies any obvious difference in waste type such as waste flammable solvent substituted for waste mineral acid.

**pH Screening** indicates the pH of the waste. pH may not apply to certain waste types, for example, organic wastes, or wastes that are not water soluble.

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**Lower Explosive Limit (LEL)** indicates the potential for explosive vapors that could be a threat to facility personnel, the environment, or equipment.

**Cyanides Screening** identifies if the waste produces hydrogen cyanide upon acidification below pH 2. Cyanide screening does not apply to liquid waste with a pH less than 2. The need for cyanide screening on a solid and semi-solid waste with a pH less than 2 will be determined on a case-by-case basis.

**Sulfide Screening** identifies if the waste produces hydrogen sulfide upon acidification below pH 2. Sulfide screening does not apply to liquid waste with a pH less than 2. The need for sulfide screening on a solid and semi-solid waste with a pH less than 2 will be determined on a case-by-case basis.

**Flash Point** further characterizes ignitable liquid waste to establish the proper storage mode and conformance with permit conditions.

**Mercury Screening** determines the presence of mercury in the waste.

**Polychlorinated Biphenyls (PCB) Screening** identifies PCBs in the waste.

**Water Compatibility** determines if a waste has the potential to generate extreme heat or violent reactions, and produce fumes, dust, gases, or other products when mixed with water.

**Specific Gravity or Bulk Density** indicates the density of the waste. This information is used to convert weight of liquids to volume (and reverse) as well as to further characterize the waste. It is also a key parameter for identifying changes in a waste.

Table 3 (Fingerprint Parameter Tolerance Limits) provides the acceptable variability range for each of the fingerprint parameter identified above. Table B-3 of the QAP (Methods for Fingerprint Parameters) identifies the test method for each of the parameters.

Along with fingerprint analyses, facility management may choose to evaluate other parameters of the waste to ensure that the waste does not exceed the selected treatment process tolerance limit. Other parameters include, but are not limited to, the following:

**Liquid Waste Compatibility** determines whether liquid wastes that are to be combined are compatible.

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**Metals by Atomic Absorption and/or Inductive Coupled Plasma (ICP)** quantifies the concentration of specified metals in a waste to determine treatment requirements.

**Paint Filter Test** verifies the presence or absence of free liquid in a waste.

**pH by Meter** provides a more precise measurement of pH and an indication of corrosivity when determining process parameters.

**Solids Content** indicates the percent solids in a waste when determining process parameters.

**Moisture Content** indicates the percent moisture in a waste when determining process parameters.

**Total and Amenable Cyanides** quantifies the concentration of all unbound and most complex cyanides (total cyanides) and/or cyanide species amenable to alkaline chlorination (amenable cyanides). Results may be used for treatability determinations, to monitor treatment processes, and/or to meet land disposal restrictions.

**Total Organic Carbon** is used to quantify the organic/carbonaceous content in the waste.

**Recipe Development** is performed to determine whether the waste is amenable to stabilization, and to determine the ratio of reagent-to-waste and other recipe specifications required for successful stabilization.

**PCB Analysis by Gas Chromatography/Mass Spectrometry (GC/MS)** is performed when a higher level of precision and accuracy is required to determine the presence and concentration of PCBs in the waste.

**Toxicity Characteristic Leaching Procedure (TCLP)** determines if a waste is hazardous because it exhibits "toxicity characteristics." The TCLP is also used under 40 CFR 268 to evaluate if treated waste meets the LDR treatment standards.

Results of these parameters provide facility management another level of confidence concerning the proper treatment and storage of incoming wastes.

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Additional analyses may be used to further evaluate a waste when one or more of the following conditions are met:

- If a discrepancy is noted during testing and additional information is required to determine how to manage the waste;
- If additional or more precise information is required to manage the waste safely within the MWF permit conditions;
- If facility management believes that the composition of the waste has changed; or
- Other reasons as determined by facility management.

Tables B-1 through B-4 of the QAP identify the test methods and detection limits for the parameters identified above, process parameters, and treatment standards.

## **2.2 Analytical Test Methods**

The test methods used for measuring the selected parameters are chosen from technical methods described in the following publications:

- The most recent promulgated edition of *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, SW-846, U.S. Environmental Protection Agency, Office of Solid Waste;
- *Standard Methods for the Examination of Water and Wastewater*, 21<sup>st</sup> Edition, American Public Health Association (APHA), American Water Works Association, Water Environment Federation;
- *Annual Book of ASTM Standards*, American Society for Testing and Materials (ASTM);
- *Chemical Testing Methods for Designating Dangerous Waste*, Washington State Department of Ecology; Publication No. 97-407; February 1998, and
- Other widely accepted analytical methods, proprietary methods, and non-standard methods. These methods may be needed in special cases to develop operational and safety related information at the discretion of facility management.
- Parameters will be selected that apply to the specific waste. Parameters will not be specified where they are clearly not applicable to the waste (e.g., pH for non-aqueous waste or organic liquids, Total Organic Compound (TOC) for organic liquids). Fingerprint parameters provide a control point to prevent accepting and processing waste that does not meet the permit

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requirements or treatment tolerances. The MWF will use acceptable variability based upon information in the generator's approved waste profile. The variability (e.g., +/- 30%) will be used as a "flag" to determine if a waste discrepancy exists. Limits of acceptable fingerprint parameter variability are provided in Table 3, (Fingerprint Parameter Tolerance Limits).

## **2.3 Sampling Methods**

Specific sampling methods for waste are described in the Sampling Plan (Appendix A). The sampling method for ambient air monitoring for PCBs, if required, is described in Appendix E.

## **3.0 PRE-ACCEPTANCE**

A series of control procedures have been developed to determine if specific wastes can be accepted for management at the MWF. The pre-acceptance procedures dictate what information must be obtained from the generator (or must be developed by the MWF) to determine if the waste can be accepted for management. At a minimum, the MWF must obtain all of the information required by WAC 173-303-300, and other information necessary to manage a waste stream. Standard or generic waste profiles may be developed for use as part of the pre-acceptance procedures; see Section 3.2 for a discussion of generic profiles.

Pre-acceptance is a mechanism for deciding whether to approve a particular type of waste, prior to its acceptance by the facility, based on the following:

- conditions or limitations of existing facility permits and applicable regulations
- treatment capabilities of the facility
- the nature of the waste
- the compatibility of the waste with the proposed treatment process (e.g., treatment equipment, reagents, protective coating, containers, etc.)
- the compatibility of the waste with other waste being managed at the facility.

The pre-acceptance procedures may be carried out by the employees at the MWF or at the generator's site and will be performed and completed upon waste receipt (prior to acceptance) of a shipment of waste. Similarly, when a generator's waste profile approval is renewed, the pre-acceptance procedures may be

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carried out by the employees at the MWF or at the generator's site and will be performed and completed upon waste receipt (prior to acceptance) of the next shipment of the waste

Pre-acceptance evaluation begins with a technical review of the generator's waste characterization presented on the waste profile sheet and any attached sample analyses and certifications. The applicable sections of the waste profile sheet must be completed to allow a thorough pre-acceptance evaluation of the generator's waste stream. If applicable sections are incomplete, the waste profile sheet is returned to the generator for completion. Alternatively, the MWF employees may complete the waste profile sheet with additional information obtained from the generator. In this case, the waste profile must clearly identify which information was obtained from the generator, and a record must be maintained to document which MWF staff and generator staff were involved, the date(s) the information was exchanged, and any other data that will document and trace the source of the information. The revised waste profile sheet must then be reviewed and certified by the generator. When the waste profile sheet is complete, it is evaluated against waste codes listed in the Part A, and against restricted wastes and process tolerance limits in Tables 1 and 2, respectively, to determine if the waste should be accepted or rejected. Figure 1 provides a logic diagram of the pre-acceptance process.

### **3.1 Procedural Requirements**

The following procedures apply to new waste streams that are candidates for delivery to the facility.

#### **3.1.1 Analytical and Written Information**

The MWF obtains the following written and analytical information:

- Pertinent chemical and physical data on the waste profile;
- A sample, if necessary. A sample may not be required if (1) the pre-acceptance documentation gives sufficient information to maintain compliance with permit and operational constraints and (2) the submittal of a sample would not materially aid in the treatment decision process. If necessary, the sample may be obtained upon receipt of the initial shipment of the waste prior to acceptance (or re-evaluation of waste profile).
- LDR notification/certification information and/or data as provided in WAC 173-303-140 (40 CFR 268.7), if applicable; and
- When appropriate, other supporting documentation such as Material Safety Data Sheets (MSDS) and product ingredients.

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The waste profile sheet, provided as an example in Appendix C to the WAP (Forms), identifies the informational requirements that generator should supply to properly evaluate the generators' waste stream and approve the waste profile. The generators may be requested to provide additional information, not included on the example waste profile sheet provided in Appendix C to the WAP, and may change the format of the waste profile sheet without requiring a permit modification.

During pre-acceptance, the MWF staff evaluates the generator-supplied written and analytical information to determine if the information is sufficient to safely manage and treat the waste. At a minimum, the generator must supply enough information for the waste to be safely managed and treated at the MWF.

### **3.1.2 Pre-Acceptance Evaluation**

After the MWF staff has evaluated the generator-supplied information and determined that the available information is sufficient to complete the pre-acceptance evaluation, the MWF staff will perform the following pre-acceptance activities:

- Identify compatibility characteristics of the waste stream;
- Determine the specific waste storage and treatment methodologies necessary for proper management of the waste;
- Select process control parameters, if any are applicable, for proper storage and treatment of the waste;
- Determine if a pre-shipment sample for recipe development studies is needed or if additional analytical information is required to confirm that the waste meets the MWF permit and process limitations and is consistent with the generator's characterization;
- Select analytical parameters for receipt control that will be used to confirm the identity and acceptability of each waste shipment; and
- Develop necessary safety guidelines for handling wastes in accordance with OSHA requirements.

### **3.1.3 Pre-Acceptance Analysis**

A waste sample will be analyzed for the selected parameters to provide information to determine if the waste can be managed, and/or if the waste sample matches the waste identified in the accompanying pre-acceptance paperwork. Additional parameters may be selected and evaluated by management. For example, a treatment test may be performed on a sample of a waste stream to identify the proper stabilization reagent(s) to waste ratio required to meet the applicable treatment standards for the waste.

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## **3.1.4 Facility Conditions**

After reviewing the pre-acceptance information and any data from waste sample analyses, the MWF staff will determine the acceptability of the waste based on:

- The permit conditions for the MWF;
- The availability of the proper waste management techniques (i.e., treatment and storage); and
- The available storage capacity at the MWF.

## **3.1.5 Alternative Treatment Standards**

Hazardous debris waste streams subject to the alternate treatment standards WAC 173-303-140 (40 CFR 268.45) will be evaluated to determine:

- The geometric shape of the debris;
- The hazardous constituents present on the debris; or
- Whether the debris is contaminated on the outer surfaces, the internal surfaces, or both.

Based on these criteria it will be determined if the debris can be accepted for macro-encapsulation, physical extraction, solvent extraction, or vitrification.

## **3.2 Generic Profiles**

Generic profiles may be used for waste streams that are:

- Similar in physical and chemical characteristics; and/or
- Generated by similar industries or processes.

This profile designation is consistent with the EPA approach of assigning a listed waste code to similar process wastes. All the wastes within a generic profile are managed at the MWF using the same treatment process.

A database has been developed for generic profiles based on physical and chemical characteristics from waste streams generated from similar industries and/or processes. The MWF staff will review the database and determine whether the individual waste streams are sufficiently similar in physical and chemical characteristics to establish a generic profile. The database developed may replace any requirement for a pre-acceptance sample for an individual waste stream.

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The MWF staff will compare generator provided information on a specific waste stream to an established generic profile, and determine if the stream conforms to the profile. Specific candidate waste streams that conform to an approved generic profile will be managed under the existing waste management decision specific to that generic profile. For example, a waste meeting the generic profile for stabilization treatment will be stabilized without performing a separate treatability test.

### **3.3 Decision Evaluation Logic**

Management decides whether to accept or reject the waste. Samples required for wastes being considered for acceptance are subject to the selected parameter analyses. Other parameter analyses could also be required for specific waste treatment processes. Treatment operation and the associated analyses are described in Section 5.0 (Waste Process Control).

Management may require additional parameter analyses to screen sample contaminants and/or properties, based on the following:

- Waste profile sheet description of the waste's chemical and physical properties;
- Waste profile sheet description of the process generating the waste;
- Any additional documentation, including information that the waste is subject to LDR of 40 CFR Part 268 or WAC 173-303-140;
- Results of any parameter analyses; or
- Management's experience and judgment.

The pre-acceptance evaluation concludes with documenting whether the waste is accepted and the proposed method of management. Management's technical treatment and storage decisions are based on:

- Management methods available;
- Conditions or limitations of existing permits and regulations;
- Capability to manage the waste in a safe and environmentally sound manner;
- Waste profile sheet description of the process generating the waste;
- Waste profile sheet description of the chemical and physical properties of the waste;
- Any additional documentation, including information that the waste is subject to LDR of 40 CFR Part 268 or WAC 173-303-140, and
- Results of the parameter analyses.

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A waste may be rejected during the pre-acceptance process for any of the following reasons:

- Significant discrepancy(ies) between pre-acceptance sample analysis results and analytical information provided by the generator;
- Incomplete or outdated information provided by the waste generator;
- The waste category is specifically excluded from acceptance at the MWF; and
- The waste cannot be safely and/or effectively treated, processed, or stored at the MWF.

### **3.4 Waste Profile Re-evaluation**

In accordance with WAC 173-303-300 [40 CFR 264.13], a waste profile will be re-evaluated if:

- a generator notifies the MWF staff that the process generating the waste has changed, or
- inspection or analysis indicates that the waste received at the MWF does not match the waste identified on the accompanying manifest, shipping paper, or pre-acceptance documentation.

When a waste profile is re-evaluated, the MWF staff may request the generator to do one of the following:

- Verify that the current waste profile is accurate;
- Supply a new waste profile; and/or
- Submit a sample for parameter analysis.

In addition, a waste profile will be re-evaluated by reviewing the paperwork to verify that the analytical data is accurate, current, and sufficient to properly manage the waste as intended. The generator may be asked to review the current waste profile and re-evaluation to confirm the information. Also, the MWF may obtain a sample from the generator or from a shipment of the waste for parameter analyses.

### **3.5 Waste Brokerage**

A generator may use the MWF employees for packaging their waste for transport to the MWF. Once management approves the waste for treatment and storage at the MWF, the MWF employee performs the following activities.

- Supervise the packaging of the generator's waste sent to the MWF for treatment;
- Perform verification sampling of the packaged waste;
- Place a tamper seal on each closed container;

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- Record the identification number on each container prepared for shipment; and
- Notify facility management of any discrepancies found during verification sampling of the waste.

After packaging, the waste may be shipped to the MWF or remain in storage at the generator's site for future shipping. Both facility management and the generator will agree on the exact timing of the waste shipment. Waste packaged and sampled under the supervision of a MWF employee at a generator's site will not be inspected and/or sampled during the acceptance process when the waste is received at the MWF, unless the waste containers have been tampered with (e.g., broken tamper seal). Figure 2 is a logic diagram of the process.

If the MWF receives containers that have been tampered with, the container will be opened in areas with adequate ventilation for visual inspection and sampled to verify waste content. The MWF staff will notify the generator and work with the generator to identify the reason for the tamper seal being broken.

### **4.0 WASTE RECEIPT**

This section describes the incoming waste shipment procedures for receiving waste at the MWF.

Each waste shipment coming to the MWF is inspected, sampled, and analyzed as described below. This serves two purposes:

- It compares the actual waste identity with that described during pre-acceptance and with that listed on the waste manifest, and
- It further ensures the proper disposition of the waste to appropriate on-site treatment and storage.

Waste shipments that have arrived at the facility are in the receiving process until the management decides waste acceptability and storage space availability. See Figure 3 (Waste Acceptance Process Logic Flow Diagram).

### **4.1 Required LDR Forms**

With the initial shipment to MWF, all wastes subject to the Land Disposal Restrictions (LDR) per WAC 173-303-140 [40 CFR Part 268] and that meet the appropriate treatment, or variance, or that meet the appropriate treatment standard or prohibition without treatment, must be accompanied by a form from the generator, certifying that the treated, exempted, or variance waste meets the appropriate treatment

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standards. This form must include the applicable analytical data or reference to such data or documentation to support the certification in accordance with 40 CFR Part 268.

For each waste subject to LDR and require treatment at MWF, the generator must notify the MWF of the appropriate treatment standards and all applicable prohibitions in accordance with 40 CFR Part 268.

## **4.2 Receiving Procedures**

Incoming waste shipment identification begins in conjunction with the arrival of the waste at the MWF. The sampling and analysis of the incoming waste are performed in accordance with the methods described in this section and the Sampling Plan (Appendix A).

### **4.2.1 Manifest/Shipping Paper Review and Transport Vehicle Inspection**

The following procedure is implemented for each waste shipment received by the over-the-road transport vehicle at the MWF. Facility Material Control Technicians or facility Shipper personnel are responsible for inspection of incoming manifests/shipping papers and incoming waste shipments.

1. Incoming vehicles will enter the facility from the access road off of Logston Blvd. and park inside the facility gate, but outside of the Radiological Controlled Area (RCA). At the gate to the RCA, the truck is inspected and surveyed to verify the reported radiation levels meet the requirements of 49 CFR 173.441 and 443.
2. Either the manifest or shipping paper is checked against the waste shipment to determine if the correct number of containers has arrived. If there is a discrepancy, management will contact the generator to resolve the discrepancy.
3. As part of the initial inspection, the containers in the shipment will be visually inspected for evidence of damage, leakage, or loss of integrity. Any leaking or failed container will be placed inside an overpack container using a safe handling procedure described in this Waste Analysis Plan. If the vehicle does not pass the initial inspection, it will be dealt with according to a "reject process" as described in this Waste Analysis Plan. Once it has been determined that information concerning the waste shipment is correct, the shipment is authorized to enter the RCA.

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4. After initial receipt (i.e. after completion of initial visual inspection, survey, and manifest or shipping document review), the shipment will be allowed to enter the RCA. Within 24 hours of entering the RCA, the shipment will be unloaded. Shipments enter the RCA through Gate D, as Gate F is used only for emergency or maintenance activities. Containers will be unloaded either directly into the MWF Building 13 or onto the Truck Loading Area (TLA) within the Yard Area and then into MWF Building 13. Containers of liquid waste will enter Building 13 through SB-03. Note both the Yard Area and TLA are inside the RCA. Occasionally, large bulky containers will be unloaded using a crane.
5. As part of off-loading, the individual waste containers are surveyed for dose rate and contamination; marking and labeling are verified against the shipping papers. Significant discrepancies, if any as described by WAC 173-303-370(4), are noted on each copy of the manifest or shipping paper.
6. The manifest or shipping paper is signed and dated by a duly authorized MWF representative to acknowledge "formal receipt" as per WAC 173-303-370. The transporter is given one signed copy of the manifest or shipping paper before leaving the MWF.
7. A copy of the manifest or shipping paper is sent to the generator within 30 days.
8. A copy of the manifest or shipping paper is retained at the facility for at least three years from date of receipt.
9. The shipment is inspected and verified before "formal acceptance." A unique barcode number is applied to each container; and then it is moved to an appropriate storage location within Building 13.

The following procedure is implemented for each waste shipment received by railcar at the MWF.

1. Incoming railcars/rail vehicles will enter the facility through the access Gate E on the south side of the facility property and will be parked outside of the RCA. Rail vehicles will then be inspected and surveyed to verify the reported radiation levels meet the requirements of 49 CFR 173.441 and 443. Rail vehicles will not enter the RCA.

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2. Either the manifest or shipping paper is checked against the waste shipment to determine if the correct number of containers has arrived. If there is a discrepancy, management will contact the generator to resolve the discrepancy.
3. As part of the initial inspection, the containers in the shipment will be visually inspected for evidence of damage, leakage, or loss of integrity. Any leaking or failed container will be placed inside an overpack container using a safe handling procedure described in this Waste Analysis Plan. If the rail vehicle does not pass the initial inspection, it will be dealt with according to a "reject process" as described in this Waste Analysis Plan.
4. Note that the Rail Loading Area (RLA) is inside the property boundary fence, but outside of the RCA. After initial receipt (i.e. after completion of initial visual inspection, survey, and manifest or shipping document review), the shipment will be transferred from RLA and moved inside the RCA. Within 24 hours of entering the RCA, the shipment will be unloaded. Shipments enter the RCA through Gate D, as Gate F is used only for emergency or maintenance activities. The shipment will be unloaded either directly into Building 13 or onto the TLA within the Yard Area and then into Building 13. Containers of liquid waste will enter Building 13 through SB-03. The rail vehicle will be inside the property boundary fence, but remain outside the RCA fence during loading and unloading. Occasionally, large bulky containers will be unloaded using a crane.
5. As part of off-loading, waste containers are surveyed for dose rate and contamination; marking and labeling are verified against the shipping papers. Significant discrepancies, if any as described by WAC 173-303-370(4), are noted on each copy of the manifest or shipping paper.
6. The manifest or shipping paper is signed and dated by a duly authorized MWF representative to acknowledge "formal receipt" as per WAC 173-303-370. The transporter is provided one signed copy of the manifest or shipping paper.
7. A copy of the manifest or shipping paper is sent to the generator within 30 days.
8. A copy of the manifest or shipping paper is retained at the facility for at least three years from date of receipt.

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9. The shipment is inspected and verified before "formal acceptance." A unique barcode number is applied to each container and then it is moved to an appropriate storage location within the MWF.

### **4.2.2 Visual Inspection**

Each bulk shipment of waste is visually inspected to verify the waste description provided on the approved waste profile sheet and accompanying manifest. Likewise, each container is opened and visually inspected to verify the waste description provided on the approved waste profile sheet and accompanying manifest. Visual inspection facilitates the subjective comparison and verifies the observable presence or absence of unexpected waste forms (i.e., free liquids, restricted waste forms).

If regulated PCBs are found when they are not expected (e.g., wastes are not designated as PCB wastes on the manifest/waste profile), the MWF staff will contact the generator to determine if the PCBs are TSCA regulated or Washington State regulated. If the PCBs are TSCA regulated, then the MWF staff will notify U.S. EPA Region X as required by 40 CFR 761.211. If the PCBs are Washington State regulated, the MWF staff will notify Ecology as required by WAC 173-303-370(4)(b). These wastes will be labeled with a process hold tag and moved to the "container segregation area" as soon as such a discrepancy is discovered. The process hold waste will be kept there, and management will have 15 days to complete the resolution process. This will include notifying the generator and attempting to resolve the discrepancy. If it becomes evident that the waste cannot be processed at the MWF, arrangements will be made for returning the waste back to the generator or another facility, as authorized by the generator before the 15 day resolution period expires. If the waste discrepancy is successfully resolved, the waste will be formally accepted, and it will be moved to the appropriate designated storage areas.

Table 4, Materials and Debris Potentially Contaminated with Regulated PCBs, provides examples of types of materials to look for during visual inspections. These materials have been found to have PCBs present, and include materials used in duct systems and insulation, paint formulations, coatings for ceiling tiles, roofing material, and siding material.

### **4.2.3 Verification Frequencies**

The MWF staff will initially perform verification sampling on at least 10 percent (e.g., one container in ten or a fraction of thereafter) of the containers of each waste stream received per generator. If a generator's waste stream fails acceptance, then facility management will contact the generator to resolve the acceptance discrepancy and will require that 25 percent (e.g., one container in four or fraction thereafter) of the containers in the next shipment of the generator's waste stream that failed acceptance at

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the 10 percent level be sampled. If the generator's waste fails at the 25 percent level, facility management will contact the generator to resolve the acceptance discrepancy and will require 50 percent (e.g., one container in two or fraction thereafter) of the containers in the next shipment of the generator's waste stream that failed acceptance at the one in four level to be sampled. If the generator's waste stream fails at the 50 percent level, then facility management will contact the generator to resolve the acceptance discrepancies and will notify the generator that a moratorium will be placed on the non-compliant waste stream until facility management and the generator have further characterized the waste. Once the non-conforming waste has been further characterized, facility management will notify the generator that the waste stream is approved for shipment to the MWF. The MWF will perform verification sampling on 50 percent of the containers received.

Facility management may reduce the verification frequency of a generator's waste stream if after two consecutive shipments the waste stream passes acceptance. However, the minimum verification frequency will be at least 10 percent of the containers of each waste stream received per generator.

### **4.2.3.1 Bulk Waste**

Bulk solids (e.g., soil, gravel, granular solids, filter cake, cleanup materials, personal protective equipment, debris) will normally arrive in: 1) B-25 boxes 2) intermediate bulk containers (IBCs), and 3) International Standards Organization (ISO) containers. Each bulk solid and liquid waste shipment is visually inspected, sampled, and analyzed as necessary for the applicable parameters, except where large volumes of a single waste characteristic are received from a single source (for example, dump truck, or roll-off bin truck loads or railcar deliveries from a major site cleanup of contaminated soil).

Dump trucks, roll-off bins, or railcars will be inspected and sampled as follows: 50 percent of the first ten loads will be sampled. In addition, every load will be visually inspected, and any load showing visible variations in color, texture, or wetness will be subject to sampling. If there is no variation among the sampled loads, the sampling regime will be reduced to 20 percent of the loads thereafter. If the sampled loads do show variation, the 50 percent sampling frequency will be re-instituted for the next 10 loads. If those do not show variation, then the frequency will return to 20 percent sampling.

### **4.2.3.2 Containers**

If a waste stream includes less than ten containers, at least one container will be sampled. At a minimum, 10 percent of the containers in each waste stream from each generator will be randomly sampled. Parameter analyses are selected for waste profile and manifest comparison and to confirm the

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acceptability of the waste for the identified treatment process. In the event that a waste discrepancy is found in any container of an incoming shipment, the MWF will contact the generator to attempt to resolve the discrepancy.

Waste containers will be off-loaded initially into Building 13 or the TLA within the Yard Area, or the RLA. The containers at the TLA or RLA are moved inside MWF Building 13 for inspection and verification prior to "formal acceptance".

Depending on where the inspection takes place, the temporary containment system (TCS), the area or the room will be maintained under negative ventilation during the inspection process. During the inspection, the container will be opened, a visual inspection will be conducted, and/or a sample may be obtained from the waste and the container will be closed. If the containers are formally accepted after inspection, they will be transported to storage areas or to the process areas. If additional time is required before a container is formally accepted, it will be taken to a process hold area or to a storage area where the container will be identified by a process hold label.

During container off-loading, if a waste container is found to be leaking, it will be placed into an overpack container or its contents transferred into another container in good condition. Any waste that was released due to the leak will be cleaned up in accordance with the spill cleanup procedures listed in the MWF Contingency Plan.

### **4.2.4 Exceptions**

Upon receiving certain waste streams, the shipment of the containers is visually inspected and piece count is verified. The sampling and parameter analysis of these wastes listed below is not required unless determined to be necessary by facility management. If inspection results are consistent with the manifest or shipping papers and the pre-acceptance documentation, the waste is accepted.

Exceptions to sampling and analysis requirements include the following wastes:

- Small containers of waste in overpacked containers (lab packs) packaged in accordance with WAC 173-303-161;
- "Empty" product containers as defined by WAC 173-303-160;
- Commercial products or chemicals in their original packaging: off-specification, outdated, unused, or banned. This also includes products voluntarily removed from the market place by a manufacturer or distributor;

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- Site generated waste. Waste generated on-site can generally be characterized adequately by knowledge of the generating process or source of the waste; and
- Debris as defined by WAC 173-303-040. These materials will be visually inspected prior to acceptance in order to ensure that the waste meets the definition of debris and does not appear to be contaminated by a restricted hazardous constituent (e.g., debris that is contaminated with TSCA regulated PCBs but not manifested as a TSCA-regulated PCB waste).

These wastes are not sampled because they exhibit unusual or impractical sampling (e.g., lab packs, debris, etc.), and/or are of such a nature that their contents are known in sufficient and reliable detail both chemically and physically that sampling is not needed (e.g., outdated commercial products). Glove boxes and/or specialty enclosures will be utilized to inspect and sample waste that may present a safety concern to facility (e.g., alpha-contaminated waste, highly odorous waste).

For the above exceptions, the MWF will complete the following:

- Obtain sufficient information on the chemical and physical characteristics for proper management of the waste;
- Verify that the waste is not a restricted waste listed in Table 1, Wastes restricted from MWF;
- Evaluate the waste to verify that applicable process tolerance limits, as specified in Table 2, Process Tolerance Limits, are met prior to processing such wastes;
- Evaluate the waste for compatibility prior to commingling with other wastes;
- Obtain the LDR notification/certification if required by WAC 173-303-140 (40 CFR 268.7), if any of these wastes are subject to LDR; and,
- Obtain the PCB disposal certification required by 40 CFR 761.180(b)(1)(ii).

Sampling and parameter analysis of these wastes is not required unless specifically requested by management.

### **4.3 Incoming Shipment Decision Evaluation Logic**

Management accepts or rejects each waste shipment utilizing the following major decision points:

**Waste Identification:** the effectiveness of the waste identification step is dependent on management experience and judgment and the following components: pre-acceptance paperwork review, waste

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manifest review, and waste inspection. Additional factors also may influence the effectiveness of the waste identification process such as: waste sampling, analytical results, and LDR forms.

**Additional Analysis (if necessary):** Management decides whether additional parameter analyses are required for a particular waste as described in Section 2.0. Further testing is required if the results indicate discrepancies with respect to pre-acceptance information or if management has reason to suspect that the waste composition has changed.

**Waste Non-conformance:** Management must classify the waste shipment as “non-conformance” if it is different in chemical or physical properties from the information on the waste profile, pre-acceptance information, or manifest. In addition, it is classified as a significant discrepancy if it were “significantly” different in quantity or type shown on the manifest as defined by WAC 173-303-370(4).

Four (4) major criteria are used to classify “non-conformance.” They are:

- For bulk wastes, variations greater than ten (10) percent in weight;
- For containerized wastes (e.g., drums, boxes), any variation in piece count;
- If inspection or parameter analysis of any waste shipment determines differences in waste type or code, such as waste solvent substituted for waste acid or toxic constituents not reported on the manifest or shipping paper; or
- If the non-conformance changes the originally approved method of management.

**Non-conformance Waste Disposition:** Non-conforming waste may be rejected or it may be re-evaluated for possible acceptance. The re-evaluation process determines whether a waste in the form identified by the MWF staff (i.e., not consistent with the waste profile, and/or manifest) can be managed at the MWF and whether or not the generator concurs with the identification. This process prevents the unnecessary movement of waste back and forth between the generator and the MWF, when waste can be managed by the facility. By eliminating this unnecessary movement, the facility is attempting to minimize potential exposure during transportation to human health or the environment. Re-evaluation is based on the following criteria:

- Discussions with or information from the generator;
- Facility conditions for storage and treatment;
- Additional parameter analyses will be performed as deemed appropriate by facility management;
- and
- Management judgment.

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The waste is accepted if evaluation based on the above criteria indicates the waste can be accepted and the generator concurs with the waste identification. Management will discuss and attempt to resolve with the generator any discrepancies between the received waste and the manifest. If any significant discrepancy cannot be resolved within 15 days after receiving the waste, the MWF staff will notify Ecology, in writing, of the discrepancy and the attempts to reconcile it, and will provide a copy of the manifest at issue (WAC 173-303-370). If TSCA-regulated PCB waste is received at the facility without any shipping paper, the MWF will provide a report to US EPA Region X in accordance with 40 CFR 761.211.

A waste may be rejected during the incoming waste shipment evaluation process for any of the following reasons:

- The generators'/transporter's paperwork is not in order;
- A manifest discrepancy cannot be resolved to the generator's and the MWF's satisfaction;
- Regulatory requirements (for example, specific permit conditions);
- Adequate segregated space is not available for incompatible containerized liquid wastes and special handling cannot be used to correct the deficiency.

Rejected wastes will be moved and placed in the designated "container segregation" area as soon as such a discrepancy is discovered. The rejected waste will be kept there, and management will have 15 days after the waste verification to complete the resolution process. This will include notifying the generator and attempting to resolve the discrepancy. If it becomes evident that the waste cannot be processed at the MWF, arrangements will be made for returning the waste back to the generator or another facility, as authorized by the generator, before the 15-day resolution period expires. If the waste discrepancy is successfully resolved, the waste will be formally accepted and it will be moved to the appropriate designated storage areas.

The final decision to reject all or part of a waste shipment is made by management. Decisions are made as soon as the MWF staff has collected and considered all of the applicable information listed above. The MWF staff will strive to complete these decisions as early as practicable, but circumstances can cause delays in obtaining the information necessary to make an informed decision on the acceptability of the waste. Under such circumstances, the MWF staff will take appropriate action to facilitate the decision process. During this time, proper segregated staging locations are determined using available information (e.g., material safety data sheets (MSDSs), waste profile) to provide sufficient information to ensure the waste is staged with compatible wastes.

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## **5.0 WASTE PROCESS CONTROL**

Each movement of waste within the mixed waste facility where changes in composition may occur make the waste potentially subject to additional inspection, sampling, and analysis to determine the appropriate handling, treatment, and management. Many analyses needed for waste management are performed during incoming waste shipment activities. These procedures are not repeated unless it is known or believed that the waste characteristics have changed during storage or treatment and in the judgment of facility management, additional inspection or analyses are needed.

The proper treatment of a particular waste depends on appropriate sampling and analysis of the waste. Process sampling and analysis at the MWF is divided into the three following segments.

**Pre-treatment analyses** confirm that the waste falls within the selected process tolerance limit parameters (Table 2) and allow fine-tuning of the process operational conditions for optimal treatment. These analyses are typically conducted concurrently with receipt analyses as specified in Table 3.

**In-process analyses** may be performed to control the process and to monitor waste treatment progress. These analyses will be as dictated per the Standard Operating Procedure kept at the facility for a specific process.

**Post-treatment analyses** confirm successful treatment [i.e., the characteristics of the process effluent are such that it can be sent to the next step (e.g., disposal, free-release, or further treatment)] based on permit, WAC 173-303-140 (40 CFR 268), or process constraints. Waste or treatment residues generated from treatment of land disposal restricted wastes will be analyzed and evaluated against the applicable treatment standards. Any treatment residue or waste sent off-site for disposal or further treatment will be accompanied by the appropriate certification/notification forms in accordance with WAC 173-303-140 (40 CFR Part 268). Post-treatment analyses will be performed as specified in Table 5.

Liquid ignitable, corrosive, and reactive wastes require special management to minimize degradation to treatment equipment or any unexpected reactions during waste treatment.

Ignitable waste with a flashpoint less than 100°F will be deactivated in TP-14 or TT-03. Once the waste has been deactivated in TP-14 or TT-03, it can be further treated by carbon filtration and ultra-violet (UV)

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oxidation in TP-14 or stabilized in TT-01, TT-02, or TT-03. It is important to note that this exclusion applies only to liquid waste that has a flashpoint below 100°F. It does not apply to debris, media, or other waste that is carrying an ignitable waste code (D001) but does not have a flashpoint less than 100°F.

Corrosive waste with a pH less than 2 or a pH greater than 12.5 may be treated in TT-03 or TP-14. After the waste has been deactivated (e.g., pH greater than 2 and less than 12.5), it can be further treated in TT-01, TT-02, TT-03, or TP-14.

Reactive waste that is reactive for cyanide and/or sulfide will only be processed in TP-14, or TT-03. This is to minimize the possibility of the waste to come in contact of liquids or solids that would cause the uncontrolled liberation of hazardous levels of cyanide and/or sulfide gases.

The following sections describe the various process systems used at the MWF for processing/treating waste.

## **5.1 Process Description**

The MWF treatment processes and descriptions are summarized as follows:

- TP-01 - Size Reduction and Screening System
- TP-02 - Cutting and Shearing System
- TP-13 - Sorting System (Not Treatment)
- TP-14 - Liquid Treatment System
- TP-07 - Compaction and Macro-Encapsulation System
- TP-10 - Extraction System
- TT-01 - High-Capacity Mixing System
- TT-02 - Low-Capacity Mixing System
- TT-03 - In-Container Mixing System
- TT-05 - Physical Extraction System
- TT-08 - Thermal Desorber System
- TT-09 - Mercury Amalgamation System
- TT-10 - Debris Washing System

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## **5.2 Storage**

**Containerized Waste Storage Areas (Rooms SB-02, SB-03, SB-04, SB-05, SB-06, SB-07, SB-08, SB-09, SB-11, MWT-01, MWT-02, MWT-04, WSB-1, WSB-2, WSB-3, WSB-4):** Waste containers will be off-loaded initially into Building 13, or the TLA within the Yard Area, or the RLA. The containers at the TLA or RLA are moved to inside MWF Building 13 for inspection and verification prior to “formal acceptance.” Liquid waste containers will enter Building 13 through SB-03.

Depending on where the inspection takes place, the TCS, the area, or the room will be maintained under negative ventilation during the inspection process. During the inspection, the container will be opened, a visual inspection will be conducted, and/or a sample may be obtained from the waste and the container will be closed. If the containers are formally accepted after inspection, they will be transported to storage areas or to the process areas. If additional time is required before a container is formally accepted, it will be taken to a process hold area or to a storage area where the container will be identified by a process hold label.

When the waste container is formally accepted, the process hold label will be removed, and if in a process hold area, the container will be transported to storage or process areas. Typically, the acceptance process does not exceed more than 30 calendar days after the start of container verification. When a container is scheduled for treatment, the fork lift truck will transport it from the storage area either directly to the designated treatment system or to a containerized waste staging area for pre-sorting and transfer operations. Depending on where the transfer operations take place, the TCS, the area or the room will be maintained under negative ventilation during the transfer process. Transfer operations may include removing the waste over-pack material and transferring waste objects from containers into transportable in-process containers (TICs), or removing large objects from a container and placing them in a TIC. When a transfer operation is complete, TICs containing wastes will be capped and sent to the designated treatment system. All treated wastes will be packaged and undergo final inspection and certification. When final inspection and certification is completed, the treated waste containers are transported to a storage area.

**Bulk Waste:** Bulk waste may also be handled in the MWF. Bulk solid dangerous waste containers (ISO container), boxes, IBCs or bulk liquid containers will be off-loaded initially into Building 13, or the Truck Loading Area (TLA) within the Yard Area, or the Rail Loading Area (RLA). The containers at the TLA or RLA are moved to inside MWF Building 13 for inspection and verification prior to “formal

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acceptance". Inspections of containers will involve maintaining negative ventilation in the area, opening container, doors or caps, conducting a visual inspection and, if necessary, obtaining a sample from the waste and closing the container. If the bulk container is formally accepted after inspection, it will be transported by a fork lift truck to storage or processing. If additional time is required before a container is formally accepted, the area where the container is stored will be delineated with a process hold tag and a sign indicating "segregated container" storage area. When the waste container is formally accepted, the process hold tag will be removed. When a container is scheduled for treatment, the waste will undergo transfer operations as necessary. Transfer operations will include removing waste objects from the container and transferring them to a TIC. As with the inspection operations, the transfer operations will be conducted when a negative air pressure is established in the work areas. When a transfer operation is complete, TICs containing wastes will be sent to the designated treatment system.

**HAZMAT Cabinets (Room SB-02 and WSB-04):** Dangerous waste containers requiring segregation (such as those wastes having a corrosive, reactive, or ignitable hazard classification) will be staged in one of the HAZMAT enclosures in SB-02 or WSB-04. The enclosures are equipped with National Fire Protection Agency (NFPA)-approved fire protection systems and include secondary containment.

**In Process Surge Storage:** In addition to the staging and storage units described above, small quantities of in-process wastes will be stored in their original containers or TICs near the pre-treatment or treatment units for a short period of time (usually less than 7 days).

**Rejected Container Storage Provisions:** Containers will be kept in the reject areas until the resolution process is complete and the containers are either formally accepted or rejected and loaded into vehicles for off-site shipments. The container will be labeled with a container process hold tag. Containers requiring segregation will be placed into the HAZMAT enclosures in SB-02 or WSB-04.

### **6.0 REQUIRED CERTIFICATIONS AND NOTIFICATIONS**

MWF provides the following notifications and certifications for treated waste:

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Treated Waste Forms	Notification, Certification, and Recordkeeping Requirements
LDR waste and treatment residue meeting LDR standards	Notice includes: EPA hazardous waste number;

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Constituents of concern for certain wastes;  
 Treatability group;  
 Subcategory;  
 Manifest number;  
 Waste analysis data (when available);  
 Certification in accordance with 40 CFR  
 § 268.7(b)(4) stating that the waste or  
 treatment residue has been treated in compliance with the  
 applicable treatment standards and prohibitions.

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Debris excluded from the  
 definition of hazardous waste  
 under 40 CFR §261.3(f).

One-time notification to Ecology as specified in 40 CFR  
 268.7(d)(1) to include:  
 Name and address of facility receiving treated debris;  
 EPA hazardous waste number and description  
 of hazardous debris as initially generated;  
 Technology used to treat the debris (Table 1 of 40 CFR  
 §268.45).  
 Update and resubmit the notification to Ecology if the  
 debris is shipped to a different facility, if a different  
 technology is used to treat the debris, or if a different  
 type of debris is treated.

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Debris is treated using one of  
 the extraction technologies in  
 Table 1 of 40 CFR §268.45  
 and is thus excluded from the  
 definition of hazardous waste  
 under 40 CFR §261.3(f)(1)

Recordkeeping in accordance with 40 CFR  
 §268.7(d)(3)(i) through (iii).  
 Certification for each shipment of compliance with  
 applicable treatment standards in accordance with 40 CFR  
 §268.7(d)(3)(iii) must be kept in facility files.

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Treated waste

Notification, Certification, and Recordkeeping  
 Requirements

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Waste and treatment residue from  
 TSCA regulated waste (PCBs)

Notice includes:  
 The identity of the disposal facility, by name, address, and  
 EPA ID number;  
 The identity of the PCB waste affected by the Certification  
 of Disposal including reference to manifest number for

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	shipment; A statement certifying the fact of disposal of the identified PCB waste, including the date(s) of disposal, and identifying the disposal process used; and a certification as defined in 40 CFR 761.3
Waste or treatment residue which no longer exhibits hazardous characteristics under 40 CFR §268.9(d)	One-time notification and certification to be placed in MWF files, which includes: Name and address of facility receiving the waste; EPA hazardous waste number and description of hazardous waste as initially generated; treatability group; underlying hazardous constituents; certification accordance with §268.7(b)(5).

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**Table 1 Waste Restricted from MWF<sup>1</sup>**

<b>Restricted Waste</b>	<b>Rationale</b>
Forbidden explosives as defined by 49 CFR 173.54, or Class 1 explosives (Divisions 1.1, 1.2, 1.3, & 1.5) as defined by 49 CFR 173.50 (WAC 173-303-090(7)(a)(viii)).	No treatment capability for forbidden or Class 1, (Divisions 1.1, 1.2, 1.3, & 1.5) explosives.
Waste carrying a waste code not listed in the Part A Application.	Regulatory Restriction.
Waste classified as explosive or shock sensitive as defined by WAC 173-303-090 (7)(a)(vi)-(vii).	No management capability for these waste types.
Waste classified as dioxin waste (F020-F023 and F026-F028).	Regulatory Restriction.
Containers holding a containerized gas at pressures greater than 25 psi, <sup>2</sup> or larger than 18" in any dimension <sup>2</sup> .	No treatment capability for containers of containerized gas above 25 psi, or larger than 18".
Waste that would cause the MWF to exceed the possession requirements listed in the MWF radioactive material license. (RML #WN-I0508-1).	MWF cannot exceed the possession limits stipulated in the MWF radioactive materials license.
Liquid waste received in greater than 55-gallon containers with a flash point less than 100 °F.	No safe storage capability for these waste types.

<sup>1</sup>If it is determined that a waste listed on this table is received, the waste may be stored separately in the waste storage area until arrangements are completed to return the waste to the generator or to forward the waste to a facility authorized and capable to receive the waste.

<sup>2</sup>These values are established from the manufacture specifications of the containerized gas treatment equipment.

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**Table 2 Process Tolerance Limits**

Process Unit	Limits	Rationale
Size Reduction and Screening (TP-01)	No metal debris, plastic films/sheets, cables, ropes, reinforced concrete.	Potential for system to jam.
	No waste with a flash point less than 100° F.	Safety.
	No waste that is not amenable for conveyance into the size reduction and screening units.	Treatment performance.
	No waste with greater than 10 percent total organic carbon if waste is to be stabilized.	Safety and regulatory requirement. (WAC 173-303-140)
Cutting and Shearing (TP-02)	No ignitable (D001), corrosive (D002), or reactive (D003) waste.	Safety.
	No containerized gas at greater than 25 psi or larger than 18".	Safety.
	No pyrophoric metals.	Safety.
	No free volatile organic liquids.	Safety.
Sorting (TP-13) (Not Treatment)	No ignitable (D001), corrosive (D002) or reactive (D003) waste.	Safety.
	No bulk or large containerized liquids.	Safety.
Liquid Treatment (TP-14)	No ignitable (D001), corrosive (D002) or reactive (D003) waste.	Safety.
	No waste that is incompatible with other wastes to be consolidated in the process equipment.	Safety.
	No waste with greater than 10 percent total organic carbon.	Safety and regulatory requirement. (WAC 173-303-140)
	No waste that is not amenable to pumping.	Potential for system to become clogged.
	No waste with a flash point less than 100° F unless waste is to be deactivated.	Safety.
	No waste that is not amenable to the prescribed treatment (i.e., does not pass treatability test).	Safety and treatment performance.
Compaction/Super Compaction (TP-07)	No high mercury waste (i.e., $\geq 260$ ppm Hg)	Regulatory requirement (WAC 173-303-140 [40 CFR 168.40])
	No unpunctuated containerized gas containers.	Safety.
	No reactive debris exhibiting the characteristics of reactivity for cyanide. ( $\geq 250$ ppm cyanide)	Regulatory requirement. (WAC 173-303-140 [40 CFR 268.45(d)(3)])
	No bulk or containerized liquids.	Safety.
	No waste larger than 24 inches in any dimension.	Size limitation of compaction container.

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**Table 2 Process Tolerance Limits**

Process Unit	Limits	Rationale
	No ignitable (D001), corrosive (D002) or reactive (D003) waste.	Safety.
	No high mercury waste (i.e. $\geq 260$ ppm Hg).	Regulatory requirement (WAC 173-303-140 [40 CFR 268.40])
Extraction Mixers (TP-10)	No waste with a $\text{pH} \leq 2$ or a $\text{pH} \geq 12.5$ .	Regulatory restriction and to prevent degradation of equipment. (WAC 173-303-140)
	No waste with a flash point less than 100° F.	Safety.
	No waste incompatible with feeding and mixing equipment and reagents.	Safety and to prevent acid attack on equipment.
	No waste that is not able to meet applicable land disposal requirements after stabilization using the prescribed stabilization recipe.	Process control and regulatory requirement. (WAC 173-303-140)
	No high mercury waste (i.e. $\geq 260$ ppm Hg).	Regulatory requirement. (WAC 173-303-140 [40 CFR 268.40])
	No waste with greater than 10 percent total organic carbon.	Safety and regulatory requirement. (WAC 173-303-140)
High Capacity Mixing (TT-01)	No waste with greater than 10 percent total organic carbon.	Safety and regulatory requirement. (WAC 173-303-140)
	No waste with a flash point less than 100° F.	Safety.
	No waste with a $\text{pH} \leq 2$ or a $\text{pH} \geq 12.5$ .	Regulatory restriction and to prevent degradation of equipment. (WAC 173-303-140)
	No waste that is incompatible with feeding and mixing equipment and reagents.	Safety and to prevent acid attack on equipment.
	No waste that is not able to meet applicable land disposal requirements after stabilization using the prescribed stabilization recipe.	Process control and regulatory requirement. (WAC 173-303-140)
	No ignitable (D001), corrosive (D002), or reactive (D003) waste	Safety and to prevent degradation of equipment.
	No high mercury waste (i.e. $\geq 260$ ppm Hg).	Regulatory requirement. (WAC 173-303-140 [40 CFR 268.40])
Low Capacity Solids Mixing (TT-02)	No waste with greater than 10 percent total organic carbon.	Safety and regulatory requirement. (WAC 173-303-140)
	No waste with a $\text{pH} \leq 2$ or a $\text{pH} \geq 12.5$ .	Prevent degradation of equipment.
	No waste with a flash point less than 100° F.	Safety.
	No waste incompatible with feeding and mixing equipment and reagents.	Safety and to prevent acid attack on equipment.

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**Table 2 Process Tolerance Limits**

Process Unit	Limits	Rationale
	No waste that is not able to meet applicable land disposal requirements after stabilization using the prescribed stabilization recipe.	Process control and regulatory requirement. (WAC 173-303-140)
	No ignitable (D001), corrosive (D002) or reactive (D003) waste.	Safety.
	No high mercury waste (i.e. $\geq 260$ ppm Hg).	Regulatory requirement. (WAC 173-303-140 [40 CFR 268.40])
In-Container Mixing (TT-03)	No waste that is not compatible with mixing equipment.	Safety and treatment performance.
	No waste with a flash point less than 100° F unless waste is to be deactivated.	Safety.
	No high mercury waste (i.e. $\geq 260$ ppm Hg).	Regulatory requirement. (WAC 173-303-140 [40 CFR 168.40])
	No waste that is not amenable to the prescribed treatment (e.g. does not pass treatability test).	Safety and treatment performance.
	No waste that is not able to meet applicable land disposal requirements after stabilization using the prescribed stabilization recipe.	Regulatory restriction. (WAC 173-303-140)
	No ignitable (D001) or reactive (D003) waste.	Safety.
Physical Extraction (TT-05)	No non-debris waste.	Regulatory restriction. (WAC 173-303-040)
	No waste greater than 24" in any one dimension.	Safety and treatment performance.
	No water reactive residues.	Safety.
Thermal Desorber (TT-08)	No TSCA-regulated waste to be fed.	Permit restriction.
	Total metals and chlorine feed rate will not exceed permit limits.	Permit restriction.
	No free liquids.	Safety and treatment performance.
	No debris exceeding 60 mm in any one direction.	Safety and treatment performance.
	No intact aerosol cans or intact compressed gas cylinders.	Safety and treatment performance.
Mercury Amalgamation (TT-09)	No elemental mercury waste.	Regulatory requirement. (WAC 173-303-140 [40 CFR 268.40])
Debris Washing (TT-10)	Debris must be no more than 1/2" in one dimension (i.e., thickness).	Performance and/or design and operating standard prescribed in 40 CFR 268.45.

## *Mixed Waste Facility*

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**Table 2a Waste Storage Process Tolerance Limits**

Waste Type	Limits	Rationale
Bulk Waste	No waste that is incompatible with other wastes in storage area and with storage equipment.	Safety and waste to waste compatibility.
	Waste must not have a flash point below <u>100°</u> F.	Safety.
Containerized Waste	No waste that is not compatible with other wastes in storage area and with storage equipment.	Safety and waste to waste compatibility.
	No waste that is not compatible with container material.	Safety and to prevent deterioration of container.
	No liquids with a flash point less than <u>100°</u> F unless packaged in a lab pack, ≤55- gallon container, or as an incidental liquid from containerized solids <sup>1</sup> .	Safety.
Reactive, Corrosive, and Flammable Waste	No waste that is not compatible with other wastes in storage area.	Safety and waste to waste compatibility.

<sup>1</sup>Incidental liquids are liquids that collect inside a container as a result of container heating and cooling or agitation (e.g., interstitial liquids that collect at the bottom or top of a container during transportation.)

## *Mixed Waste Facility*

<b>Table 3 Fingerprint Parameter Tolerance Limits</b>	
<b>Parameter</b>	<b>Variability Limit</b>
Visual Inspection/Physical Description	Gross variation in color, physical appearance, consistency to profile, and free liquids.
pH	+/- 1 unit unless a wider range is specified on the waste profile sheet.
Cyanides	+/- 20% of the range provided on the approved waste profile.
Sulfides	+/- 20% of the range provided on the approved waste profile.
Flash point	+/- 30% of the range provided on the approved waste profile.
Explosive vapors (Lower Explosive Levels)	+/-50% of the range provided on the approved waste profile for concentrations greater than 20%.
	+/-100% of the range provided on the approved waste profile for concentrations between 1% and 20%.
	+/-200% of the range provided on the approved waste profile for concentrations less than 1%.
Specific gravity/density	+/-10% of the range provided on the approved waste profile.
PCBs	+/- 50% of the range provided on the approved waste profile.
Mercury	+/- 50% of the range provided on the approved waste profile.
Ignitability	Must be consistent with range specified on the approved waste profile sheet.
Water Compatibility	Must be consistent with what is reported on the approved waste profile sheet.
<p>Note: The above limits are guidelines to set an acceptable range. However, the acceptable range cannot include a restricted waste or clearly fall outside of the process tolerance limits for any process unit where the waste will be treated. Variability limits for parameters not listed will be based on permit limitations, waste restrictions, process tolerance limits, or waste specific considerations.</p>	

## *Mixed Waste Facility*

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**Table 4 Materials and Debris Potentially Contaminated with Regulated PCBs\***

<b>Construction Materials</b>	<b>Electrical Equipment/Materials</b>	<b>Hydraulic Equipment/Materials</b>
Insulation Ceiling tiles Roofing materials Siding material Paint Coatings for roofing and siding Impregnated asphalt	Fluorescent light ballast Cables Electrical tape Capacitors Commercial/industrial appliances Motors Rubber insulators	Hydraulic Oil Pumps Gaskets Hoses Valves Compressor bearings

\*List is not all inclusive but provided as general information.

## *Mixed Waste Facility*

**Table 5 Post-Treatment Analyses**

<b>Process</b>	<b>Post-Treatment Analysis</b>
1. Size Reduction and Screening (TP-01)	None
2. Cutting and Shearing (TP-02)	None
3. Sorting (TP-13) [Not Treatment]	None
4. Liquid Treatment (TP-14)	None for wastes treated with specified technology. LDR check for wastes with concentration treatment standard.
5. Compaction and Macroencapsulation (TP-07)	None
6. Extraction Mixers (TP-10)	None
7. High-Capacity Mixing System (TT-01)	LDR check
8. Low-Capacity Mixing System (TT-02)	LDR check
9. In-Container Mixing (TT-03)	LDR check
10. Physical Extraction (TT-05)	Confirm a clean debris surface for glass, metal, plastic, and rubber.  Confirm a clean debris surface after removing at least 0.6 cm of the surface layer for brick, cloth, concrete, paper, pavement, rock, and wood.
11. Thermal Desorber (TT-08)	LDR check
12. Mercury Amalgamation (TT-09)	None
13. Debris Washing (TT-10)	None

# Mixed Waste Facility

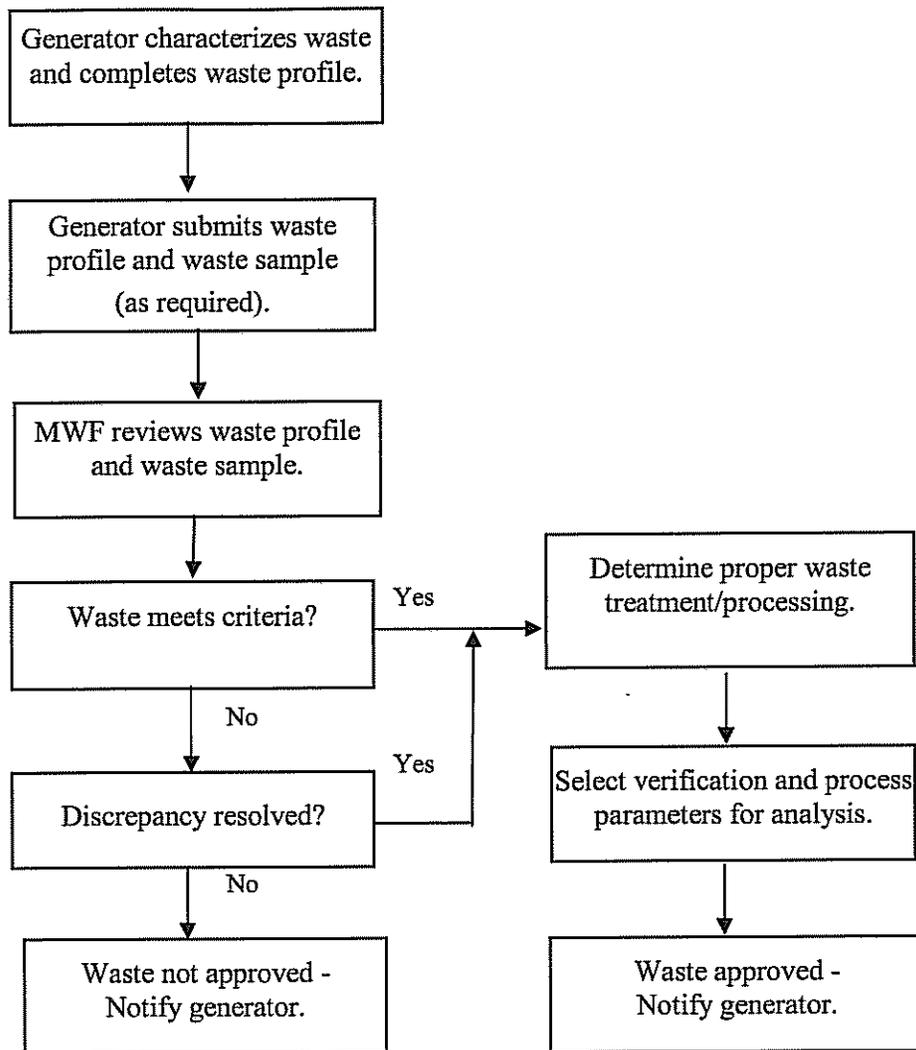


Figure 1. Pre-Acceptance Process Logic Flow Diagram.

# Mixed Waste Facility

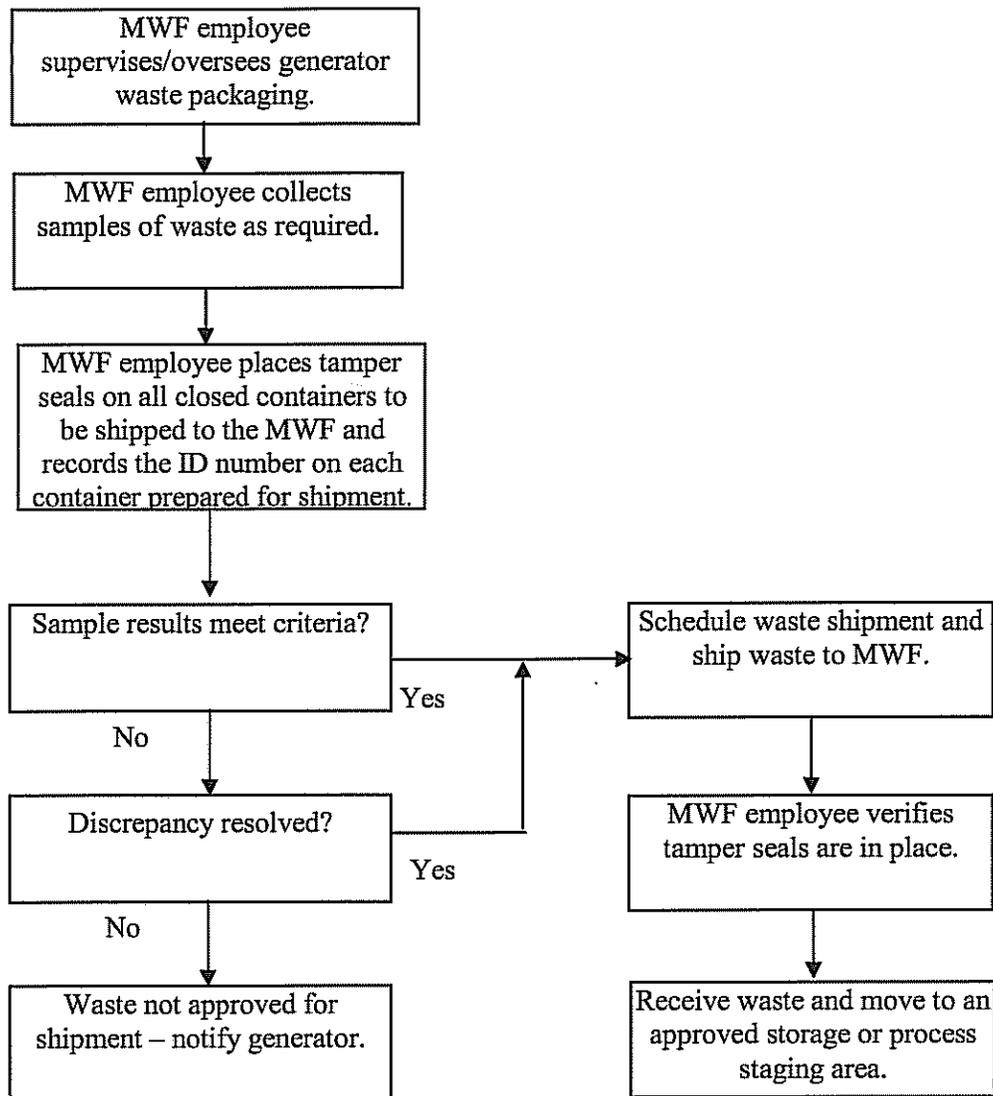


Figure 2: Brokerage Logic Flow Diagram

# Mixed Waste Facility

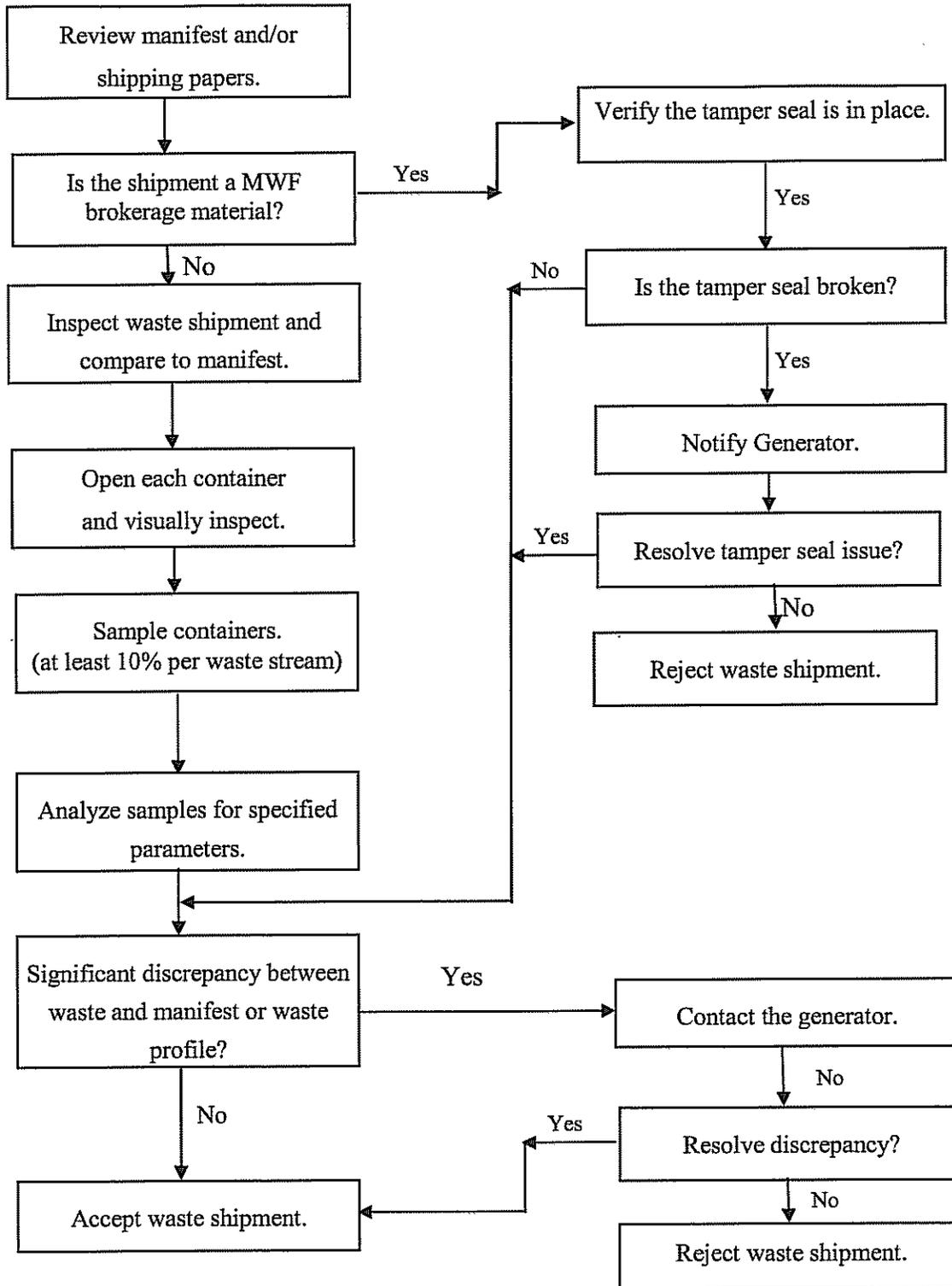


Figure 3. Waste Acceptance Process Logic Flow Diagram