# U.S. Department of Energy
# Hanford Site

DEC 1 2 2019

19-ECD-0090

Ms. Alexandra K. Smith, Program Manager
Nuclear Waste Program
Washington State
Department of Ecology
3100 Port of Benton Blvd.
Richland, Washington 99354

Dear Ms. Smith:

SUBMITTAL OF HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT PERMIT MODIFICATION NOTIFICATION FORM 24590-LAW-PCN-ENV-18-012

The purpose of this Class 1 prime permit modification is to consolidate and remove unused Low-Activity Waste (LAW) tank system tables, and update and move LAW system tables from permit conditions to Chapter 4E. The modification also updates LAW miscellaneous unit tables III.10.H.C and LAW Vitrification System Automatic Feed Cutoff Parameter Tables in III.10.H.F.

If you have any questions, please contact me, or your staff may contact Mary Burandt, Environmental Compliance Division, on (509) 372-8828, or Bret Peck, Bechtel National, Inc., on (509) 371-4498.

Sincerely,

Glyn D. Trenchard, Assistant Manager
Technical and Regulatory Support
Office of River Protection

ECD:MEB

Attachment

cc: See page 2

cc w/attach:
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BNI Correspondence
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cc w/o attach:
J. Bell, NPT
G. Bohnee, NPT
S. L. Dahl, Ecology
R. Ferri, YN
M. Johnson, CTUIR
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K. Niles, Oregon Energy

Attachment
19-ECD-0090

Hanford Facility RCRA Permit Modification Notification
Form 24590-LAW-PCN-ENV-18-012

(448 Pages Including Cover Sheet)

Quarter Ending: Dec. 31, 2019 24590-LAW-PCN-ENV-18-012

RCRA Operating record number: R605

# Hanford Facility RCRA Permit Modification Notification Form
## Part III, Operating Unit 10
## Waste Treatment and Immobilization Plant

Index

Page 2 of 5: Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant. Update and move the LAW tank system table from permit conditions to Chapter 4E and update the LAW miscellaneous unit table III.10.H.C and the LAW Automatic Waste Feed Cutoff Parameter table III.10.H.F.

Submitted by Co-Operator:

Robert D. Haggard 12/6/19
Robert D. Haggard Date

Reviewed by ORP Program Office:

Thomas W. Fletcher 12/11/19
Thomas W. Fletcher Date

Quarter Ending: Dec. 31, 2019 24590-LAW-PCN-ENV-18-012

RCRA Operating record number: R605

| Hanford Facility RCRA Permit Modification Notification Form | |
|---|---|
| Unit: **Waste Treatment and Immobilization Plant** | Permit Part: **Part III, Operating Unit 10** |

Description of Modification:

The purpose of this Class [1]1 modification is to update and move the LAW tank system table from permit conditions to Chapter 4E and update the LAW miscellaneous unit table III.10.H.C and the LAW Automatic Waste Feed Cutoff Parameter table III.10.H.F.

The specific changes required by this modification are listed below.

| | | | |
|---|---|---|---|
| **Facility Specific Definitions** | | | |
| Add | Definitions | | |
| Modify | Definitions | | |
| **III.10.C Unit-Specific Conditions for the WTP Unit** | | | |
| Update | Table references | | |
| **III.10.E Tank Systems** | | | |
| Update | Table references | | |
| Delete contents and reserve | Table III.10.E.Q | | |
| Reserve and replace contents of | Table III.10.E.B | With | Table 4E-2 |
| Reserve and replace contents of | Table III.10.E.F | With | Table 4E-1 |
| Delete contents and reserve | Table III.10.E.K | | |
| Delete contents and reserve | Table III.10.E.0 | | |
| **III.10.F Containment Building Units** | | | |
| Update | Table references | | |
| **III.10.H LAW Vitrification System – Short Term Miscellaneous Thermal Treatment Unit-Shakedown, Demonstration Test, and Post Demonstration Test** | | | |
| Update | Table references | | |
| Revise | Permit conditions | | |
| Replace | Table III.10.H.C | With | Updated Table III.10.H.C |
| Replace | Table III.10.H.F | With | Updated Table III.10.H.F |
| **Chapter 4 Process Information** | | | |
| Update | Table references | | |
| **Chapter 4E Low-Activity Waste (LAW) Vitrification Facility** | | | |
| Revise | Table of Contents | | |
| Update | Table references | | |
| Create new | Table 4E-1 | With | Material from Table III.10.E.F |
| Revise | Table 4E-2 | | |

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The specific changes required by this modification are listed below.

Redline changes to Facility-Specific Definitions are summarized below:

- Add definition of malfunction, shutdown and startup and process control system.
- Revise definition of cascade event and continuous monitoring system.
- Deleted definitions of vitrification system startup and vitrification system shutdown.

Redline changes to **Permit Conditions III.10.C, III.10.E, III.10.F and III.10.H** are summarized below:

- Deleted or revised applicable references to tables III.10.E.B, III.10.E.F, III.10.E.K, III.10.E.R, III.10.E.S, and III.10.E.Q.
- Deleted tables III.10.E.B, III.10.E.F, III.10.E.K, III.10.E.O, and III.10.E.Q.
- Updated references to Chapter 4E tables because they are being renumbered, see below.
- Redline clarification and changes to the text.

Redline changes to **Table III.10.E.Q – Tank System Penetration Seal Locations** are summarized below:

- This table is deleted, there are no tank system related penetration seals. LAW penetration seals are described in facility specific penetration seal tables, e.g., Table III.10.H.G for LAW.

Redline changes to **Table III.10.E.B – LAW Vitrification Plant Tank Systems Description** are summarized below:

- The P&ID and general arrangement drawing numbers in column three of this table are transferred to the "Description" column of new Table 4E-2.
- The remaining portions of Table III.10.E.B are deleted as the information provided is also on new Table 4E-2.

Redline changes to **Table III.10.E.F – LAW Vitrification Plant Tank System and Leak Detection System Instruments and Parameters** are summarized below:

- This table is deleted from the permit conditions and its contents moved to Chapter 4E as new Table 4E-1.

Redline changes to **Table III.10.E.K – LAW Vitrification Plant Tank System Primary Containment Sump Systems** and **III.10.E.O – Analytical Laboratory Tank System Primary Containment Sump Systems** are summarized below:

- The content of these tables is deleted, and the tables are reserved. There are no primary containment sump systems in the Lab or the LAW.

Redline changes to **Table III.10.H.C – LAW Vitrification System Process and Leak Detection System Instruments and Parameters** are summarized below:

- Table III.10.H.C has been struck-out and entirely replaced with a new Table III.10.H.C.
- The layout of the table has been revised to delete the Item No. and P&ID columns. A row describing the miscellaneous unit by equipment number and associated P&ID is now provided for each set of instruments.
- The order of the columns has been changed, column headings revised, and a new column added for Action Level.
- All the instruments on the current version of the table, except the AWFCO instruments, and melter plenum temperature, are on the new table.
- Melter plenum temperature has been removed on the basis of June 6, 2008, CCN: 180917, Approval of Waste Treatment and Immobilization Plant (WTP) Demonstration Tests of Melter Offgas Treatment Systems at a Single Operating Condition.

- The AWFCO instruments have been removed from Table III.10.H.C to reduce redundancy. They are provided on Table III.10.H.F.
- To the extent possible, the table rows have been simplified to represent an instrument loop by its transmitter.
- Control function descriptions have been expanded.

Redline changes to **Table III.10.H.F – LAW Vitrification System Automatic Waste Feed Cutoff Parameters During Short Term Treatment Operations** are summarized below:

- Table III.10.H.F has been struck-out and entirely replaced with a new Table III.10.H.F.
- The layout of the table has been revised.
- The order of the columns has been changed, column headings revised, and a new column added for control function and testing rationale.
- All the instruments on the current version of the table are on the new table.
- The automatic waste feed cut-offs associated with secondary off-gas treatment system bypasses have been added to the table.

Redline changes to **Permit Chapter 4 – Process Information** are summarized below:

- Renumbered table references. Table 4E-3 became Table 4E-4 and Table 4E-4 became Table 4E-5.

Redline changes to **Permit Chapter 4E – Low-Activity Waste (LAW) Vitrification Facility** are summarized below:

- New Table 4E-1 as described below.
- Changes to revised Table 4E-2 as described below.
- Renumbered current tables. Table 4E-1 became Table 4E-2, Table 4E-2 became Table 4E-3, Table 4E-3 became Table 4E-4, Table 4E-4 became Table 4E-5 and Table 4E-5 became Table 4E-6.
- Table of Contents updated to list new Table 4E-1 and renumbered other tables.
- References to Table III.10.E.F replaced by references to new Table 4E-1.

New **Table 4E-1 – LAW Vitrification Plant Tank System and Leak Detection System Instruments and Parameters** is summarized below:

- Provides a new Table 4E-1 that updates the information from deleted Table III.10.E.F.
- The table provides LAW tank system liquid-level instruments for leak detection, spill prevention and control.
- The table provides LCP and LFP tank system flow instruments to monitor plant service air flow through vessel headspace for hydrogen gas accumulation mitigation.
- The table provides LFP tank system temperature instruments to monitor tank contents of the LFP tanks and stop the vessel agitators to prevent vessel shell overheating.

Redline changes to revised **Table 4E-2 – LAW Vitrification Facility Tank Systems** are summarized below:

- Current Table 4E-1 is renumbered to Table 4E-2.
- Columns one and two of this table are deleted as row numbers are not needed and the system designations are redundant with information provided in the vessel tag number and location column.
- The P&IDs and general arrangement drawings from column three of Table III.10.E.B are added to the “Description” column of Table 4E-2.
- Vessel tank volumes and dimensions are updated to provide the vessel overflow volumes and dimensions used in vessel volume calculations.

In accordance with Permit Condition III.10.C.2.e, this permit modification includes redlined Tables III.10.E.Q, III.10.E.B, III.10.E.F, III.10.E.K, III.10.H.C, III.10.H.F and 4E-1 through 4E-6. Also, in accordance with Permit

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Condition III.10.C.2.e, this permit modification includes redlined permit conditions from III.10.C, III.10.E, III.10.F, III.10.H and text from Chapters 4 and 4E.

**NOTE:** This modification request affects components of the Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant associated with other pending modification requests, specifically Hanford Facility RCRA Permit Modification Notification Form, 24590-WTP-PCN-ENV-18-007. Pending modification request, 24590-WTP-PCN-ENV-18-007, updates the existing permit chapters to describe design/process modifications needed to support the operation of the DFLAW Facilities; revises Part A, LAW and EMF permit conditions; revises chapters 3, 3B, and 3C; revises chapters 4, 4E, 4G, and 4I; revises, chapters 6 and 6A, chapter 7, chapter 8 and the Dangerous Waste Training Plan to describe the operations of the DFLAW Facilities.

| WAC 173-303-830 Modification Class: | Class 1 | Class [1]1 | Class 2 | Class 3 |
|---|---|---|---|---|
| Please mark the Modification Class: | | X | | |

Enter relevant WAC 173-303-830, Appendix I Modification citation number: NA

Enter wording of WAC 173-303-830, Appendix I Modification citation:

In accordance with WAC 173-303-830(4)(d)(i), this modification notification is requested to be reviewed and approved as a Class [1]1 modification. WAC 173-303-830(4)(d)(ii)(A) states. “Class 1 modifications apply to minor changes that keep the permit current with routine changes to the facility or its operation. These changes do not substantially alter the permit conditions or reduce the capacity of the facility to protect human health or the environment. In the case of Class 1 modifications, the director may require prior approval.”

| Modification Approved/Concur: ☐ Yes ☐ Denied *(state reason below)*<br>Reason for denial: | Reviewed by Ecology:<br><br>S. Schleif Date |
|---|---|

# WASTE TREATMENT AND IMMOBILIZATION PLANT
# CHAPTER 4E
# LOW-ACTIVITY WASTE (LAW) VITRIFICATION FACILITY
## CHANGE CONTROL LOG

Change Control Logs ensure that changes to this unit are performed in a methodical, controlled, coordinated, and transparent manner. Each unit addendum will have its own change control log with a modification history table. The "**Modification Number**" represents Ecology's method for tracking the different versions of the permit. This log will serve as an up to date record of modifications and version history of the unit.

Modification History Table

| Modification Date | Modification Number |
|---|---|
| 12/7/2018 | 24590-WTP-PCN-ENV-18-001 (8C.2018.Q4) |
| 10/16/2018 | 24590-LAW-PCN-ENV-18-005 (8C.2018.Q4) |
| 10/01/2018 | 24590-WTP-PCN-ENV-18-003 (8C.2018.Q4) |
| 06/08/2018 | 24590-LAW-PCN-ENV-17-006 (8C.2018.Q2) |
| 09/05/2017 | 8C.2017.6F |
| 12/15/2016 | 8C.2016.Q3 |

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# CHAPTER 4E
# LOW-ACTIVITY WASTE (LAW) VITRIFICATION FACILITY

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# CHAPTER 4E
# LOW-ACTIVITY WASTE (LAW) VITRIFICATION FACILITY

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# 4E Low-Activity Waste Vitrification Facility

This chapter describes the Waste Treatment Plant (WTP) Low-Activity Waste (LAW) Vitrification Facility, including processes and systems associated with management of tank systems, miscellaneous units (MUs), and containment buildings. The LAW Vitrification Facility has major processes, systems, permitted tanks, MUs, containment building units, and support systems. Figure 4A-3 located in Chapter 4A presents a simplified process flow diagram of the LAW vitrification processes. The LAW Vitrification Facility processes and systems perform the following functions:

- Receive and store pretreated LAW feed.
- Convert blended LAW feed and glass formers into glass.
- Treat melter offgas.
- Handle Immobilized Low Activity Waste (ILAW) containers.
- Store ILAW containers.
- Provide supporting equipment in the melter gallery.
- Handle miscellaneous secondary waste.
- Ventilate the LAW Vitrification Facility.

The following figures located in Chapter 4A and drawings found in Dangerous Waste Permit (DWP) Operating Unit Group 10, Appendix 9, provide additional detail for the LAW Vitrification Facility:

- Simplified flow diagrams for the WTP and the LAW Vitrification Facility.
- Process flow figures and drawings for process information.
- Typical system figures depicting common features for each regulated system.
- General arrangement figures and drawings showing locations of regulated equipment.
- Waste management area figures and drawings showing facility locations to be permitted.

Instrumentation, alarms, controls, and interlocks will be provided for the tank systems and miscellaneous treatment unit sub-systems to indicate or prevent the following conditions, as appropriate:

- Overfilling: Plant items are protected against overfilling by liquid level indication, high level instrumentation interlocks to shut off feed sources, and process control system control functions backed up by hard wired trips as required.
- Loss of containment: Plant items are protected against containment loss by liquid level indication, process control system control and alarm functions as required, including shut off of feed sources. Tanks and MUs that manage liquid mixed and/or dangerous waste are provided with secondary containment. Ancillary equipment and miscellaneous unit ancillary equipment are provided with secondary containment or are visually inspected for leaks on a daily basis in accordance with Washington Administrative Code (WAC) 173-303-640(4)(f). Some LAW Vitrification Facility tanks and/or MUs utilize daily visual inspections for leak detection. Sumps associated with the management of mixed and/or dangerous waste are provided with liquid level instrumentation and an ejector or pump to empty the sump as needed.
- Inadvertent transfers of fluids: System sequential operations are properly interlocked to prevent inadvertent transfers at the wrong time or to the wrong location.
- Loss of mixing function: Tank systems are instrumented (air pressure/flow indication) to prevent hydrogen accumulation and solids settling. Tanks with agitators are instrumented to prevent agitator and/or vessel damage at low liquid level.
- Unsafe or off-normal melter operating conditions.
- Degraded emissions control equipment and/or operating conditions.

- Loss of air flow: The ventilation systems are designed to create a pressure gradient which causes air to flow through engineered routes from an area of lower contamination potential to an area of higher contamination potential.
- Loss of site power.

In addition to level control, temperature and pressure may be monitored for tank systems and miscellaneous treatment unit systems in some cases. Additional information may be found in the system logic descriptions located in DWP Operating Unit Group 10, Appendix 9.13. Regulated process and leak detection system instruments and parameters will be provided in ~~DWP~~ Table 4E-1~~III.10.E.F~~ for tank systems and in DWP Table III.10.H.C for miscellaneous treatment unit sub-systems.

Descriptions of the LAW vitrification process, melter offgas treatment systems, and ILAW glass container handling systems are provided in Sections 4E.2 through 4E.4. ~~Table 4E-1~~ Table 4E-2 lists current tank design information (capacity, materials of construction, and dimensions). ~~Table 4E-2~~ Table 4E-3 lists the current miscellaneous unit design information. The tanks and MUs are grouped by process systems in these tables.

Tanks or MUs that manage liquid mixed or dangerous waste are provided with secondary containments. ~~Table 4E-3~~ Table 4E-4 summarizes the secondary containment rooms/areas and calculated minimum liner heights. Sumps, leak detection boxes, and secondary containment drain systems are listed in ~~Table 4E-4~~Table 4E-5.

## 4E.1 Containers

The LAW Vitrification Facility does not have permitted container storage areas. The dangerous and mixed waste generated at the LAW Vitrification Facility is managed in containment buildings, as described in Section 4E.3. In addition, containerized secondary waste is managed in 90-day accumulation areas and satellite accumulation areas pursuant to the requirements in WAC 173-303-200, generating dangerous waste on-site. All waste anticipated to be dangerous or mixed waste is managed in accordance with WAC 173-303-170, requirements for generators of dangerous waste, through WAC 173-303-230, special conditions. The dangerous and mixed waste is labeled and characterized in accordance with requirements in WAC 173-303-070, designation of dangerous waste. Information on all 90-day accumulation areas and satellite accumulation areas is maintained as required in the Hanford DWP, Part II General Facility Conditions, Permit Condition III.I.1.a.

### 4E.1.1 Description of Containers

The following types of waste will be managed in containers:

- ILAW (immobilized glass)
- Miscellaneous mixed waste (secondary waste)
- Miscellaneous nonradioactive dangerous waste (secondary waste)

The waste form dictates the type of containers used for waste management. The following are examples of the generated secondary waste:

- Spent or failed equipment
- Offgas High Efficiency Particulate Air (HEPA) filters
- Spent maintenance materials
- Melter consumables
- Personal Protective Equipment

### 4E.1.2 Container Management Practices

The following paragraphs describe how each of the containers used at the LAW Vitrification Facility are managed.

#### 4E.1.2.1 ILAW Containers

Immobilized glass waste ILAW containers will be moved remotely due to the high radiation content of the waste. A brief discussion of how the containers move through the WTP is presented below

An empty container will be transported to a LAW glass pour cave and placed on a turntable designed to hold three containers. There are two LAW pour caves at each melter, each with the capacity to manage three containers at a time. The container will be sealed to the melter discharge with a pour head connection. The glass waste will fill the container during the course of approximately 10 hours.

The filled ILAW container will be lowered back onto the turntable. The filled container will cool for 10 to 30 hours to reach glass transition temperature (approximately 400°C to 500°C), which characterizes the transformation from an equilibrated melt to a "frozen" glass structure. At this stage, the waste glass does not contain liquid and is in a viscous state that ultimately stabilizes to a solid. Once the container has cooled, it will be rotated to the transfer position. The container will then be lifted by a remotely operated monorail hoist, moved to the transfer tunnel, lowered onto a container transfer bogie, and transported to a position within the transfer tunnel below the finishing line. In the event the finishing line becomes backed up, the container may be transported to the LAW Container Buffer Storage Containment Building. The containers will not be stacked.

The container will be transported to the LAW container finishing line (see Section 4E.3), where the level of waste glass will be measured and additional inert filler will be added, if needed.

A sample of the glass may also be collected in this location prior to inert filling. Glass within the neck of the container will be removed by abrasion and the lid will be attached to the container. The debris generated from residual glass removal will be collected with a vacuum system and disposed of as a secondary waste.

After the lid is mechanically sealed, the container will be moved to the decontamination cell where contamination will be removed. Using a turntable, the container will revolve while a power manipulator tracks the entire surface with decontamination equipment. The dry decontamination process will use carbon dioxide pellets. The container will then be transported to the swabbing cell, where its surface will be swabbed. The radiation levels of the swab will be remotely monitored, and the results will determine whether the ILAW container will be ready for transportation to the disposal site, or go through decontamination again.

<u>Other ILAW Container Storage Requirements</u>

As stated in WAC 173-303-630(5)(c), a 30 in. separation is required between aisles of containers holding dangerous waste in permitted container storage areas. In addition, WAC 173-303-340(3) requires a 30 in. separation to allow unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment in an emergency.

Evaluation of the 30-in. aisle spacing requirement by the United States Department of Energy (DOE), WTP, the United States Environmental Protection Agency (EPA), and the Washington State Department of Ecology (Ecology) for ILAW containers concluded that aisle spacing in the range of 4 to 16 in. was adequate based on the following factors:

- Personnel access into the immobilized glass canister storage cave will be restricted. High radiation dose rates from immobilized glass waste canisters will preclude personnel entry into the process and storage areas, and inspection of the ILAW containers will be performed remotely. (See Operating Unit Group 10, Chapter 6.0 for the inspection approach.)

- Water-based fire suppression systems will not be used in the ILAW Container Buffer Storage Containment Building. Because of its inert nature, the glass waste will present a low fire hazard, and a minimal amount of combustible material will be present. The only potentially combustible material that may be present in the immobilized glass waste canister storage cave is insulation on crane motors and associated cables. To ensure no water is introduced into the canister storage cave, a dry chemical fire suppressant system may be installed.
- Spill control equipment will not be necessary within the ILAW Container Buffer Storage Containment Building. Spills or leaks from the stored canisters will not occur because the glass waste will be in a solid form and will not contain free liquid. The glass transition temperature characterizes the transformation from an equilibrated melt to a "frozen" glass structure.

The ILAW containers will be stored in a storage rack to allow airflow. No stacking of the ILAW containers will occur. Closed circuit television cameras will enable general viewing of both areas.

#### 4E.1.2.2 Waste Tracking

The plant information network interfaces with the integrated control network and is designed to collect and maintain plant information. The plant information network is currently planned to the following systems (all systems used at the plants/facilities and balance of facilities are provided for information only):

- Plant data warehouse and reporting system
- Laboratory information management system
- Waste tracking and inventory system

Inventory and Batch Tracking

The waste tracking and inventory system will interface with the information system data historian to provide reporting information such as tank volumes, waste characteristics, and facility inventories of process waste. The waste tracking system will also be used to query operations parameters at any time information is needed, as specified by operations, to manage the process system. ILAW containers will be tracked within the facility using an operations developed system: for example, manually recording on a board, manually inputting into the information network, or if available, automated through the integrated control network.

Secondary Waste Stream Tracking

Containerized secondary waste streams and equipment will be tracked and managed through commercially available database management software. Containers will be mapped in each plant and updated during the inspection process using a commercially available drawing software application.

Laboratory Information Management System

The Laboratory Information Management System (LIMS) will be an integral feature of the plant information network. The LIMS will serve as an essential tool for providing data management of regulatory and processing samples. The chosen LIMS will be a commercial off-the-shelf software package designed for performing laboratory information management tasks as described in American Standard Test Method (ASTM) E1578-93, *Standard Guide for Laboratory Information Management Systems*.

The LIMS will track the flow of samples through the laboratory. Samples received in the laboratory will be identified with a unique identification label. The identification label provides details of the sample process stream. Baseline analyses are defined by the requesting plant. Additional analyses, as required, will be input into LIMS by laboratory analysts. Data will be input into LIMS manually or by data transfer using LIMS/instrument interface. Analyses will be performed using approved and validated analytical procedures.

Analytical results will be compiled by the LIMS and held pending checking and approval by appropriate staff. Approved results will be reported to the requesting plant.

## 4E.2 Tank Systems

### 4E.2.1 LAW Melter Feed Process

The LAW melter feed consists of the following systems:

- LAW concentrate receipt process (LCP) system
- LAW melter feed process (LFP) system
- Glass former reagent (GFR) system (The GFR system does not manage dangerous waste and is provided for informational purposes only.)

Process flow diagram of the LCP system and the LFP system are provided in DWP Operating Unit Group 10, Appendix 9.1. The LCP and LFP systems prepare feed for the LAW melters to produce a vitrified ILAW product. An analysis of the waste is conducted to determine the appropriate glass additive formulation for the conversion of the waste to glass. The glass additives specified in the formulation are weighed and mixed with the waste. There are two melter feed trains to supply the two LAW melters. Each melter feed train consists of a melter concentrate receipt vessel, a melter feed preparation vessel, and a melter feed vessel.

The LCP system includes the melter concentrate receipt vessels. The LFP system includes the melter feed preparation vessel and the melter feed vessel for each of the two melters.

The LCP tank system consists of the following tanks and their associated ancillary equipment:

- Melter Concentrate Receipt Vessels (LCP-VSL-00001/2)

The LFP tank system consists of the following tanks and their associated ancillary equipment:

- Melter Feed Preparation Vessels (LFP-VSL-00001/3)
- Melter Feed Vessels (LFP-VSL-00002/4)

<u>Melter Concentrate Receipt Vessels (LCP-VSL-00001/2)</u>

DWP Operating Unit Group 10, Appendix 9.1 contains a process flow diagram of the Melter Concentrate Receipt Vessels (LCP-VSL-00001/2). The melter concentrate receipt vessels in LCP system receive LAW feed concentrate from the Pretreatment Facility (PTF), Low Activity Waste Pretreatment System (LAWPS), and Effluent Management Facility (EMF). One of these vessels is located in each of the two functional process cells. There is also one melter feed preparation vessel and one melter feed vessel in each of the two functional process cells. These vessels are described below. Each concentrate receipt vessel is equipped with the following:

- Mechanical agitator
- Pump with installed spare to transfer concentrate feed
- Instrumentation for liquid level, temperature, pressure, and density measurements
- Internal rotary spray nozzles for periodic washdown
- Overflow to C3/C5 drain/sump collection vessel

- Vent to the LAW secondary offgas (LVP) system via the vessel vent header
- Plant service air purge to control flammable gas accumulation, with instrumentation and alarm to monitor for low purge airflows
- Backup air supply connection

Valves are located in valve bulges LCP-BULGE-00001/2/3. Valve alignment receives LAW concentrate from the PTF in the baseline configuration, and from LAWPS, and EMF in the Direct Feed LAW (DFLAW) configuration, and directs it to the LAW Concentrate Receipt Vessels (LCP-VSL-00001/2). Valve alignment in bulges LCP-BULGE-00001/3 allows the LAW concentrate to be routed to the Melter Feed Preparation Vessels (LFP-VSL-00001/3), or to the Plant Wash Vessel (RLD-VSL-00003) if the Melter Concentrate Receipt Vessels (LCP-VSL-00001/2) are being cleaned out or if the contents of the vessels cannot be satisfactorily processed. In addition, LAW concentrate can be transferred between the two Melter Concentrate Receipt Vessels (LCP-VSL-00001/2), or directs it to the Autosampling (ASX) System for sampling (ASX-SMPLR-00012/13).

Transfer of out-of-specification LAW concentrate from the LAWPS to LAW is prevented by batch sampling and prior acceptance by WTP before a batch transfer begins, in addition, feed transfers have radiation monitoring and interlock.

### Glass Former Reagent System

The GFR system contains the glass former feed mixers that receive blended glass formers and sucrose by dense-phase pneumatic conveyors from the glass former system.

The feed mixers are equipped with filters to remove the dust from air used for pneumatic conveying and blending. A series of single filter cartridges will be mounted on the top of the mixers. The filters are cleaned by introducing compressed air through the cleaning nozzle to blow accumulated dust back into the hoppers.

The feed mixers are equipped with load cells to weigh the glass formers to confirm that the material in the upstream blending silo is conveyed to the feed hoppers and to confirm that the glass formers are transferred out of the feed hoppers to the Melter Feed Preparation Vessels.

The glass formers are gravity-fed with a rotary feeder into the Melter Feed Preparation Vessels, where the glass formers are mixed with the waste feed. This equipment is located in an isolated area that serves as a contamination barrier between the melter feed preparation vessels and the glass former supply. The rotary valve controls the rate of glass former addition into the melter feed preparation vessels.

### Melter Feed Preparation Vessels (LFP-VSL-00001/3)

DWP Operating Unit Group 10, Appendix 9.1 contains a process flow diagram of the Melter Feed Preparation Vessels (LFP-VSL-00001/3). The Melter Feed Preparation Vessels mix LAW concentrate from the Melter Concentrate Receipt Vessels (LCP-VSL-00001/2) with glass formers and sucrose from the glass former feed hoppers. The LFP Melter Feed Preparation Vessels (LFP-VSL-00001/3), their internal components, and the associated ancillary equipment include the following:

- One mechanical agitator (LFP-AGT-00001/3)
- Two vertical pumps (LFP-PMP-00001A/B) or (LFP-PMP-00003A/B)
- Instruments, including liquid level measurement
- Internal spray wash nozzles
- Overflow line to the common header to C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004)
- Vent line to the vessel vent collection header

- Sample lines to auto samplers (ASX-SMPLR-00012/13)
- Valve bulges LFP-BULGE-00001/2

The vessel pumps LFP-PMP-00001A/B and LFP-PMP-00003A/B transfer waste using valve bulges, LFP-BULGE-00001/2. Valves in the bulge allow melter feed to be routed to the associated Melter Feed Vessel (LFP-VSL-00002/4) or to the Plant Wash Vessel (RLD-VSL-00003) if the Melter Feed Preparation Vessels (LFP-VSL-00001/3) are being cleaned out. The vessel contents can be circulated through the pump and injected back into the vessel in the recirculation mode. In addition, melter feed can be pumped between the two Melter Feed Preparation Vessels (LFP-VSL-00001/3), or directed to the ASX system for sampling (ASX-SMPLR-00012/13).

Melter Feed Vessels (LFP-VSL-00002/4)

DWP Operating Unit Group 10, Appendix 9.1 contains a process flow diagram of the Melter Feed Vessels (LFP-VSL-00002/4). The Melter Feed Vessels receive blended melter feed, consisting of LAW concentrate and glass formers, from the Melter Feed Preparation Vessels (LFP-VSL-00001/3). Each Melter Feed Vessel (LFP-VSL-00002/4) are equipped with the following:

- One mechanical agitator (LFP-AGT-00002/4)
- Six Air Displacement Slurry (ADS) pumps (LFP-PMP-00007 through 12) or (LFP-PMP-00013 through 18)
- One vertical pump (LFP-PMP-00002/4)
- Internal spray wash nozzles
- Instruments, including liquid level measurement
- Overflow lines to the common header to C3/C5 Drains/Sump Collection Vessel RLD-VSL-00004
- Vent line to the vessel vent collection header
- Sample lines to auto samplers (ASX-SMPLR-00012/13)
- Valve bulges (LFP-BULGE-00001/2)

The feed vessel pumps (LFP-PMP-00002/4) transfer waste feed through the valve bulges LFP-BULGE-00001/2. Valve alignment in the bulges allows the waste feed to be pumped between all four vessels: the two Melter Feed Preparation Vessels (LFP-VSL-00001/3) and the two Melter Feed Vessels (LFP-VSL-00002/4). Waste feed can also be transferred from the Melter Feed Vessels to the Plant Wash Vessel (RLD-VSL-00003) for vessel cleanout, or directs it to the ASX system for sampling (ASX-SMPLR-00012/13). Normally, ADS pumps transfer the melter feed from the melter feed vessel to the melter.

### 4E.2.2 LAW Melter Process System

Figure 4A-21 located in Chapter 4A presents a simplified process flow diagram of the LAW Melter Process (LMP) System. DWP Operating Unit Group 10, Appendix 9.1 contains a process flow diagram of the LMP system. The purpose of the LMP system is to convert a blended slurry of liquid LAW feed and glass former additives into a durable ILAW product. The locally shielded LAW melter system design is based on operating two joule-heated melters located in a C3 environment. Key functions of LMP include containment, joule heated melting, melter feed, and glass discharge.

Miscellaneous Treatment Unit Sub-Systems

Each LAW Melter (LMP-MLTR-00001/2) includes the following major components:

- Melter shell
- Refractory
- Electrodes

- Discharge systems
- Instruments, including level detection, density, temperature, and pressure measurements
- Offgas lines (LAW Primary Offgas Process [LOP] System)

The LAW melters (Chapter 4A, Figure 4A-48) have a nameplate capacity of 15 metric tons of glass per melter per day.

The melter shell is comprised of the base, walls, lid, and gas barrier plates structurally supported by the enclosure. Each LAW Melter has a single internal glass chamber with a rectangular surface area. The melter shell inner surface will also minimize the release of melter gases and contaminants in the event of the melter pressurization. A small air purge will be provided for the annular space between the cooling panels and the shell to reduce the deposition of materials. This purge will be driven by melter vacuum.

The melters are equipped with ceramic refractory that have two unique sections. These sections are the refractory in contact with the molten glass pool (glass pool refractory), and the refractory surrounding the gas space above the glass pool (plenum refractory). Glass pool refractory is designed to withstand corrosion from molten glass. The glass pool refractory, used in conjunction with active cooling provided by a water jacket, will provide glass containment, thermal insulation, and electrical isolation. The plenum is lined with refractory designed to withstand hot corrosive gases, thermal shock, and glass and feed splatter.

The melter is powered by three pairs of electrodes that are mounted opposite each other along the long axis of each melter. The glass is discharged through either of two discharge chambers located within one of the long axis walls of the melter. The lid of the melter is composed of layers of refractory backed by a corrosion-resistant metal plate and support structure. The lid also supports the components that are submerged in the melt pool and suspended in the melter plenum. The melter is encased in an integral shielding and secondary containment enclosure. The melter plenum is maintained at a controlled vacuum with offgas system fans and injection of air into the offgas line near the melter exhaust. This assures containment and avoids pressurization.

The LAW melter system has been designed to shield and contain the melter so that no additional shielding or contamination control will be required for normal operations. This has been accomplished by enclosing the melter assembly in a steel box. Shielding is provided by the entire enclosure. Access panels are provided through the external shielding. When removed, these panels will allow access to equipment such as jack-bolts, electrodes, electrode thermocouples, viewing cameras.

### Electrodes/Joule Heating

The LAW melters (LMP-MLTR-00001/2) are powered by three pairs of electrodes that are located opposite each other. The heat for the LAW melters (LMP-MLTR-00001/2), startup is provided by temporarily installed radiant electric heaters mounted on the roof of the melter. When a conducting path is established, the melter is heated by passing current between the electrodes through the glass (a process known as *joule heating*). After some time, the LAW melters (LMP-MLTR-00001/2) reach the operating temperature and slurry feeding can start. The nominal glass melt pool temperature is approximately 1,150 °C. This is measured with thermocouples in thermowells submerged into the pool at various locations. The power to the electrodes is regulated to maintain the temperature within a selected range.

The electrodes will have forced air cooled electrode extensions. The extensions will penetrate the side of the melter below the glass level to minimize the effects of thermal expansion and to minimize the potential for corrosion by sulfate.

Active cooling of the extensions and the use of a water cooling jacket will prevent glass from migrating through the refractory package adjacent to the electrode extension penetrations.

## Melter Feed System

Feed will be introduced to the melter as a slurry through nozzles in the melter lid. Water and volatile constituents in the slurry will evaporate, leaving behind a layer of material known as the cold cap. Waste feed components in the cold cap will undergo chemical reactions, be converted to their respective oxides, and dissolve in the molten glass. The feed rate determines the cold cap coverage on the glass melt pool. The feed rate can be controlled based on the average plenum temperature measured by plenum thermocouples mounted in the melter lid. New slurry will be added at about the same rate as the cold cap dissolves, maintaining the quantity of cold cap material at a steady level. Air injectors will be used to mix and agitate the molten glass. When the melt level rises to a predetermined upper limit, an air lift mechanism is actuated and glass is discharged to a container.

A list of conditions that stop the waste feed to the LAW melters (LMP-MLTR-00001/2) is provided below.

- Melter plenum high pressure
- LVP header high pressure
- Loss of offsite power
- High differential pressure across the offgas HEPA filters
- Melter glass pool high level
- Low flow in caustic scrubber recirculation line
- High temperature in either melter lid cooling cavity
- High level in the associated melter feed vessel
- Low/high level in the associated Submerged Bed Scrubbers (SBS) vessel
- High SBS condensate temperature
- Low differential temperature from the offgas/vessel vent and the filter train inlet
- High differential COx concentrations across the mercury mitigation skid

## Glass Discharge System

Each of the melters (LMP-MLTR-00001/2) have two identical independently operated glass discharge systems to include an airlift riser, a glass pour trough, a discharge chamber and other components and instruments needed to control the discharge of glass into the ILAW container. The melter glass pool level measurement will be used to indicate when to start and stop glass discharge. It also provides alarms for high or low glass pool levels. When a container is required for filling, it is retrieved from the clean container staging area and lowered through the import hatch onto one of the two pour turntable bogies. The bogie travels to a position in front of one of the pour caves. The container is retrieved by one of the four monorail hoists and transported to one of the four pour cave turntables. The container is then rotated into the pour position. A through-wall position sensor confirms that the container is in position prior to lock pin engagement. A through-wall lock pin engages the turntable in its pour position and prevents accidental rotation while the container elevator raises the container to the melter seal head and the container is filled with glass. The level of glass in the container is controlled by an infrared camera and the container load cell.

The glass discharge from the melter is initiated by injecting air or an inert gas at the bottom of the airlift riser. As the gas bubbles rise in the glass they will entrain glass in the riser, which is replaced by glass flowing in from the pool through the riser throat. The glass is lifted to the inlet of the trough, where the air bubbles disengage and the entrained glass flows into the trough. The glass then flows down the trough due to gravity and falls from the pour tip at the end of the trough into the container. The rate of glass discharge is controlled by adjusting the rate at which air is injected into the bottom of the riser.

Instrumentation, alarms, controls, and interlocks will be provided for the LMP to indicate or prevent the following conditions:

- Decrease or loss of melter plenum vacuum
- Glass temperature that is too high or too low
- Electrode extension temperature too high
- Loss of melter cooling water
- Plugged feed nozzle
- Overfilling of glass container

### 4E.2.3 Radioactive and Nonradioactive Liquid Waste Disposal Systems

DWP Operating Unit Group 10, Appendix 9.1 contains a process flow diagram of the Radioactive and Nonradioactive Liquid Waste Disposal (RLD and NLD) System. The functional purpose of the LAW RLD system is to receive mixed waste effluent for interim storage and to transfer the mixed waste effluent to the PTF or the EMF. In addition, mixing and sampling of the mixed waste effluent may be performed in this system as required.

The LAW RLD system receives mixed waste effluent, overflow, drains, condensate, and tank washes from process and building support systems. The LAW RLD tanks collect, store, mix, provide samples to the ASX, and transfer the mixed waste effluent to the PTF Plant Wash Vessel and Treated LAW Evaporation systems in the PTF or EMF. The LAW Facility liquid waste that is non-dangerous/non-radioactive is not normally routed to the RLD system. The LAW mixed waste effluent is collected in one of three permitted RLD tanks:

- Plant Wash Vessel (RLD-VSL-00003)
- LAW C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004)
- SBS Condensate Collection Vessel (RLD-VSL-00005)

The SBS Condensate Collection Vessel (RLD-VSL-00005) and the Plant Wash Vessel (RLD-VSL-00003) are located in the LAW effluent cell. The C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004) is located below grade to provide fire protection water collection and to collect effluents from the Wet Electrostatic Precipitator (WESP), and C3/C5 gravity floor drains and sumps.

Sources of effluents into the RLD system are production and nonproduction-related activities. Production effluents are mixed waste liquids or slurries generated by the waste treatment process. These effluents are routed to the SBS Condensate Collection Vessel (RLD-VSL-00005). Liquid effluent from nonproduction activities, such as vessel, equipment and cell/cave washes, and sump discharges, are routed to one of the three vessels, depending on the nature of the effluent. Dangerous or mixed waste is routed to either the Plant Wash Vessel (RLD-VSL-00003) or the C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004). Liquid that is non-dangerous/non-radioactive is routed to the C1/C2 Floor Drain/Sump Collection Tank in the NLD system.

#### Plant Wash Vessel (RLD-VSL-00003)

DWP Operating Unit Group 10, Appendix 9.1 contains a process flow diagram of the Plant Wash Vessel (RLD-VSL-00003).

This vessel is designed to receive the total volume of either the largest vessel in the LAW Vitrification Facility or the largest volume from the vessel/equipment wash or drain in the LAW Vitrification Facility. The largest volume is from the SBS Condensate Collection Vessel (RLD-VSL-00005). The Plant Wash Vessel (RLD-VSL-00003) is normally empty, but infrequently can receive plantwashes from the following sources:

- Sumps (RLD-SUMP-00028 through 32), (RLD-SUMP-00035 and 36)
- Vessel washes or off-specification material from process vessels (LCP-VSL-00001/2) and (LFP-VSL-00001/2/3/4)
- Drains from the berm surrounding Caustic Collection Vessel (LVP-TK-00001)
- Suspect radioactive material from the C1/C2 Drains/Sump Collection Vessel (NLD-VSL-00005)
- Transfers from the C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004)
- Off-normal transfers from the SBS Condensate Collection Vessel (RLD-VSL-00005)
- Overflows from the SBS Condensate Collection Vessel (RLD-VSL-00005)

Plant Wash Vessel (RLD-VSL-00003) has two vertical cantilever pumps (RLD-PMP-00001A/B) for transfer and sampling and one mechanical agitator (RLD-AGT-00001) for mixing of effluent. The Plant Wash Vessel (RLD-VSL-00003) is equipped with internal spray nozzles for flushing the tank interior, if needed.

The contents of the LAW Plant Wash Vessel (RLD-VSL-00003) are normally transferred to the Plant Wash Vessel PWD-VSL-00044 in the PTF or to the EMF. In addition, the contents can also be routed to the LAW SBS Condensate Receipt Vessel TLP-VSL-00009A/B in the PTF, SBS Condensate Collection Vessel (RLD-VSL-00005) or EMF. Content of the LAW Plant Wash Vessel (RLD-VSL-00003) is analyzed via auto sampler (ASX-SMPLR-00012) before transferred to the PTF or EMF.

The vessel is fitted with level instrumentation. The vessel is vented into a common vessel ventilation header that drains into the C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004).

### LAW C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004)

DWP Operating Unit Group 10, Appendix 9.1 contains a process flow diagram of the LAW C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004).

The RLD C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004), its internal components, and the associated ancillary equipment include the following:

- Recirculation/transfer pumps (RLD-PMP-00002A/B) located in (RLD-BULGE-00001)
- Three mixing eductors (RLD-EDUC-00001A/B/C)
- Vessel overflow line to secondary containment (RLD-SUMP-00028)
- Vent line to a common header
- Sample line to and from auto sampler (ASX-SMPLR-00013)
- Instruments, including liquid level measurement
- Valve and Pump Bulge (RLD-BULGE-00001)

The C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004) normally receives liquid effluent from the following sources:

- Melter 1/2 WESP (LOP-WESP-00001/2) drains
- Overflows from other LAW process tanks through the overflow header
- Sump contents from the filter room and floor drains from C3/C5 areas
- Drains from the LVP vessel vent header
- Drains from auto sampler (ASX-SMPLR-00012/13)
- HVAC condensate drains

This vessel is designed to contain the maximum amount of fire protection water and the volume equivalent to the largest C3/C5 floor area wash. The C3/C5 Drains/Sump Collection Vessel

(RLD-VSL-00004) routinely collects liquid drained from the Melter WESP (LOP-WESP-00001/2). The overflow from the Melter Concentrate Receipt Vessels (LCP-VSL-00001/2) is also routed to the C3/C5 Drains/Sump Collection Vessel.

Routine process-related effluent from WESP drains will be routed from this vessel to the SBS Condensate Collection Vessel. Effluent generated from other sources will drain to the Plant Wash Vessel (RLD-VSL-00003) until it reaches a predetermined level to maintain adequate capacity for fire protection water.

The C3/C5 Drains/Sump Collection Vessel is located in an enclosed C3/C5 cell area. The C3/C5 Drains/Sump Collection Vessel overflows to a sump in the same cell. During normal operation, the effluent characterized in the C3/C5 Drains/Sump Collection Vessel is expected to be transferred to the Treated LAW Evaporation System (TLP) System via the SBS Condensate Collection Vessel (RLD-VSL-00005).

### SBS Condensate Collection Vessel (RLD-VSL-00005)

DWP Operating Unit Group 10, Appendix 9.1 contains a process flow diagram of the SBS Condensate Collection Vessel (RLD-VSL-00005).

SBS Condensate Collection Vessel (RLD-VSL-00005), its internal components, and the associated ancillary equipment include the following:

- Two transfer pumps per vessel (RLD-PMP-00003A/B)
- One mechanical agitator (RLD-AGT-00002)
- Vessel overflow line to the Plant Wash Vessel (RLD-VSL-00003)
- Vent line to a common header
- Instruments, including liquid level measurement
- Valve and Pump Bulge (RLD-BULGE-00004)

The SBS Condensate Collection Vessel (RLD-VSL-00005) receives effluent from the following sources:

- SBS Scrubbers (LOP-SCB-00001/2)
- SBS Condensate Vessels (LOP-VSL-00001/2)
- C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004)

The SBS Condensate Collection Vessel is fitted with level instrumentation and is vented into a common vessel ventilation header that drains into the C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004). The SBS Condensate Collection Vessel (RLD-VSL-00005) is equipped with two vertical cantilever pumps (RLD-PMP-00003A/B) for recirculation, transfer, and sampling, and one mechanical agitator (RLD-AGT-00002) for mixing. Sampling capability is provided to an auto sampler (ASX-SMPLR-00012). The SBS Condensate Collection Vessel (RLD-VSL-00005) has two internal spray nozzles for flushing the tank interior, if needed.

The contents of the SBS Condensate Collection Vessel (RLD-VSL-00005) are normally transferred to the LAW SBS Condensate Receipt Vessels (TLP-VSL-00009A/B) in the PTF or to the EMF. Transfers can be routed to the PTF Plant Wash Vessel (PWD-VSL-00044), LAW Plant Wash Vessel (RLD-VSL-00003), or to the EMF. Content of the SBS Condensate Collection (Vessel RLD-VSL-00005) can be analyzed via auto sampler (ASX-SMPLR-00012).

The SBS Condensate Collection Vessel overflows to the Plant Wash Vessel (RLD-VSL-00003).

## LAW Secondary Containment Sumps

The LAW sumps described below are part of the secondary containment and leak detection for the LAW permitted tank and MU systems. Location and design information for each LAW permitted sump (RLD-SUMP-00028 through -00032, -00035, and -00036) is provided in Table 4E-45, LAW Vitrification Facility Sumps, Leak Detection Boxes, and Floor Drains/Lines.

Leak detection capabilities are described in *Leak Detection Capability in the Low-Activity Waste Facility* 24590-LAW-PER-M-05-002, located in Appendix 9.18. The LAW waste removal capabilities are described *in Waste Removal Capability for LAW Vitrification Facility* 24590-LAW-PER-M-05-001, located in Appendix 9.18.

The LAW sumps are located in sloped areas where floors and partial walls lined with stainless steel liner are an integral part of the secondary containment for permitted tank and MU systems. The design and functions of the LAW sumps are summarized below.

- RLD-SUMP-00028. This dry sump, located in C3/C5 Drains/Sump Collection Vessel Cell (L-B001B), is part of the secondary containment system for C3/C5 Drains/Sump Collection Vessel RLD-VSL-00004. This sump is equipped with liquid level detection and alarm. In addition, RLD-SUMP-00028 is designed to collect overflow/leaks from RLD-BULGE-00001 drain. This sump is equipped with one pump (RLD-PMP-00004) to transfer the sump contents to Plant Wash Vessel RLD-VSL-00003. Sump waste from RLD-VSL-00003 is transferred to either the EMF evaporator feed vessel in the DFLAW configuration or the PTF plant wash vessel PWD-VSL-00044 in the baseline configuration.
- RLD-SUMP-00029/-00030. The Melter 1 Process Cell (L-0123) includes two sumps, RLD-SUMP-00029/-00030, as part of the secondary containment system for tanks and MUs located in this cell. The Melter 1 Process Cell (L-0123) houses the following tanks and MUs:
  - Concentrate Receipt Vessel LCP-VSL-00001
  - Melter 1 Feed Preparation Vessel LFP-VSL-00001
  - Melter 1 Feed Vessel LFP-VSL-00002
  - Melter 1 SBS LOP-SCB-00001
  - Melter 1 WESP LOP-WESP-00001
  - Melter 1 SBS Condensate Vessel LOP-VSL-00001

The LAW sumps located in the Melter 1 Process Cell (L-0123) are dry sumps, designed to also provide leak detection from the following sources:

- RLD-SUMP-00029 from LCP-BULGE-00001/2 and LOP-BULGE-00001 drain
- RLD-SUMP-00030 from LFP-BULGE-00001 drain

The floor of the cell is sloped to drain potential spillage to a sump at the base of the east or west wall.

Each sump is equipped with one permanently installed submersible pump (RLD-PMP-00025/-00026). The sumps have liquid level detection and alarms. The contents of RLD-SUMP-00029/-00030 are transferred to Plant Wash Vessel RLD-VSL-00003 at the same elevation within 24 hrs.

- RLD-SUMP-00031/-00032. The Melter 2 Process Cell (L-0124) includes two dry sumps, RLD-SUMP-00031/-00032, as part of the secondary containment system for tanks and MUs located in this cell. The sumps have permanently installed submersible sump pumps and have liquid level detection with alarms. The Melter 2 Process Cell (L-0124) houses the following tanks and MUs:
  - Concentrate Receipt Vessel LCP-VSL-00002
  - Melter 2 Feed Preparation Vessel LFP-VSL-00003

- Melter 2 Feed Vessel LFP-VSL-00004
- Melter 2 SBS LOP-SCB-00002
- Melter 2 WESP LOP-WESP-00002
- Melter 2 SBS Condensate Vessel LOP-VSL-00002

The LAW sumps located in the Melter 2 Process Cell (L-0124) are designed to also provide leak detection from the following sources:

- RLD-SUMP-00031 from LCP-BULGE-00003 and LOP-BULGE-00002 drain
- RLD-SUMP-00032 from LFP-BULGE-00002 drain

The floor of the cell is sloped to drain potential spillage to a sump at the base of the east or west wall.

Each sump is equipped with one pump (RLD-PMP-00027/-00028). The contents of RLD-SUMP-00031/-00032 are transferred to Plant Wash Vessel RLD-VSL-00003 at the same elevation within 24 hrs.

- RLD-SUMP-00035/-00036. Two sumps RLD-SUMP-00035/-00036, located in Effluent Cell (L-0126), are part of the secondary containment system for Plant Wash Vessel RLD-VSL-00003 and SBS Condensate Collection Vessel RLD-VSL-00005. Each sump RLD-SUMP-00035/-00036 is equipped with one permanently installed submersible sump pump (RLD-PMP-00031/-00032) with liquid level detection and alarms. The sump RLD-SUMP-00036 is designed to also detect leaks from RLD-BULGE-00004. The contents of RLD-SUMP-00035/-00036 are normally transferred to C3/C5 Drain/Sump Collection Vessel RLD-VSL-00004 within 24 hrs. In off-normal events, the valves located in C3/C5/Drains/Sump Collection Pump Bulge RLD-BULGE-00001 allow transfers from C3/C5 Drain/Sump Collection Vessel RLD-VSL-00004 to Plant Wash Vessel RLD-VSL-00003 or SBS Condensate Collection Vessel RLD-VSL-00005, using transfer pumps RLD-PMP-00002A/B.

### 4E.2.4 LAW Radioactive Solid Waste Handling System

The LAW Radioactive Solid Waste Handling (RWH) System does not include permitted tanks or MUs. The purpose of the RWH system is to provide equipment to facilitate change out and packaging of secondary radioactive solid waste (RSW) in the LAW Facility. The typical RSW in the LAW Facility include the melter consumables, such as melter bubblers, spent HEPA filters, and failed process cell equipment. The LAW RHW system provides crane coverage to support these activities.

The vessels are designed for 40 years of service. However, in the event of a failure, the process vessel will be prepared for export by rinsing, disconnection of the process lines, and decontamination. The vessel will be lifted out of the process cell and covered to prevent a spread of contamination. The vessel will be placed in an approved package staged for vessel receipt. Once closed and secured, the package, containing the vessel, will be delivered to an appropriate Treatment, Storage, or Disposal (TSD) Facility. A similar process in reverse will be used for the introduction and installation of new LAW process vessels.

It is anticipated that LAW melters will require periodic replacement. When the end of a melter's operational life is reached, as much residual molten glass as is practical will be removed as immobilized glass product. The LAW Melter will be allowed to cool and then will be disconnected. Openings in the melter shell will be seal welded, and the melter shell will be decontaminated if required, and transported to an appropriate TSD Facility.

Disposal of miscellaneous mixed waste streams created during operation will be done by packaging at the point of generation. Localized collection points and disposal routes will be established at logical and optimal locations to accommodate maintenance and operations. Waste containers will be transferred to a staging area where packages will be weighed, labeled, and decontaminated for nonfixed contamination, if

needed, prior to export. The packaged waste will then be stored at the WTP, and as needed transported to a Hanford site or off-site commercial treatment facility prior to final disposal at the Hanford site.

### 4E.2.5 ILAW Glass Container Handling

The ILAW glass container handling systems are support systems that do not include permitted tanks or MUs. The ILAW glass container handling systems provide equipment to import the ILAW containers, transfer within the LAW Facility, and export for treatment and disposal. The ILAW glass container handling activities will consist of the following systems:

- LAW container receipt handling (LRH) system
- LAW container pour handling (LPH) system
- LAW container finishing handling (LFH) system
- LAW container export handling (LEH) system

The individual systems and their primary functions are described below:

#### LAW Container Receipt Handling System

The primary function of the LRH system is to provide mechanical handling equipment to transfer empty containers from initial receipt in the LAW Melter Equipment Support Handling (LSH) System truck bay to the pour tunnel. The LRH system accepts empty ILAW containers into the LAW Facility and transports the containers to the LPH system where glass-filling operations are performed.

#### Container Receipt

After removal of the shipping over-wrap and initial receipt inspection, the containers are placed on a conveyor system and transferred into the facility as needed. New containers are then logged into the tracking system.

#### Container Import

Prior to the need for additional containers, a final inspection and transfer takes place in the container import bay. Each new container is moved to a container inspection stand. This allows an operator to assess the upper head/lifting flange area, including the “fill” opening, and to observe the inside of the container with a light.

The rest of the container is inspected as required, then the container is placed on the import line 1 or 2 staging conveyer, and the tracking log is updated. If the container inspection fails, it is logged and tagged appropriately and set aside.

Each time a container is placed on the conveyor, an operator initiates a conveyor transfer. The transfer serves to index containers on the staging conveyor forward so there is always a container in the “pickup” position on the airlock conveyor.

Container import instrumentation, alarms, controls, and/or interlocks will be provided as follows:

- The hatches are interlocked with the hoist and bogies so the hatch cannot be opened unless a process crane is positioned above the hatch. Conversely, the process cranes cannot leave hatch positions unless the hatch is closed and locked.
- The hatches are interlocked with the bogies so that the hatches cannot open unless a bogie is positioned below the hatch. The interlock prevents the bogie from leaving the hatch position unless the hatch is closed.

#### LAW Container Pour Handling System

The LPH system receives empty containers from the LRH system, positions empty containers for filling, and transfers filled and cooled containers to the LFH system. Typical activities within the LPH system

include container transfers from the container transfer bogies into the buffer storage area, container transfers within the buffer storage area, transfer from the buffer storage area to the transfer tunnel, and for container rework, if necessary. Each of the LAW melters has two glass discharge systems that operate independently. Each melter discharge chamber is aligned with a glass pour cave under the melter cell with associated features for filling a container with glass. Containers can be filled using one pour cave, using alternating caves, or both caves at the same time using alternating lifts. The major pieces of equipment include the container turntable, container elevator, transfer bogies, and monorail hoists.

### Container Turntable, Container Elevator, Glass Pour Seal Head

A container turntable is provided in each pour cave for handling containers. The turntable accommodates three containers and rotates to position them at three stations: the container transfer station, the container fill station, and the container cooling station. At each container location in the turntable is a lower overpack section that locates the containers and provides support. Containers remain in the overpack during the elevating and glass filling cycle.

As containers are filled and cooled, the turntable rotates to the transfer station where container changeout occurs. Cooled, full product containers are removed from the turntable and replaced with empty containers. The turntable is rotated to position the empty container at the fill station. The container elevator raises the empty container and lower overpack up to the glass pour seal head for container filling.

The elevator is equipped with features to provide a weight of the product container being supported. Weight is used to verify that a container is present and that it is empty. The weight must be between established minimum and maximum values for glass pouring to occur. Additionally, the weight can be used to ensure that container filling is occurring and to provide the rate of glass pouring. The elevator weight is not intended to give an accurate weight of the container; it is merely used as an indication of container presence and condition.

The glass pour seal head is the interface between the melter discharge chamber and the product container during glass pouring. The seal head consists of a metal bellows arrangement that is connected to the melter discharge chamber with the other end of the bellows open for interface with product containers.

Container fill level is monitored by a thermal imaging camera. The camera provides a view of the diameter and the upper one-half of a container. The thermal imaging camera indicates container fill level for primary control of fill rate and pour shut off. In the event of primary level detection failure, a gamma detector activates a high-high level shutdown.

The container is filled using several pours. The pour process occurs more quickly than glass can be made in the melter, resulting in lag time between pours. Rapid pouring allows molten glass to flow out to all edges of the container. Following the final glass pour batch, the container remains in position to provide initial container cooling and containment of final glass discharges. The container is then lowered to the turntable. The turntable is again rotated, placing the recently filled container at the cooling/venting station. Container cooling continues while another container undergoes the fill cycle. Once cooled, the container is rotated to the transfer position for export and the process is repeated.

### Container Transportation

Another function of the LPH system is to provide product container transportation between the container transfer bogie and the pour cave turntable. The system transfers empty product containers from the container transfer bogie to the melter turntable, and transfers full product containers from the turntable to the transfer bogie in a manner that supports the facility throughput goals.

Concrete walls separate the pour caves from the bogie transfer tunnel. These walls have doorways large enough to allow the hoist units loaded with new or filled product containers to pass through them. The doorways are fitted with steel shield doors.

Concrete walls also separate the monorail maintenance facility from the bogie transfer tunnel. These walls have openings sized to prevent an ILAW container from entering the maintenance area. These doorways are also fitted with steel shield doors that provide radiological shielding from sources in the transfer tunnel during hands-on maintenance activities in the monorail maintenance facility.

Pour cave transfer operations are conducted remotely with only a few exceptions. Maintenance and recovery operations in the bogie transfer tunnel, such as a jammed grapple, may require hands-on intervention. Monorail hoist maintenance operations conducted in the maintenance facility are completely hands-on. Monorail hoist recovery operations can become a hands-on/remote combination depending on the failure details.

## Buffer Storage Area

The LPH system provides a buffer storage area for ILAW containers in the event downstream processing lines become backed up. The buffer storage area includes the container rework area. Anticipated activities include ILAW container transfers into the buffer storage area from the container transfer bogies, container transfers within the buffer storage area, container transfers from the buffer storage area to the transfer tunnel, and container transfers to the container rework area, where ILAW container rework is conducted. The buffer storage area is adjacent to a crane maintenance facility. The crane maintenance area is shielded from the buffer storage area to allow hands-on maintenance in the crane maintenance facility and transfer tunnel while containers are present in the buffer storage area.

The LPH transfer tunnel runs from the bogie maintenance area on the west end of the facility to the buffer storage area at the east end of the building. The buffer storage area import/export positions are located within the container transfer corridor. Concrete walls with passages for ILAW containers separate the north and south buffer storage areas and the container transfer corridor. The passages are equipped with manually operated steel shield doors to support maintenance or bogie recovery operations that might be required in this portion of the transfer tunnel. The LFH hoists operating in the lidding area above this section of the container transfer corridor transfer ILAW containers to and from the buffer storage area import/export position.

Buffer storage area container transfer operations are conducted with the use of a bridge crane. The crane rails begin in the crane maintenance facility adjacent to the north end of the buffer storage area and extend south. The runway provides crane coverage to the crane maintenance area, the ILAW container buffer storage area, the container transfer corridor, and the two container import/export positions. There are container storage positions in the north and south portions of the buffer storage area, and one rework position also in the south portion of the buffer storage area. The rework position is located in the southeast corner of the ILAW container buffer storage area/rework area. The rework position can be fitted with a powered turntable, a pair of master-slave manipulators. A shielded window is located in this area. Directly east of the rework position, on the cold side of the buffer storage area, is a rework area operating platform that provides operator access to the master-slave manipulators and shielded window.

A winch is provided to support maintenance operations on the buffer storage area bridge crane. A steel shield door and a concrete wall separate the crane maintenance facility from the buffer storage area, allowing maintenance operations to be conducted while the buffer storage area contains full ILAW containers.

## LAW Container Finishing Handling System

Figure 4A-24 located in Chapter 4A presents a simplified process flow diagram of the LFH system. There are two LFH finishing lines. The functions of the LFH system are to verify the container fill level, determine if inert fill is required, complete closure of the ILAW container, decontaminate the exterior of the container, and verify surface contamination levels before exporting the container. The system also has the ability to sample the solidified glass, place the glass shards in a vial, and make these vials available for transfer to the laboratory.

The filled containers are raised from the transfer tunnel into one of two finishing lines and placed on a bogie. The bogie is used to shuttle the container between lidding area stations and the container decontamination station. The bogie with the container travels to the shard sampling station. A sample of the glass may be taken with the glass shard sampler. Based on the measured level in the container, inert fill is added as needed. From there the bogie travels to the container lidding station where the lid is mechanically secured to the container. After mechanically sealing the lid to the container, the bogie travels to the decontamination station. Once the container meets C2 contamination criteria, the bogie moves into the monitoring/export station. The container is then exported for shipment to the disposal site. If the container exceeds the dose rate, it is classified as an out-of-specification container.

In the off-normal event that an out-of-specification ILAW container is generated, the container will be segregated and a corrective action plan generated. Container characterization data will be evaluated to verify that the ILAW container can be disposed in accordance with approved Hanford Site Solid Waste Acceptance Criteria (HSSWAC).

Instrumentation, alarms, controls, and interlocks will be provided for the LFH system to indicate or prevent the following conditions:

- Opening of personnel access door when container is present in the line transfer station.
- Opening of personnel access door when either line transfer trap doors are open.
- Opening of both line transfer trap doors at the same time.
- Opening of personnel access door if airborne contamination levels are higher than design contamination classification within the line transfer station.

### Decontamination Station

A decontamination station is located within each of the finishing lines in the LAW Vitrification Facility. After the ILAW container has been sealed, it is transported to the decontamination station. Equipment items located in the decontamination station include the carbon dioxide decontamination manipulator, turntable, and exhaust system. Most other items are located outside of the decontamination station, including the carbon dioxide pelletizer, the transport air compressor, and the liquid carbon dioxide storage and delivery system, exhaust fans, and HEPA filters.

The containers are decontaminated using carbon dioxide pellets. The carbon dioxide decontamination manipulator is fitted with an exhaust recovery hood to recover the effluent from the decontamination operation. Debris produced during decontamination is collected with a HEPA filtered exhaust system. This gas stream is then routed to the plant vent system where it is passed through the plant's HEPA filters before being discharged through the stack.

Once the container is decontaminated, it is transported from the decontamination station to the swabbing station.

Instrumentation, alarms, controls, and interlocks will be provided for the decontamination station to indicate or prevent the following conditions:

- Opening of the decontamination or decontamination/swabbing containment door during decontamination.
- Opening of the decontamination and decontamination/swabbing containment door at the same time.

### Swabbing and Swabbing-Monitoring Station

At the swabbing station, containers are surveyed for loose surface contamination to verify that they meet the contamination requirement. The swabbing machine maneuvers the swabs over the container surface. After a prescribed area is covered, the contaminated swabs are exported away from radioactive source for

monitoring to determine gamma-beta levels for smearable contaminates. If contamination levels exceed C2 criteria, the container is transported back into the decontamination station for rework. If the container meets C2 criteria, the turntable bogie moves into the export station.

Once the container is transported into the monitoring/export station from the swabbing station, a gamma monitor measures the dose rate of the decontaminated container.

If the container exceeds the specified dose requirement, it is classified as an out-of-specification container; otherwise, the dose rate is measured and is recorded within the container's records. The container is then exported out of the monitoring/export station for shipment to the disposal site.

Instrumentation, alarms, controls, and interlocks will be provided for the swab monitoring station to indicate or prevent the following conditions:

- Personnel access when a container is present in swab monitoring station.
- Opening of decontamination/swabbing or swabbing/export containment door during swabbing.
- Opening of personnel access door when container is present in the swabbing station.
- Opening of personnel access door if airborne contamination levels are higher than design contamination classification within the decontamination area.
- Opening of personnel access door if high concentration of carbon dioxide is present within the decontamination area.
- Rotation of pour turntable during swabbing.
- Export of swab if radiation levels from swab are higher than design radiation classification in the operational area.

LAW Container Export Handling System

The purpose of the LEH system is to load ILAW containers onto a transportation vehicle for transfer to a Hanford Site TSD unit. This system is contained in a truck bay on the east end of the LAW Vitrification Facility.

Under normal operations the ILAW container will be received from the LFH system through a hatch. Radiological dose rate and contamination level are determined and verified to be within limits prior to entering the LEH system. An overhead crane lifts the ILAW container through the hatch and places it on the transportation vehicle.

Operations are remote and maintenance is "hands-on" in the LEH system. The overhead crane is provided with closed circuit television cameras for operation when radiological conditions do not permit personnel access during the ILAW container loading.

### 4E.2.6 LAW Melter Equipment Support Handling System

The primary function of the LSH system is to provide the equipment and support necessary to complete maintenance tasks on all melters and equipment in the melter gallery of the LAW Vitrification Facility. The primary equipment used in support of the maintenance efforts are:

- Consumable change-out boxes
- Consumable change-out boxes storage racks
- Consumable change-out boxes preparation stand
- Melter gallery process cranes
- Consumable change-out boxes handler
- Lifting head
- Melter gamma gate

- Shield cover removal tool

Melter consumables will be removed through the top of the melter shielding. Melter consumable items will be those that require routine and nonroutine maintenance, but provide necessary functions to continue melter operations. The routine consumable items will include bubbler assemblies. New bubbler assemblies will be shipped to the facility and will be installed into the melter.

Spent bubblers will be extracted from the melter, and transferred into a consumable change-out box (CCB) and then transferred into a box for treatment and disposal.

Refractory thermocouples, airlifts, level detectors, feed nozzles, and film coolers will be removed, bagged and loaded into the CCB and then transferred to a disposal box. These waste management tasks will be considered nonroutine and are replaced on an as-needed basis. The waste is disposed of as secondary waste according to secondary waste management procedures.

### 4E.2.7 LAW Melter Handling System

The LAW LMH system does not include permitted tanks or MUs. The LAW LMH system provides the mechanical handling equipment associated with the import of new Locally Shielded Melters (LSMs) and the export of failed or spent LSMs. The LMH system also provides specific facility structures to support LAW LSMs import and export operations, as well as miscellaneous mechanical handling equipment to support operations.

The function of System LMH include:

- Transfer new LAW melter from equipment pad to LAW melter operating position (L-0112).
- Transfer equipment between C1/C2 airlock (L-0113) and monorail hoist maintenance rooms (L-B023A/L-B023B).
- Transfer spent melters that are seal-welded and ready for transport from operating position (L-0112) to equipment pad.

The LAW Assembly/Staging Pad Area is located external to the LAW Facility at an elevation of +3’-0”. New melters are assembled in the assembly/staging pad area. The East side of the pad is configured as a loading dock to permit transfer of a spent LAW melter to the Tank Operating Contractor (TOC) supplied melter transport system. The pad incorporates LAW melter rails and provides multiple embed locations to mount a winch assembly.

The LAW Winch Assembly provides the motive force for transferring the new or spent LSM along fixed melter rails. The winch assembly operates in conjunction with pulley block assemblies to transfer an LSM. The winch assembly is only installed for LSM transfer operations and then is removed and stored.

When the LAW melter has reached the end of its operating life, it is disconnected from all systems and all penetrations on the enclosure are seal welded before it is be moved out of the LAW Vitrification Facility. Prior to deployment the LSM is surveyed and decontaminated as required and is loaded on the TOC melter transport system.

## 4E.3 Containment Buildings

This section describes how these units are designed and operated, in accordance with the requirements of WAC 173-303-695, which incorporates 40 Code of Federal Regulations (CFR) 264 Subpart DD, “Containment Buildings”, by reference. Regulatory citations in this section list the applicable section of the CFR to make it easier for readers to find the requirement. A typical containment building is illustrated in Chapter 4A, Figure 4A-59.

There are twenty-one containment buildings at the WTP: five located within the PTF; six in the LAW Vitrification Facility; and ten in the HLW Vitrification Facility. The regulated units in the LAW Vitrification Facility are:

- LAW LSM Gallery Containment Building (L-0112)
- ILAW Container Finishing Containment Building (L-0109B, L-0109C, L-0109D, L-0109E, L-0115B, L-0115C, L-0115D, L-0115E, L-0116A)
- LAW Vitrification Facility Consumable Import/Export Containment Building (L-0119B)
- LAW Vitrification Facility C3 Workshop Containment Building (L-0226A)
- LAW Pour Cave Containment Building (L-B009B, L-B011B, L-B011C, L-B013B, L-B013C, L-B015A)
- ILAW Container Buffer Storage Containment Building (L-B025C, L-B025D)

~~Table 4E-5~~ Table 4E-6 summarizes the units within the LAW Vitrification Facility. The following figures and drawings found in DWP Operating Unit Group 10 provide further detail for the containment buildings:

- Figure 4A-59 depicting common features of containment buildings.
- General arrangement figures and drawings showing locations of containment buildings.
- Waste management area figures showing containment building locations to be permitted.

Control of fugitive emissions from containment buildings is described in Chapter 4 Process Information, Section 4.2.10 Air Emissions.

The following sections address each of the containment buildings.

### 4E.3.1 LAW LSM Gallery Containment Building (L-0112)

There will be six containment buildings in the LAW Vitrification Facility. The first is the LAW LSM gallery containment building, which will house the two LAW melters. The LAW melters are designed to include a roller or wheel assembly that travels on rails that will be used to move the melters in and out of the containment building. Spent LAW melters will be disconnected from the offgas system, feed lines, electrical lines, and instrumentation. Open ports will be seal welded. The sealed exterior of the melter will be decontaminated, if needed, prior to removal from the containment building.

LAW LSM Gallery Containment Building Design

The LAW LSM gallery containment building will be completely enclosed within the LAW Vitrification Facility. The unit will be designed to prevent the release and exposure of dangerous constituents to the outside environment. The design and construction of the LAW Vitrification Facility exterior will prevent water from running into the facility.

The roof of the LAW Vitrification Facility will consist of metal roofing, roof insulation, and a vapor barrier. Rainwater run-off will be collected by roof drains and a drainage system with overflow drains. The approximate dimensions of the unit are summarized in ~~Table 4E-5~~Table 4E-6.

The melter feed slurry will be introduced to the LAW melters through stainless steel feed lines and specialized reinforced flex hoses. The feed lines in between the melter feed vessel and the melter will pass through the Melter Feed Encasement Assembly (LMP-LDB-00001/00002) that functions as secondary containment and provides leak detection. The encasement assembly and associate bellows are provided with a conductivity cable lead detection system. A drain within the assembly has also been incorporated into the design to allow drainage to a sump located in the adjacent process room.

The containment building design requirements of 40 CFR 264.1101(b) do not apply because any dangerous wastes with free liquids will be managed on portable secondary containment that meets the requirements of WAC 173-303-630(7). The only anticipated source of liquids in the LSM gallery are the waterlines to the two film cooler pipes, and the melter and melter lid cooling water piping systems. These clean water lines (isolated from contact with dangerous wastes) will be instrumented to detect leaks. The

melter annulus and the gas barrier contain cooling liquids within the locally shielded melter and are both provided with leak detection. The melter lid cooling system is also a clean water system that is provided with temperature indication, level transmitters, and flow and pressure indicators to identify a potential leak. A rupture of either water line or a waste feed line would be an abnormal event and the liquid would be contained within the locally shielded melter or in the encasement assembly and corrective measures would be initiated. Corrective action would start with closure of the supply line and draining of remaining water outside the melter, and could require feed cutoff and melter idling or shut down.

### LAW LSM Gallery Containment Building Structure

The LAW LSM gallery containment building will be fully enclosed within the LAW Vitrification Facility. Therefore, structural requirements for the containment building will be met by the design standards of the LAW Vitrification Facility. The design will ensure that the unit has sufficient structural strength to prevent collapse or failure. Within the containment building will be partitions between the LSMs. DWP Operating Unit Group 10, Supplement 1 provides documentation that the seismic requirements for the LAW Vitrification Facility meet or exceed the Uniform Building Code Seismic Design Requirements.

### LAW LSM Gallery Containment Building Materials

The LAW LSM gallery containment building will be constructed of steel-reinforced concrete. The interior floor and the walls of the unit will be covered with an epoxy coating to protect the concrete and facilitate decontamination.

### Use of Incompatible Materials for the LAW LSM Gallery Containment Building

The epoxy coating will be applied to the concrete floor and a portion of the walls of the unit. The coating will be compatible with the wastes that will be managed in the containment building. The wastes to be managed in this containment building will include LAW LSM melters and consumables, which may be metallic parts and failed equipment. Reagents that could impact the epoxy coating will not be used within the unit.

### Primary Barrier Integrity in the LAW LSM Gallery Containment Building

The LAW LSM gallery containment building will be designed to withstand loads from the movement of personnel, wastes, and handling equipment. The seismic design criteria found in DWP Operating Unit Group 10, Supplement 1 ensures that appropriate design loads, load combinations, and structural acceptance criteria are employed at the WTP.

### Certification of Design for the LAW LSM Gallery Containment Building

Prior to initial receipt of dangerous and mixed waste, certification by a qualified registered professional engineer that the LAW LSM gallery containment building meets the design requirements of 40 CFR 264.1101(a), and (c) will be obtained. The requirements of 40 CFR 264.1101(b) do not apply to this design because any dangerous waste containing free liquids will be managed on portable secondary containment that meets the requirements of WAC 173-303-630(7).

### Operation of the LAW LSM Gallery Containment Building

Operational and maintenance controls and practices will be established and followed to ensure containment of the waste within the LAW LSM gallery containment building, as required by 40 CFR 264.1101(c)(1). Activities in the building will be remotely conducted.

### Maintenance of the LAW LSM Gallery Containment Building

The epoxy coating will be constructed and maintained in a manner that will be free of significant cracks, gaps, corrosion, or other deterioration. The concrete coating will be free of corrosion or other deterioration because it will be compatible with materials that will be managed in the containment building, including the glass waste and containerized or un-containerized waste and equipment.

Measures to Prevent Tracking Wastes from the LAW LSM Gallery Containment Building

The unit is designed to manage LAW melters. When the LAW melter has reached the end of its operating life, it is disconnected from all waste feed and utility systems and all penetrations on the enclosure are seal welded so glass waste will be contained within the melter. This design will prevent waste from entering the containment building and thus from being tracked from the unit.

The unit will be classified as a C3 contamination area, which allows only limited personnel access. Access will be required only for non-routine events such as when melters are determined to be waste, approximately every 5 years, or when equipment must be dismantled. Dry decontamination methods will be used to decontaminate the melter and gallery areas.

Procedures in the Event of Release or Potential for Release from the LAW LSM Gallery Containment Building

Conditions that could lead to a release from the LAW LSM gallery containment building will be corrected on a schedule intended to preclude a release that could be hazardous to public health or the environment.

In the unlikely event of a release of dangerous wastes from the containment building, actions required by 40 CFR 264.1101(c)(3)(i) through (iii) will be taken. Specific administrative and operating methods that will be used to satisfy this requirement will be developed prior to initial receipt of dangerous and mixed waste. The methods will be followed to repair conditions that could lead to a release.

Inspections of the LAW LSM Gallery Containment Building

An inspection program will be established to detect conditions that could lead to release of wastes from the LAW LSM gallery containment building. The inspection and monitoring schedule and methods that will be used to detect releases from the unit are included in DWP Operating Unit Group 10, Chapter 6.0.

### 4E.3.2 ILAW Container Finishing Line Containment Building (L-0109B, L-0109C, L-0109D, L-0109E, L-0115B, L-0115C, L-0115D, L-0115E)

The ILAW container finishing line containment building will be located in the LAW Vitrification Facility. It will be used for managing ILAW containers that have cooled sufficiently to be closed and prepared for finishing. Typical waste management activities performed in this containment building include storage of open waste containers and container decontamination.

An ILAW container is transported from an inert filling and lidding room, to a decontamination room, and finally to a swab and monitor room, and then out of the containment building. This sequence of rooms is considered a finishing line. There are two finishing lines within the ILAW container finishing line containment building.

ILAW Container Finishing Containment Building Design

The ILAW container finishing containment building will be completely enclosed within the LAW Vitrification Facility. It will be designed to prevent the release and exposure of dangerous constituents to the outside environment. The design and construction of the LAW Vitrification Facility exterior will prevent water from running into the facility. The roof of the LAW Vitrification Facility will consist of metal roofing, roof insulation, and a vapor barrier. Roof drains and drainage system with overflow drains will collect run-off. The approximate dimensions of the unit are summarized in ~~Table 4E-5~~Table 4E-6.

ILAW Container Finishing Containment Building Structure

Because the ILAW container finishing containment building will be a concrete-walled structure fully enclosed within the LAW Vitrification Facility, its structural requirements will be met by the design standards of the LAW Vitrification Facility. The design will ensure that the unit has sufficient structural strength to prevent collapse or failure. DWP Operating Unit Group 10, Supplement 1 provides

documentation that the seismic requirements for the LAW Vitrification Facility meet or exceed the Uniform Building Code Seismic Design Requirements.

### ILAW Container Finishing Containment Building Materials

The ILAW container finishing containment building will be constructed of steel-reinforced concrete. The interior floor and a portion of the walls of the decontamination rooms will be coated with an epoxy coating to facilitate decontamination of the concrete.

### Use of Incompatible Materials for the ILAW Container Finishing Containment Building

The primary concrete barrier will have an epoxy coating. This epoxy coating will be compatible with the waste managed in the unit. The waste to be managed includes vitrified waste glass within the stainless steel containers. This coating will be present in the two inert fill rooms and the two swab and monitor rooms.

The epoxy coating will be provided to protect the concrete and facilitate decontamination. The coating will be compatible with the wastes that will be managed, which will include filled ILAW containers. Glass waste is not expected to be present on the exterior of the containers, due to the design of the melter pour stations. The interior is the only portion of the container that will be exposed to the glass waste. Additionally, the removal of glass will occur in the inert fill and lidding rooms. Carbon dioxide pellets, compatible with the stainless steel container, will be used to remove contamination from the container surface. Reagents that could cause the decontamination coating to leak, corrode, or otherwise fail will not be used within the unit.

### Primary Barrier Integrity in the ILAW Container Finishing Containment Building

The ILAW Containment Building will be designed to withstand loads from the movement of personnel, wastes, and handling equipment. The seismic design criteria found in DWP Operating Unit Group 10, Supplement 1 ensures that appropriate design loads, load combinations, and structural acceptance criteria are employed at the WTP.

### Certification of Design for the ILAW Container Finishing Containment Building

Prior to initial receipt of dangerous and mixed waste, certification by a Qualified Registered Professional Engineer that the ILAW Containment Building meets the design requirements of 40 CFR 264.1101(a) and (c) will be obtained.

The requirements of 40 CFR 264.1101(b) do not apply to this design because any dangerous waste containing free liquids will be managed on portable secondary containment that meets the requirements of WAC 173-303-630(7).

### Operation of the ILAW Container Finishing Containment Building

Operational and maintenance controls and practices will be established to ensure containment of the waste within the ILAW Containment Building, as required by 40 CFR 264.1101(c)(1). Activities in the building will be remotely conducted.

### Maintenance of the ILAW Container Finishing Containment Building

The epoxy decontamination coated concrete floor and walls of the of the containment building will be constructed and maintained in a manner that will be free of significant cracks, gaps, corrosion, or other deterioration. The coated concrete will be free of corrosion or other deterioration because it will be compatible with materials that will be managed in the containment building, which will include ILAW containers, containerized secondary waste, and failed equipment. Waste containers managed in the containment building will not be stacked.

Measures to Prevent Tracking Wastes from the ILAW Container Finishing Containment Building

The ILAW Containment Building is designed to sample, mechanically seal, and decontaminate the filled ILAW containers. Conducting these activities in a C3 zone prevents the spread of contaminated materials from the unit as air flow is managed in the LAW Vitrification Facility ventilation system. The containment building is under negative pressure. Air flow through this containment building goes to a C5 air system, which passes through HEPA filters before exiting the facility stack.

A vacuum cleanup system, located in the two inert fill rooms, is expected to be infrequently used to collect dust from the inert filling activities, and thereby minimize the potential for dust to be tracked from the unit. The dust will be disposed of as secondary waste.

Additionally, personnel access to the containment building, which is classified as a C3 contamination area, will be allowed only under limited circumstances, reducing the potential for contacting the waste and tracking it from the unit.

Procedures in the Event of Release or Potential for Release from the ILAW Container Finishing Containment Building

Conditions that could lead to a release from the ILAW Containment Building will be corrected on a schedule intended to preclude a release that could be hazardous to public health or the environment. In the unlikely event of a release of dangerous wastes from the containment building, actions required by 40 CFR 264.1101(c)(3)(i) through (iii) will be taken. Specific administrative and operating methods to satisfy this requirement will be developed prior to initial receipt of dangerous and mixed waste. The methods will be followed to repair conditions that could lead to a release.

Inspections of the ILAW Container Finishing Containment Building

An inspection program will be established to detect conditions that could lead to a release of wastes from the ILAW Container Finishing Containment Building. The inspection and monitoring schedule and methods that will be used to detect releases from the unit are included in DWP Operating Unit Group 10, Chapter 6.0.

### 4E.3.3 LAW Consumable Import/Export Containment Building (L-0119B)

The LAW Vitrification Facility Consumable Import/Export Containment Building will be located in the west end of the LAW Vitrification Facility on the 3 ft elevation. Typical waste management activities performed in this containment building include decontamination, size reduction, and packaging of spent equipment.

Dry wipe down decontamination of components will be performed to allow contact handling. Waste streams generated within the Consumable Import/Export Containment Building will be transferred into a CCB equipped with an internal bagging capabilities, and then packaged into a box for disposal. Waste typically generated in the consumable import/export area are managed in large waste boxes.

LAW Vitrification Facility Consumable Import/Export Containment Building Design

The LAW Vitrification Facility consumable import/export containment building will be designed as a completely enclosed area within the LAW Vitrification Facility. It is designed to prevent the release of dangerous constituents and their exposure to the outside environment. The design and construction of the LAW Vitrification Facility exterior will prevent water from running into the facility. The roof of the LAW Vitrification Facility will consist of metal roofing, roof insulation, and vapor barrier. Rainwater run-off will be collected by roof drains and drainage systems with overflow roof drains. The approximate dimensions of the unit are summarized in ~~Table 4E-5~~Table 4E-6.

### LAW Vitrification Facility Consumable Import/Export Containment Building Structure

The LAW Vitrification Facility Consumable Import/Export Containment Building will be a concrete-walled structure fully enclosed within the LAW Vitrification Facility. Therefore, structural requirements for the containment building will be met by the design standards of the LAW Vitrification Facility. The design will ensure that the unit has sufficient structural strength to prevent collapse or failure. DWP Operating Unit Group 10, Supplement 1 provides documentation that the seismic requirements for the LAW Vitrification Facility meet or exceed the Uniform Building Code Seismic Design Requirements.

### LAW Vitrification Facility Consumable Import/Export Containment Building Materials

The LAW Vitrification Facility Consumable Import/Export Containment Building will be constructed of steel-reinforced concrete. The interior floor and a portion of the walls of the unit will be coated with an epoxy coating to protect the concrete and facilitate decontamination.

### Use of Incompatible Materials in the LAW Vitrification Facility Consumable Import/Export Containment Building

An epoxy coating will be provided for the floor of this unit. The coating will be compatible with the wastes that will be managed. Activities in the unit will be limited to decontamination and packaging the waste components into drums or waste boxes. Treatment reagents that could cause the coating to leak, corrode, or otherwise fail will not be used within the unit.

### Primary Barrier Integrity in the LAW Vitrification Facility Consumable Import/Export Containment Building

The LAW Vitrification Facility Consumable Import/Export Containment Building will be designed to withstand loads from the movement of personnel, wastes, and handling equipment. The seismic design criteria found in DWP Operating Unit Group 10, Supplement 1 ensures that appropriate design loads, load combinations, and structural acceptance criteria are employed at the WTP.

### Certification of Design for the LAW Vitrification Facility Consumable Import/Export Containment Building

Prior to receipt of dangerous and mixed waste, a certification by a Qualified Registered Professional Engineer that the LAW Vitrification Facility Consumable Import/Export Containment Building meets the design requirements of 40 CFR 264.1101(a) and (c) will be obtained. The requirements of 40 CFR 264.1101(b) do not apply to this design because any dangerous waste containing free liquids will be managed on portable secondary containment that meets the requirements of WAC 173-303-630(7).

### Operation of the LAW Vitrification Facility Consumable Import/Export Containment Building

Operational and maintenance controls and practices will be established and followed to ensure containment of the wastes within the LAW Vitrification Facility C3 Containment Building unit as required by 40 CFR 264.1101(c)(1).

### Maintenance of the LAW Vitrification Facility Consumable Import/Export Containment Building

The epoxy coating of the unit will be constructed and maintained in a manner that will be free of significant cracks, gaps, corrosion, or other deterioration. The coating will remain free of corrosion or other deterioration because it is compatible with materials that will be managed in the containment building. The failed equipment that will be managed and packaged in the containment building unit will be compatible with the protective coating. Only decontamination chemicals that are compatible with the coating will be used.

Measures to Prevent Tracking Wastes from the LAW Vitrification Facility Consumable Import/Export Containment Building

The LAW Vitrification Facility Consumable Import/Export Containment Building will be designed to package failed equipment to prevent the spread of contaminated materials. Very little dust is expected to be generated in the unit.

The containment building will be classified as a C3 contamination area, which allows only limited access by personnel. Wastes leaving the unit will be enclosed within containers. If necessary, these containers will be decontaminated in the unit prior to release and transportation to a permitted treatment and disposal area.

Procedures in the Event of Release or Potential for Release from the LAW Vitrification Consumable Import/Export Containment Building

The design and operation of the unit makes it very unlikely that releases will occur. The design and operational measures will minimize the generation of dust and contain it within the unit. The ventilation system will also use negative air pressure to keep contamination from spreading to areas of lesser contamination.

Inspections will identify conditions that could lead to a release. Such conditions will be corrected on a schedule intended to preclude a release that could be hazardous to public health or the environment. In the unlikely event that a release of dangerous wastes from the containment building is detected, actions required by 40 CFR 264.1101(c)(3)(i) through (iii) will be taken. Specific administrative and operating methods that will be used to satisfy this requirement will be developed prior to initial receipt of dangerous and mixed waste. These methods will be followed to repair conditions that could lead to a release.

Inspections of the LAW Vitrification Facility Consumable Import/Export Containment Building

An inspection program will be established to detect conditions that could lead to a release of wastes from the LAW Vitrification Facility Consumable Import/Export Containment Building. The inspection and monitoring schedule and methods that will be used to detect releases from the unit are included in DWP Operating Unit Group 10, Chapter 6.0.

### 4E.3.4 LAW C3 Workshop Containment Building (L-0226A)

The C3 Workshop Containment Building will be located in the west side of the LAW Vitrification Facility at elevation 28 ft.

Typical waste management activities performed in this containment building include decontamination, size reduction, and packaging of spent equipment. Equipment will be transported to the unit contained in shielded containers, drums, or in waste boxes. In the workshop, the equipment will be decontaminated to enable hands-on maintenance.

Spent equipment and parts will be bagged and placed in standard waste containers or boxes for disposal. Size reduction may be performed to facilitate packaging. Other spent equipment will be packaged in drums or waste boxes.

C3 Workshop Containment Building Design

The C3 Workshop Containment Building will be a completely enclosed area within the LAW Vitrification Facility. It will be designed to prevent the release of dangerous waste and their exposure to the outside environment. The design and construction of the LAW Vitrification Facility exterior will prevent water from running into the facility. The roof of the LAW Vitrification Facility will consist of metal roofing, roof insulation, and vapor barrier. Rainwater run-off will be collected by roof drains and drainage systems with overflow roof drains. The approximate dimensions of the unit are summarized in ~~Table 4E-5~~Table 4E-6.

## C3 Workshop Containment Building Structure

The C3 Workshop Containment Building will be fully enclosed within the LAW Vitrification Facility. Therefore, structural requirements for the containment building will be met by the design standards of the LAW Vitrification Facility. The design will ensure that the unit has sufficient structural strength to prevent collapse or failure. DWP Operating Unit Group 10, Supplement 1 provides documentation that the seismic requirements for the LAW Vitrification Facility meet or exceed the Uniform Building Code Seismic Design Requirements.

## C3 Workshop Containment Building Materials

The C3 Workshop Containment Building will be constructed of a steel-reinforced epoxy coated concrete floor and plasterboard partition walls. The floor will be coated with an epoxy coating to protect the concrete and facilitate decontamination.

## Use of Incompatible Materials in the C3 Workshop Containment Building

Activities in the unit will be limited to decontamination, size reduction, and packaging the waste components into drums or waste boxes. Treatment reagents that could cause the epoxy coating to leak, corrode, or otherwise fail will not be used within the unit.

## Primary Barrier Integrity in the C3 Workshop Containment Building

The C3 Workshop Containment Building is designed to withstand loads from the movement of personnel, wastes, and handling equipment. The seismic design criteria found in DWP Operating Unit Group 10, Supplement 1 ensures that appropriate design loads, load combinations, and structural acceptance criteria are employed at the WTP.

## Certification of Design for the C3 Workshop Containment Building

Prior to initial receipt of dangerous and mixed waste, a certification by a Qualified Registered Professional Engineer that the C3 Workshop Containment Building meets the design requirements of 40 CFR 264.1101(a) and (c) will be obtained. The requirements of 40 CFR 264.1101(b) do not apply to this design because any dangerous waste containing free liquids will be managed on portable secondary containment that meets the requirements of WAC 173-303-630(7).

## Operation of the C3 Workshop Containment Building

Operational and maintenance controls and practices will be established and followed to ensure containment of the wastes within the C3 Workshop Containment Building unit as required by 40 CFR 264.1101(c)(1).

## Maintenance of the C3 Workshop Containment Building

The epoxy coated concrete will be constructed and maintained in a manner that will be free of significant cracks, gaps, corrosion, or other deterioration.

The concrete will remain free of corrosion or other deterioration because it is compatible with materials that will be managed in the containment building. The failed equipment that will be managed in the containment building unit will be compatible with the coated concrete. Only decontamination chemicals that are compatible with the concrete coating will be used.

## Measures to Prevent Tracking Wastes from the C3 Workshop Containment Building

The C3 Workshop Containment Building will be designed to isolate failed equipment from the accessible environment and to prevent the spread of contaminated materials. Very little dust is expected to be generated in the unit.

The containment building is classified as a C3 contamination area, which allows only limited access by personnel. Personnel access will be via a C2/C3 sub-change room. Equipment will enter and exit the workshop via a C2/C3 airlock. Repaired equipment leaving the unit will be decontaminated, when necessary, before being released for removal from the containment building. Wastes leaving the unit will be packaged in waste containers or waste boxes. If necessary, the containers will be decontaminated in the unit prior to transportation to a permitted treatment or disposal area.

Procedures in the Event of Release or Potential for Release from the C3 Workshop Containment Building

The design and operation of the unit makes it very unlikely that releases will occur. The design and operational measures will minimize the generation of dust and contain it within the unit. The ventilation system will also use negative air pressure to keep contamination from areas of lesser contamination. Offgas will be routed to the LAW offgas treatment system.

Inspections will identify conditions that could lead to a release. Such conditions will be corrected on a schedule intended to preclude a release that could be hazardous to public health or the environment. In the unlikely event that a release of dangerous wastes from the containment building is detected, actions required by 40 CFR 264.1101(c)(3)(i) through (iii) will be taken. Specific administrative and operating methods that will be used to satisfy this requirement will be developed prior to initial receipt of dangerous and mixed waste. These methods will be followed to repair conditions that could lead to a release.

Inspections of the C3 Workshop Containment Building

An inspection program will be established to detect conditions that could lead to a release of wastes from the C3 Workshop Containment Building. The inspection and monitoring schedule and methods that will be used to detect releases from the unit are included in DWP Operating Unit Group 10, Chapter 6.0.

### 4E.3.5 LAW Pour Cave Containment Building (L-B009B, L-B011B, L-B011C, L-B013B, L-B013C, L-B015A)

The LAW Pour Cave Containment Building (rooms L-B009B, L-B011B, L-B011C, L-B013B, L-B013C, L-B015A) will be located in the LAW Vitrification Facility, elevation -21 ft. It will be used for managing ILAW containers as they are filled with glass from the LAW melters (LAW-MLTR-00001/2). The filled ILAW containers will be allowed to cool with the lids off the container. Cooled ILAW containers will be transferred to the ILAW container finishing line containment building for lidding and preparation for export to a storage facility.

LAW Pour Cave Containment Building Design

The LAW Pour Cave Containment Building will be completely enclosed within the LAW Vitrification Facility, which will be designed to prevent the release and exposure of dangerous constituents to the outside environment. The design and construction of the LAW Vitrification Facility exterior will prevent precipitation from entering into the facility. The roof of the LAW Vitrification Facility will consist of metal roofing, roof insulation, and a vapor barrier. Roof drains and drainage system with overflow drains will collect run-off. The approximate dimensions of the unit are summarized in ~~Table 4E-5~~Table 4E-6.

LAW Pour Cave Containment Building Structure

Because the LAW Pour Cave Containment Building will be a concrete-walled structure fully enclosed within the LAW Vitrification Facility, its structural requirements will be met by the design standards of the LAW Vitrification Facility. The design will ensure that the unit has sufficient structural strength to prevent collapse or failure. DWP Operating Unit Group 10, Supplement 1 provides documentation that the seismic requirements for the LAW Vitrification Facility meet or exceed the Uniform Building Code Seismic Design Requirements.

### LAW Pour Cave Containment Building Materials

The LAW Pour Cave Containment Building will be constructed of steel-reinforced concrete that is provided with an insulated stainless steel liner to protect the concrete from thermal damage and support decontamination.

### Use of Incompatible Materials for the LAW Pour Cave Containment Building

The waste to be managed includes vitrified waste glass within the stainless steel containers and insulated stainless cladding. No glass waste is expected to be present on the exterior of the containers, due to the design of the melter pour stations. The interior is the only portion of the container that will be exposed to the glass waste. Reagents that could cause corrosion or other failure will not be used within the unit.

### Primary Barrier Integrity in the LAW Pour Cave Containment Building

The LAW Pour Cave Containment Building will be designed to withstand loads from the movement of personnel, wastes, and handling equipment. The seismic design criteria found in *RPP-WTP Compliance with Uniform Building Code Seismic Design Requirements*, DWP Operating Unit Group 10, Supplement 1 ensures that appropriate design loads, load combinations, and structural acceptance criteria are employed at the WTP.

### Certification of Design for the LAW Pour Cave Containment Building

Prior to initial receipt of dangerous and mixed waste, certification by a Qualified Registered Professional Engineer that the LAW Pour Cave Containment Building meets the design requirements of 40 CFR 264.1101(a) and (c) will be obtained. The requirements of 40 CFR 264.1101(b) do not apply to this design because any dangerous waste with free liquids will be managed on portable secondary containment that meets the requirements of WAC 173-303-630(7).

### Operation of the LAW Pour Cave Containment Building

Operational and maintenance controls and practices will be established to ensure containment of the waste within the LAW Pour Cave Containment Building, as required by 40 CFR 264.1101(c)(1). Activities in the building will be remotely conducted during normal operation when ILAW containers are present.

### Maintenance of the LAW Pour Cave Containment Building

The insulated stainless steel clad concrete will be free of corrosion or other deterioration because it will be compatible with materials that will be managed in the containment building, which will include containerized glass waste and equipment.

### Measures to Prevent Tracking Wastes from the LAW Pour Cave Containment Building

The LAW Pour Cave Containment Building is designed to manage the filling and movement of ILAW containers. Conducting these activities in a C5 zone prevents the spread of contaminated materials from the unit as airflow is managed in the LAW Vitrification Facility ventilation system. The containment building is under negative pressure. Airflow through this containment building goes to a C5 air system, which passes through HEPA filters before exiting the facility stack. Personnel access will be restricted during normal operation since it is classified as a C5 contamination area. The containment building may be reclassified as a C3 area for equipment maintenance.

### Procedures in the Event of Release or Potential for Release from the LAW Pour Cave Containment Building

Conditions that could lead to a release from the LAW Pour Cave Containment Building will be corrected on a schedule intended to preclude a release that could be hazardous to public health or the environment. In the unlikely event of a release of dangerous wastes from the containment building, actions required by 40 CFR 264.1101(c)(3)(i) through (iii) will be taken. Specific administrative and operating methods to

satisfy this requirement will be developed prior to initial receipt of dangerous and mixed waste. The methods will be developed to repair conditions that could lead to a release.

Inspections of the LAW Pour Cave Containment Building

An inspection program will be established to detect conditions that could lead to a release of wastes from the LAW Pour Cave Containment Building. The inspection and monitoring schedule and methods that will be used to detect releases from the unit are included in DWP Operating Unit Group 10, Chapter 6.0.

### 4E.3.6 LAW Container Buffer Storage Containment Building (L-B025C, L-B025D)

The LAW Container Buffer Storage Containment Building (rooms L-B025C, L-B025D) will be located in the LAW Vitrification Facility, elevation -21 ft. It will be used for managing ILAW containers after they are filled with glass from the LAW melters (LAW-MLTR-00001/2). The filled ILAW containers will be allowed to cool with the lids off the container. Cooled ILAW containers will be transferred to the ILAW Container Finishing Line Containment Building for lidding and preparation for export to a storage or disposal facility.

LAW Container Buffer Storage Containment Building Design

The LAW Container Buffer Storage Containment Building will be completely enclosed within the LAW Vitrification Facility, which will be designed to prevent the release and exposure of dangerous constituents to the outside environment. The design and construction of the LAW Vitrification Facility exterior will prevent precipitation from entering into the facility. The roof of the LAW Vitrification Facility will consist of metal roofing, roof insulation, and a vapor barrier. Roof drains and drainage system with overflow drains will collect run-off. The approximate dimensions of the unit are summarized in ~~Table 4E-5~~Table 4E-6.

LAW Container Buffer Storage Containment Building Structure

Because the LAW Container Buffer Storage Containment Building will be a concrete-walled structure fully enclosed within the LAW Vitrification Facility, its structural requirements will be met by the design standards of the LAW Vitrification Facility. The design will ensure that the unit has sufficient structural strength to prevent collapse or failure. DWP Operating Unit Group 10, Supplement 1 provides documentation that the seismic requirements for the LAW Vitrification Facility meet or exceed the Uniform Building Code Seismic Design Requirements.

LAW Container Buffer Storage Containment Building Materials

The LAW Container Buffer Storage Containment Building will be constructed of steel-reinforced concrete provided with an epoxy coating to protect the concrete and facilitate decontamination.

Use of Incompatible Materials for the LAW Container Buffer Storage Containment Building

The waste to be managed includes vitrified waste glass within the stainless steel containers. No glass waste is expected to be present on the exterior of the containers. The interior is the only portion of the container that will be exposed to the glass waste. Reagents that could cause corrosion or other failure of the epoxy coating will not be used within the unit.

Primary Barrier Integrity in the LAW Container Buffer Storage Containment Building

The LAW Container Buffer Storage Containment Building will be designed to withstand loads from the movement of personnel, wastes, and handling equipment. The seismic design criteria found in *RPP-WTP Compliance with Uniform Building Code Seismic Design Requirements*, DWP Operating Unit Group 10, Supplement 1 ensures that appropriate design loads, load combinations, and structural acceptance criteria are employed at the WTP.

Certification of Design for the LAW Container Buffer Storage Containment Building

Prior to initial receipt of dangerous and mixed waste, certification by a Qualified Registered Professional Engineer that the LAW Container Buffer Storage Containment Building meets the design requirements of 40 CFR 264.1101(a) and (c) will be obtained. The requirements of 40 CFR 264.1101(b) do not apply to this design because any dangerous waste containing free liquids will be managed on portable secondary containment that meets the requirements of WAC 173-303-630(7).

Operation of the LAW Container Buffer Storage Containment Building

Operational and maintenance controls and practices will be established to ensure containment of the waste within the LAW Container Buffer Storage Containment Building, as required by 40 CFR 264.1101(c)(1). Activities in the building will be remotely conducted during normal operation when ILAW containers are present.

Maintenance of the LAW Container Buffer Storage Containment Building

The epoxy coated concrete will be free of corrosion or other deterioration because it will be compatible with materials that will be managed in the containment building, which will include containerized glass waste and equipment. Wastes containers managed in the containment building will not be stacked.

Measures to Prevent Tracking Wastes from the LAW Container Buffer Storage Containment Building

The LAW Container Buffer Storage Containment Building is designed to manage the movement and storage of ILAW containers. Conducting these activities in a C5 zone prevents the spread of contaminated materials from the unit as airflow is managed in the LAW Vitrification Facility ventilation system. The containment building is under negative pressure. Airflow through this containment building goes to a C5 air system, which passes through HEPA filters before exiting the facility stack. Personnel access will be restricted during normal operation since it is classified as a C5 contamination area. The containment building may be reclassified as a C3 area for equipment maintenance.

Procedures in the Event of Release or Potential for Release from the LAW Container Buffer Storage Containment Building

Conditions that could lead to a release from the LAW Container Buffer Storage Containment Building will be corrected on a schedule intended to preclude a release that could be hazardous to public health or the environment. In the unlikely event of a release of dangerous wastes from the containment building, actions required by 40 CFR 264.1101(c)(3)(i) through (iii) will be taken. Specific administrative and operating methods to satisfy this requirement will be developed prior to initial receipt of dangerous and mixed waste. The methods will be developed to repair conditions that could lead to a release.

Inspections of the LAW Container Buffer Storage Containment Building

An inspection program will be established to detect conditions that could lead to a release of wastes from the LAW Container Buffer Storage Containment Building. The inspection and monitoring schedule and methods that will be used to detect releases from the unit are included in DWP Operating Unit Group 10, Chapter 6.0.

## 4E.4 Air Emission Control

### 4E.4.1 LAW Vitrification Facility Ventilation

The LAW Vitrification Facility will be divided into four numbered zones (the C4 designation is not used) listed and defined below, with the higher number indicating greater radiological hazard potential and therefore a requirement for a greater degree of control or restriction. The zoning of the ventilation system will be based on the classifications assigned to building areas for potential radiological contamination.

Zones classified as C5 are potentially the most contaminated and include the pour caves, buffer storage area, and process cells. Zones classified as C1 are uncontaminated areas.

Containment will be achieved by maintaining C5 areas at the greatest negative pressure, with airflows cascaded through engineered routes from C2 areas to C3 areas and on to the C5 areas. The cascade system, in which air passes through more than one area, will reduce the number of separate ventilation streams and hence the amount of air requiring treatment. Adherence to this concept in the design and operation of the LAW Vitrification Facility will ensure that the ventilation air does not become a significant source of exposure to operators, and that the air emissions do not endanger human health or the environment.

An exhaust air radiation monitoring system, consisting of sensors to monitor radiation in the exhaust air stream, or a representative sampling system is provided in the discharge header downstream of the exhaust fans. A monitoring system would consist of probe assemblies, vacuum pumps, a stack flow sensor, temperature sensor, and radiation sensors. A temperature transmitter is also provided in the discharge header downstream of the exhaust fans for continuous monitoring of exhaust air temperature.

### C1 Ventilation (C1V) System

C1 areas are normally occupied and are expected to remain free of contamination. C1 areas will be operated slightly pressurized relative to atmosphere and other adjacent areas. The C1V system consists of air handling units, change rooms exhaust fan, ductwork, and accessories. Areas served by this system include:

- Office spaces
- Control Room
- Incident Command Post (ICP) (During DFLAW operations)
- Lunch Room
- Restrooms
- Change Rooms
- Truck Bays
- LAW Switchgear Building

### C2 Ventilation (C2V) System

C2 areas will typically consist of non-process operating areas, equipment rooms, stores, access corridors, and plant rooms adjacent to areas with higher contamination potential. The C2V is served by dedicated air handling units and exhaust fans. Ventilation air supplied to C2 areas will be exhausted by the C2 exhaust system and cascaded into adjacent C3 areas. The sum of the volumetric flow rates exhausted by the C2 exhaust system and cascaded into adjacent C3 areas will be greater than the volumetric flow rate supplied to C2 areas. This will cause the C2 areas to maintain a nominal negative pressure relative to atmosphere. C2 exhaust will pass through one stage of HEPA filters and be discharged to the atmosphere by the exhaust fans. Supply and exhaust fans are provided with variable frequency drives.

### C3 Ventilation (C3V) System

C3 areas are normally unoccupied, but allow operator access, for instance during maintenance. C3 areas will typically consist of filter plant rooms, workshops, maintenance areas, and monitoring areas. Air will generally be drawn from C2 areas and, wherever possible, cascaded through the C3 areas into C5 areas, or alternatively exhausted from the C3 areas by the C3 exhaust system. In general, air cascaded into the C3 areas will be from adjacent C2/C3 subchange rooms. C3 exhaust will pass through one stage of HEPA filters and be discharged to the atmosphere by the exhaust fans. C3 exhaust fans are provided with variable frequency drives.

C5 Ventilation (C5V) System

Where there is in-bleed air from the C3 system to the C5 system, fan cascade trip interlocks protect the system from backflow.

The C5 areas in the LAW Vitrification Facility will be composed of the following:

- Pour caves
- Container transfer tunnel
- Buffer storage area
- C3/C5 drains/sump collection vessel room
- Process cells
- Finishing line

Air will be cascaded into the C5 areas and exhausted by the C5 exhaust system. Engineered ventilation pipe entries (air in-bleeds) through the C5 confinement boundary will be protected by backflow isolation dampers. C5 exhaust will pass through two stages of HEPA filters and be discharged to the atmosphere by the exhaust fans. C5 exhaust fans are provided with variable frequency drives.

### 4E.4.2 LAW Melter Offgas System

The LAW Melter Offgas System consists of the following process systems:

- LAW Primary Offgas Process (LOP) System
- LAW Secondary Offgas/Vessel Vent Process (LVP) System

Process flow diagrams of the LOP system are provided in DWP Operating Unit Group 10, Appendix 9.1. The LOP tank system consists of the following tanks and miscellaneous treatment unit sub-systems and their associated ancillary equipment:

Tank System

- LAW Melter SBS Condensate Vessels (LOP-VSL-00001/2)
- Pumps
- Eductor (LOP-EDUC-00001)

Miscellaneous Treatment Unit Sub-Systems

- Melter 1 and Melter 2 Primary and Standby Film Coolers (LOP-FCLR-00001/2/3/4), one set for each melter
- Melter 1 and Melter 2 SBS (LOP-SCB-00001/2)
- Melter 1 and Melter 2 WESP (LOP-WESP-00001/2)

Process flow diagram of the LVP System are provided in DWP Operating Unit Group 10, Appendix 9.1. The LVP tank system consists of the following tanks and miscellaneous treatment unit sub-systems and their associated ancillary equipment.

Tank System

- LAW Caustic Collection Tank (LVP-TK-00001)

Miscellaneous Treatment Unit Sub-Systems

- Melter Offgas HEPA Preheaters (LVP-HTR-00001A/3A)
- Melter Offgas HEPA Filters (LVP-HEPA-00001A/1B/2A/2B/3A)
- Offgas Mercury Adsorbers (LVP-ADBR-00001A/1B)

- Thermal Catalytic Oxidizer Skid (LVP-SKID-00002)
- Selective Catalytic Oxidizer (SCO) (LVP-SCO-00001)
- NOx Selective Catalytic Reduction Unit (SCR) (LVP-SCR-00001)
- Catalytic Oxidizer Heat Recovery Unit (LVP-HX-00001)
- Catalytic Oxidizer Electric Heater (LVP-HTR-000002)

Melter offgas is generated from the vitrification of LAW feed in the two joule-heated ceramic melters and the vessel ventilation system. The rate of generation of gases in the melter is dynamic. The melters generate offgas resulting from decomposition, oxidation, and vaporization of feed material. Constituents of the offgas include:

- Nitrogen oxides from decomposition of metal nitrates in the melter feed
- Chloride, fluoride, and sulfur as oxides, acid gases, and salts
- Particulates and aerosols
- Entrained feed material and glass
- Mercury

In addition, the LAW melters generate small quantities of other volatile compounds including iodine-129, carbon-14, tritium, and volatile organic compounds. Carbon-14 and tritium are in the form of carbon dioxide and water, respectively.

The purpose of the LAW Melter offgas system is to cool and treat the melter offgas and vessel ventilation offgas to a level that is protective of human health and the environment. The offgas system also provides a pressure confinement boundary that will control melter pressure and prevent vapor release to the cell. The design of the melter offgas system accommodates changes in offgas flow from individual melters without causing either melter to pressurize and without allowing variations in the flow from one melter to impact the other melter.

Separate systems are provided for the initial treatment of offgas from each melter. This is considered the primary offgas treatment system. This primary offgas system is designed to handle intermittent surges of seven times the normal steam generation rate and three times the normal non-condensable gas generation rate from the melter feed without causing interruption of melter operations. The primary system consists of Film Coolers (LOP-FCLR-00001/3), SBS (LOP-SCB-00001/2), and a Melter WESP (LOP-WESP-00001/2). This system cools the offgas and removes particulates.

There is a second offgas line from the Melter to the SBS (LOP-SCB-00001/2) consisting of a Standby Film Cooler (LOP-FCLR-00002/4) and a butterfly valve as the isolation device. The melter is operated under negative pressure. In the event that the primary offgas line plugs or the melter surges beyond design basis, the butterfly valve opens allowing offgas flow to the SBS through the second offgas line, thereby preventing melter pressurization. The line is also designed to handle surges up to seven times the normal steam generation rate and three times the non-condensable gas generation rate from melter feed without causing interruption in melter operations. In the event that the melter surge exceeds the pressure relief set point, the pressure relief device opens venting the offgas to the process cell. The pressure relief device closes as the melter pressure approaches the desired set point. Offgas from the wet process cell is drawn through C5V HEPA Filters to remove particulates before discharged to the atmosphere.

The vessel ventilation system offgas consists primarily of air, water vapor, and minor amounts of aerosols generated by the agitation or movement of vessel contents. The vessel ventilation system header joins the primary offgas system after the WESP (LOP-WESP-00001/2), and the combined offgas is routed to the secondary offgas treatment system.

The secondary offgas system (from HEPA preheater to final discharge) is designed to handle maximum sustained flowrate from the two melters assuming both melters are operating. The system is also capable of operating effectively if only one melter is running. The secondary offgas system consists of Melter Offgas Preheater (LVP-HTR-00001A/3A) with Melter Offgas HEPA Filter trains (LVP-HEPA-00001A/2A/3A and 00001B/2B), and the Melter Offgas Exhausters (LVP-EXHR-00001A/B/C). The balance of the secondary offgas system includes the Offgas Mercury Adsorbers (LVP-ADBR-00001A/B), LVP-SKID-00002 made up of a Thermal Catalytic Oxidizer (LVP-SCO-00001)/Selective Catalytic Reducer (LVP-SCR-00001), the Catalytic Oxidizer Heat Recovery Unit (plate and frame heat exchanger) (LVP-HX-00001), Catalytic Oxidizer Electric Heater (LVP-HTR-00002), the catalyst for volatile organic compound oxidation and the catalyst for nitrogen oxides reduction; and a Melter Offgas Caustic Scrubber (LVP-SCB-00001).

The melter offgas exhausters will be located downstream of the LVP Caustic Scrubber (LVP-SCB-00001) and maintain negative pressure across the LVP primary and secondary offgas equipment upstream of the exhausters. The following sections provide descriptions of major melter offgas treatment components.

#### 4E.4.2.1 LAW Primary Offgas Process System

Process flow diagram of the LOP system are provided in DWP Operating Unit Group 10, Appendix 9.1. The purpose of the LOP tank system and miscellaneous treatment unit sub-systems is to cool the offgas and remove aerosols generated by each of the two LAW melters. The primary components consist of a film cooler, SBS, and a WESP.

Melter Film Coolers (LOP-FCLR-00001/2/3/4)

The primary function of the Film Cooler miscellaneous treatment unit sub-system is to cool the offgas and entrained molten glass droplets below the glass sticking temperature to minimize glass deposition on the offgas piping walls. The offgas exits the melter and is mixed with steam or steam/air mixture in the offgas Film Cooler. The Film Cooler is a double-walled pipe designed to introduce air/steam axially along the walls of the offgas pipe through a series of holes or slots in the inner wall. Each melter has a primary and a standby Film Cooler.

Melter Submerged Bed Scrubber (LOP-SCB-00001/2)

Each LAW Melter has a dedicated SBS miscellaneous treatment unit sub-system. After each primary Film Cooler (LOP-FCLR-00001/3), the offgas enters the SBS column for further cooling and solids removal. The SBS is a passive device designed for aqueous scrubbing of entrained particulates from melter offgas, cooling and condensation of melter vapor emissions, and interim storage of condensed fluids. It will also quench the offgas to a desired discharge temperature through the use of cooling coils/jacket. The offgas leaves the SBS in approximate thermal equilibrium with the scrubbing solution.

The SBS (LOP-SCB-00001/2) have two offgas inlets, one for the normal operations line and one for the standby line. Standby Film Coolers (LOP-FCLR-00002/4) can be routed to either SBS. Each Standby Film cooler is normally routed to its respective SBS; however, each film cooler can be routed to the alternate SBS. The offgas enters the SBS through the appropriate inlet pipe that runs down through the center of the bed to the packing support plate. The bed-retaining walls extend below the support plate creating a lower skirt to allow the formation of a gas bubble underneath the packing. The entire bed is suspended off the floor of the SBS to allow the scrubbing solution to circulate freely through the bed. After formation of the gas bubbles beneath the packing, the injected offgas bubbles up through the packed bed. The rising gas bubbles also cause the scrubbing liquid to circulate up through the packed bed, resulting in a general recirculation of the scrubbing solution. The packing breaks larger bubbles into smaller ones to increase the gas to water contacting surface, thereby increasing particulate removal and heat transfer efficiencies. The warmed scrubbing solution then flows downward outside of the packed bed past the cooling coils/jacket.

To maintain a constant liquid level within the SBS (LOP-SCB-00001/2), overflow lines will be installed that allow for the continuous discharge of offgas condensate and some scrubbed particulates to the Melter SBS Condensate Vessels (LOP-VSL-00001/2), located next to the SBS. The Melter SBS Condensate Vessels are equipped with a cooling jacket. The rate of condensate discharge is determined by how much the offgas temperature is lowered below its dew point. The condensate and some collected particulates overflow into the Melter SBS Condensate Vessels.

To minimize the buildup of the solids in the bottom of the SBS, condensate from the Melter SBS Condensate Vessels (LOP-VSL-00001/2) will be re-circulated back to the SBS and injected through multiple lances to agitate and suspend solids on the SBS floor. The collected solids will then be pumped directly off the SBS vessel floor to the Melter SBS Condensate Collection Vessel (RLD-VSL-00005). This purging and recycling process occurs simultaneously. SBS condensate from the SBS Condensate Collection Vessels (LOP-VSL-00001/2) ultimately flows to the TLP system. Venting of the Melter SBS Condensate Vessels is via the SBS into the main offgas discharge pipe.

The scrubbed offgas discharges through the top of the SBS (LOP-SCB-00001/2) and is routed to the Melter WESP (one per melter) (LOP-WESP-00001/2) for further particulate removal.

In addition to the instrumentation, alarms, controls, and interlocks addressed in Chapter 4E, the following will be provided for the SBS to indicate or prevent the following conditions:

- High scrubber liquid temperature
- Low and High scrubber liquid level
- High condensate vessel liquid level
- Loss of chilled water supply
- Differential pressure across the unit

### Melter Wet Electrostatic Precipitators (LOP-WESP-00001/2)

The SBS (LOP-SCB-00001/2) discharge is routed to the Melter WESP miscellaneous treatment unit sub-system for removal of aerosols down to and including submicron size. Each melter system has a dedicated Melter WESP (LOP-WESP-00001/2). The offgas enters the unit and passes through a distribution plate. The evenly distributed saturated gas then flows up through tubes which act as positive electrodes. Each of the tubes has a single negatively charged electrode, which runs down the center of the tube. A high voltage, direct current transformer supplies power to the electrodes. A strong electric field is generated along the electrodes giving a negative charge to the aerosols passing through the tubes. The negatively charged particles move towards the positively charged tube walls for collection. Collected particles are continuously washed from the tube walls along with collected mists. The final condensate continuously drains to the dished bottom area of the Melter WESP (LOP-WESP-00001/2). A water spray may be used periodically to facilitate the washing of collected aerosols from the tubes. The tube drain and wash solution are routed to the C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004).

In addition to the instrumentation, alarms, controls, and interlocks addressed in Chapter 4E, a standby offgas line and a maintenance bypass line will be provided for the Melter WESP. The lines indicate or prevent the following conditions:

- Loss of electrical power to the unit
- High differential pressure across the unit
- Accumulation of liquid
- Loss of process water supply

Standby Offgas Line

The standby offgas line consists of an offgas pipe from the melter to a SBS (LOP-SCB-00001/2), a Standby Film Cooler (LOP-FCLR-00002/4), and a butterfly valve isolation device.

During an off-normal melter surge or if the primary offgas pipe becomes plugged, the butterfly valve will open rapidly, and provide an alternative path for the melter offgas to flow to the SBS (LOP-SCB-00001/2). With this alternative routing, pressure control on the melter plenum can be maintained. This standby offgas pipe will extend to the bottom of the SBS packed bed, identical to the main offgas line. It is the same size as the main offgas line, thus providing a doubling of flow cross-section for melter-generated gases.

Maintenance Bypass Line

The LAW melters are also equipped with a maintenance bypass line, allowing offgases from one melter to be routed to the other's SBS for cooling. The gas will be processed through both a primary and secondary offgas treatment system in the same manner as the normal path. The purpose of this line is to provide melter ventilation during idling conditions in the unlikely event that a SBS (LOP-SCB-00001/2) or Melter WESP (LOP-WESP-00001/2) requires maintenance. Prior to initiating use of the maintenance bypass line, waste feed will be secured, and the melters placed into an idle condition. Waste feed to melters will not occur when the maintenance bypass line is in use.

Idling emissions from the melter are mainly heated air at a lower gas volume than expected during slurry feeding. The gas will be processed through secondary offgas treatment system that includes HEPA filtration, thermal catalytic oxidation, and selective catalytic reduction.

#### 4E.4.2.2 LAW Secondary Offgas/Vessel Vent Process System

Process flow diagram of the LVP system are provided in DWP Operating Unit Group 10, Appendix 9.1. The LVP system prevents migration of waste contaminants into the process cells and operating areas. It does this by maintaining the various LAW process vessels under a slight vacuum relative to the cell. The composition of the vessel ventilation air is expected to be primarily ambient air with slight mixed waste particulate contamination.

The vessel ventilation air is combined with the melter offgas prior to entering the secondary offgas system HEPA filter electric preheaters. The combined air streams are treated together in the remaining sections of the secondary offgas treatment systems. A pressure control valve is used to regulate the pressure between the vessel ventilation offgas system and the melter offgas system.

The melter offgas stream that is treated through the primary offgas system is combined with the vessel ventilation offgas stream and treated through the LVP tanks and miscellaneous treatment sub-systems. The secondary offgas system removes the remaining particulate, mercury and miscellaneous acid gases, gaseous nitrogen oxide compounds, carbon monoxide, and volatile organic compounds.

Descriptions of the tanks and miscellaneous treatment sub-systems comprising the LVP are provided below:

Melter Offgas HEPA Filters, HEPA Preheaters, and Exhausters

The purpose of the miscellaneous treatment unit sub-systems is to provide a final protection against dispersion of particulate and to protect the downstream equipment from particulate contamination. The combined offgas stream is first passed through the LAW Melter Offgas HEPA Preheaters (LVP-HTR-00001A/3A). Preheating increases the gas temperature sufficiently above its dew point to avoid condensation in the melter offgas HEPA filters. The offgas then passes through radial flow HEPA Filters (LVP-HEPA-00001A/2A/3A or 00001B/2B). The system is composed of two parallel trains of two filter banks in series.

The offgas passes through one train while the other remains available as an installed backup. Motive force for the ventilation is provided by the Melter Offgas Exhausters (LVP-EXHR-00001A/B/C). The melter offgas exhausters will be located downstream of the LVP Caustic Scrubber (LVP-SCB-00001) and maintain negative pressure across the LVP primary and secondary offgas equipment upstream of the exhausters.

Instrumentation, alarms, controls, and interlocks will be provided for the LVP system to indicate or prevent the following conditions:

- High or low differential pressure across a HEPA filter alarms.
- Loss of electric heater element.

Additional information to the instrumentation, alarms, controls, and interlocks associated with a bypass of the LVP system addressed in Chapter 4E are described in the *LAW Vitrification Offgas Bypass Analysis*, 24590-LAW-PER-PR-03-001.

### Offgas Mercury Adsorber (LVP-ADBR-0001A/B)

The Offgas Mercury Adsorbers (LVP-ADBR-00001A/B) make up LVP-SKID-00001 and are the miscellaneous treatment sub-system that removes volatile mercury, iodine, and some acid gases from the offgas. The offgas flows through two internal activated carbon beds normally operated in series. When breakthrough gaseous mercury is detected in the leading activated carbon bed, the carbon is loaded. In response, the offgas flow is manually changed to make the trailing bed the leading bed. Only one activated carbon bed is used when the spent activated carbon media is removed and replaced. After replacement, the flow is changed to make the fresh activated carbon bed the trailing bed.

The activated carbon is batch loaded into the adsorber by gravity. The spent activated carbon media is batch transferred by gravity into waste containers. The spent activated carbon media is managed as secondary waste.

Instrumentation, alarms, controls, and interlocks will be provided for the Offgas Mercury Adsorbers (LVP-ADBR-00001A/B) to indicate or prevent the following conditions:

- Mercury breakthrough in the leading carbon bed, signaling to switch the trailing carbon bed.
- With the detection of high carbon monoxide/carbon dioxide concentrations, the inlet and outlet valves are closed, isolating the carbon media and bypassing the carbon beds from the offgas stream. This limits the available oxygen to a carbon bed fire and is the primary fire suppression control.
- A water suppression system is available in the event of a carbon bed fire. Alarms notify an operator allowing the connection of the water fire suppression system and manual activation of the suppression system if needed.

### Thermal Catalytic Oxidizer (TCO) (LVP-SCO-00001) and NOx Selective Catalytic Reduction Unit (SCR) (LVP-SCR-00001)

The offgas passes through the catalytic oxidizer/reducer skid (LVP-SKID-00002), housing a heat recovery unit (LVP-HX-00001), an electric heater (LVP-HTR-00002), Volatile Organic Compound (VOC) catalyst (LVP-SCO-00001), and SCR catalyst (LVP-SCR-00001) miscellaneous treatment unit sub-systems to remove volatile organic compounds, carbon monoxide, nitrogen oxide compounds in the offgas stream.

The heat recovery exchange first raises the offgas temperature using the hot offgas from the catalyst beds. The electric heater is used to supplement the heat recovery exchange primarily during start-up and when operating with low $NO_x$ concentrations. The heated offgas is passed through the VOC catalyst to oxidize VOCs and carbon monoxide to carbon dioxide and water vapor. The offgas is then injected with a

mixture of ammonia vapor and C3 air from an ammonia/air dilution skid. Following ammonia injection, the offgas is passed through the SCR catalyst to reduce $NO_x$ to nitrogen and water vapor.

The reduction reaction is exothermic, significantly increasing the offgas temperature. The outgoing hot offgas is cooled down in the heat exchanger and concurrently serves as the heating media for the incoming offgas. The cooled offgas stream is then directed to the Caustic Scrubber for acid gas removal and final cooling.

Instrumentation, alarms, controls, and interlocks will be provided for the TCO/Selective Catalytic Reducers to indicate or prevent the following conditions:

- High differential pressure across each catalyst bed.
- Loss of ammonia gas supply to the nitrogen oxides selective catalytic reduction unit.
- Failure of the electric heater.
- Ammonia analyzer to indicate ammonia slip in the outlet.
- Low offgas temperature entering the unit.
- High temperature differential across the unit.
- High nitrogen oxide concentration in the unit outlet stream.
- High volatile organic compound concentration in the unit outlet stream.

### Offgas Caustic Scrubber (LVP-SCB-00001)

The LAW melters' offgas Caustic Scrubber miscellaneous treatment unit sub-system further treats the offgas by removing iodine and acid gases and providing final offgas cooling. The offgas stream enters the bottom of the scrubber and flows upward through a packed bed. Contaminants in the offgas stream are absorbed into the liquid stream through interaction of the gas, liquid, and packing media. To neutralize the collected acid gases, a sodium hydroxide solution is added periodically to the LAW Caustic Collection Tank (LVP-TK-00001). The clean offgas is then discharged through an internal mist eliminator to prevent droplet carryover. The scrubbing liquid flows downward through the packing bed and drains into the LAW Caustic Collection Tank (LVP-TK-00001). The contents of this tank are periodically transferred to the PTF or the EMF. After passing through the Caustic Scrubber (LVP-SCB-00001) and the Melter Offgas Exhausters (LVP-EXHR-00001A/B/C), the offgas is released to the environment via a flue in the plant stack.

In addition to the instrumentation, alarms, controls, and interlocks addressed in Chapter 4E, the following will be provided for the Caustic Scrubber to indicate or prevent the following conditions:

- Loss of recirculation pump
- Loss of caustic supply
- Loss of process water supply
- High differential pressure across the column
- Low scrubbing liquid level
- High scrubbing liquid level
- Loss of transfer pump
- Low pH
- High specific gravity (density)

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**Table 4E-1 LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument Tag Number | Type and Location | Monitored Parameter | Expected Operating Range[1] | Vessel Overflow[1] | Accuracy [1] | Action Level~~Operating Limit~~[1] | Control Function |
|---|---|---|---|---|---|---|---|
| **LAW Concentrate Receipt Vessel (LCP-VSL-00001) in L-0123 (see 24590-LAW-M6-LCP-00001003 and 24590-LAW-M6-LCP-00001002)** | | | | | | | |
| LCP-LT-0139 / LCP-LT-0131; LCP-LI-0131A; LCP-LSHH-0131A | Radar level transmitter (L-0202); graphic display level indicator (control room); Level interlock (software) | Liquid level in LCP-VSL-00001 | 0 to 13,300 gallons | 14,800 gallons[2] | ±0.4 inches | ~~Level Switch High High Less than~~Maximum liquid level 14,800 gallons ~~14,800 gallons~~[3] | Overfill protection; measures and transmits liquid level to the Process Control System (PCJ) |
| LCP-FT-0161; LCP-FI-0161 | Thermal flow transmitter (L-0202); graphic display flow indicator (control room) | Plant service air flow to LCP-VSL-00001~~2~~ | Normal flow = > 1 standard cubic foot per minute | Not applicable | ±2.0 percent of full scale | Less than 1 standard cubic foot per minute | Hydrogen mitigation; measures and transmits air flow to PCJ |
| **Process Cell 1 West Sump (RLD-SUMP-00029) in L-0123 (see 24590-LAW-M6-RLD-00003002)** | | | | | | | |
| RLD-LT-2301; RLD-LI-2301; RLD-LKY-2301 | Radar level transmitter (L-0202) graphic display level and leak rate indicator (control room) | Liquid level and rate of liquid level change in RLD-SUMP-00029 | 0 ~~to 5~~ gallons, sump normally dry | 34 gallons | ±0.4 inches | ~~Less than 5~~ Lowest sump pump operating level 7 (11.5 gallons)inches ~~gallons~~[3] | Leak detection; measures and transmits liquid level to PCJ |
| **Process Cell 1 East Sump (RLD-SUMP-00030) in L-0123 (see 24590-LAW-M6-RLD-00003002)** | | | | | | | |
| RLD-LT-2302; RLD-LI-2302; | Radar level transmitter (L-0202); graphic display level and | Liquid level and rate of liquid level change in | 0 ~~to 5~~ gallons, sump | 34 gallons | ±0.4 inches | ~~Less than 5~~ Lowest sump pump operating level | Leak detection; measures and transmits liquid level to PCJ |

**Table 4E-1 LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument Tag Number | Type and Location | Monitored Parameter | Expected Operating Range[1] | Vessel Overflow[1] | Accuracy [1] | Action Level~~Operating Limit~~[1] | Control Function |
|---|---|---|---|---|---|---|---|
| RLD-LKY-2302 | leak rate indicator (control room) | RLD-SUMP-00030 | normally dry | | | 7 inches (11.5 gallons)~~gallons~~ [3] | |
| **LAW Concentrate Receipt Vessel (LCP-VSL-00002) in L-0124 (see 24590-LAW-M6-LCP-00002003 and 24590-LAW-M6-LCP-00002004)** | | | | | | | |
| LCP-LT-0252 / LCP-LT-0233; LCP-LI-0233A; LCP-LSHH-0233A | Radar level transmitter (L-0202); graphic display liquid level indicator (control room); level interlock (software) | Liquid level in LCP-VSL-00002 | 0 to 13,300 gallons | 14,800 gallons[2] | ±0.4 inches ~~(datasheet)~~ | ~~Level Switch High-High~~Maximum liquid level 14,800 gallons ~~Less than 14,800 gallons~~[3] | Overfill protection; measures and transmits liquid level to PCJ |
| LCP-FT-0282; LCP-FI-0282 | Thermal flow transmitter (L-0202); graphic display flow indicator (control room) | Plant service air flow to LCP-VSL-00002 | Normal flow = > 1 standard cubic foot per minute | Not applicable | ±2.0 percent of full scale | Less than 1 standard cubic foot per minute | Hydrogen mitigation; measures and transmits air flow to PCJ |
| **Process Cell 2 West Sump (RLD-SUMP-00031) in L-0124 (see 24590-LAW-M6-RLD-00003002)** | | | | | | | |
| RLD-LT-2303; RLD-LI-2303; RLD-LKY-2303 | Radar level transmitter (L-0202); graphic display liquid level and leak rate indicator (control room) | Liquid level in RLD-SUMP-00031 | 0 gallons~~to 5~~ sump normally dry | 34 gallons | ±0.4 inches | ~~Less than 5~~ Lowest sump pump level 7 inches (11.5 gallons)~~gallons~~ [3] | Leak detection. Measures and transmits liquid level to PCJ |
| **Process Cell 2 East Sump (RLD-SUMP-00032) in L-0124 (see 24590-LAW-M6-RLD-00003002)** | | | | | | | |

**Table 4E-1 LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument Tag Number | Type and Location | Monitored Parameter | Expected Operating Range[1] | Vessel Overflow[1] | Accuracy [1] | Action Level~~Operating Limit~~[1] | Control Function |
|---|---|---|---|---|---|---|---|
| RLD-LT-2304; RLD-LI-2304; RLD-LKY-2304 | Radar level transmitter (L-0202); graphic display liquid level and leak rate (control room) | Liquid level in RLD-SUMP-00032 | 0 ~~to 5~~ gallons, sump normally dry | 34 gallons | ±0.4 inches | ~~Less than 5~~ Lowest sump pump operating level 7 inches (11.5 gallons)~~gallons~~ [3] | Leak detection; measures and transmits liquid level to PCJ |
| **Melter 1 Feed Preparation Vessel (LFP-VSL-00001) in L-0123 (see 24590-LAW-M6-LFP-00001001 and 24590-LAW-M6-LFP-00001002)** | | | | | | | |
| LFP-LT-1124 / LFP-LT-1140; LFP-LI-1124A; LFP-LSHH-1124A | Radar level transmitter (L-0202); graphic display liquid level indicator (control room); level interlock (software) | Liquid level in LFP-VSL-00001 | 0 to 5,040 gallons | 7,690 gallons[2] | ±0.4 inches | ~~Level Switch High-High~~Maximum liquid level 7690 gallons ~~Less than 7,690 gallons~~[3] | Overfill protection; measures and transmits liquid level to PCJ |
| LFP-TT-1125; LFP-TI-1125; LFP-TSHH-1125 | Temperature transmitter (L-0226A); graphic display temperature indicator (control room) | Temperature in LFP-VSL-00001 | 77 to 123 °F | Not applicable | 0.3 percent of span or ±0.6 °F | ~~Less than~~ Maximum vessel temperature 200 °F | Loss of containment. Indicates proximity to design temperature; measures temperature and transmits temperature to PCJ |
| LFP-FT-1169; LFP-FI-1169 | Thermal flow transmitter (L-0202); graphic display flow indicator (control room) | Plant service air flow to LFP-VSL-00001 | Normal flow = > 1 standard cubic foot per minute | Not applicable | ±2.0 percent of full scale | Less than 1 standard cubic foot per minute | Hydrogen mitigation; measures and transmits air flow to PCJ |

**Table 4E-1 LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument Tag Number | Type and Location | Monitored Parameter | Expected Operating Range[1] | Vessel Overflow[1] | Accuracy [1] | Action Level~~Operating Limit~~[1] | Control Function |
|---|---|---|---|---|---|---|---|
| **Melter 1 Feed Vessel LFP-VSL-00002 in L-0123 (see 24590-LAW-M6-LFP-00001001, 24590-LAW-M6-LFP-00001003 and 24590-LAW-M6-LFP-00001004)** | | | | | | | |
| LFP-LT-1146; LFP-LI-1146A; LFP-LSHH-1146A | Radar level transmitter (L-0202); graphic display liquid level (control room) | Liquid level in LFP-VSL-00002 | 0 to 4,590 gallons | 6,280 gallons[2] | ±0.4 inches | ~~Level Switch High-High~~ Maximum liquid level 6,280 gallons~~Less than 6,280 gallons~~[3] | Overfill protection; measure and transmit liquid level to the PCJ |
| LFP-TT-1147; LFP-TI-1147; LFP-TSHH-1147 | Temperature transmitter (L-0226A); Graphic display vessel temperature (control room); temperature interlock (software) | Measures temperature in LFP-VSL-00002 | 77 to 122 °F | Not applicable | 0.3 percent of span / ±0.6 °F | ~~Less than~~ Maximum vessel temperature 200 °F | Loss of containment. Indicates proximity to design temperature; measures and transmit temperature to the PCJ |
| LFP-FT-1170; LFP-FI-1170 | Thermal flow transmitter (L-0202); graphic display flow indicator (control room) | Plant service air flow to LFP-VSL-00002 | Normal flow = > 1 standard cubic foot per minute | Not applicable | ±2.0 percent of full scale | Less than 1 standard cubic foot per minute | Hydrogen mitigation; measures and transmits air flow to PCJ |
| **Melter 2 Feed Preparation Vessel LFP-VSL-00003 in L-0124 (see 24590-LAW-M6-LFP-00003001 and 24590-LAW-M6-LFP-00003002)** | | | | | | | |
| LFP-LT-2124 / LFP-LT-2140; LFP-LI-2124A; | Radar level transmitter (L-0202); | Liquid level in LFP-VSL-00003; | 0 to 5,040 gallons | 7,690 gallons[2] | ±0.4 inches | ~~Level Switch High-High~~Maximu liquid level | Overfill protection; transmits liquid level to PCJ |

**Table 4E-1 LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument Tag Number | Type and Location | Monitored Parameter | Expected Operating Range[1] | Vessel Overflow[1] | Accuracy [1] | Action Level~~Operating Limit~~[1] | Control Function |
|---|---|---|---|---|---|---|---|
| LFP-LSHH-2124A | Graphic display liquid level (control room); level interlock (software) | | | | | 7,690 gallons ~~Less than 7,690 gallons~~[3] | |
| LFP-TT-2125; LFP-TI-2125; LFP-TSHH-2125 | Temperature transmitter (L-0202); graphic display temperature indicator (control room); temperature interlock (software) | Temperature in LFP-VSL-00003 | 77 to 123 °F | Not applicable | 0.3 percent of span or ±0.6 °F | ~~Less than~~ Maximum vessel temperature 200 °F | Loss of containment. Indicates proximity to design temperature; measure and transmit temperature to PCJ |
| LFP-FT-2169; LFP-FI-2169 | Thermal flow transmitter (L-0202); graphic display flow indicator (control room) | Plant service air flow to LFP-VSL-00003 | Normal flow = > 1 standard cubic foot per minute | Not applicable | ±2.0 percent of full scale | Less than 1 standard cubic foot per minute | Hydrogen mitigation; measures and transmits air flow to PCJ |
| **Melter 2 Feed Vessel (LFP-VSL-00004) in L-0124 (see 24590-LAW-M6-LFP-00003001, 24590-LAW-M6-LFP-00003003 and 24590-LAW-M6-LFP-00003004)** | | | | | | | |
| LFP-LT-2146; LFP-LI-2146A; LFP-LSHH-2146A | Radar level transmitter (L-0202); Graphic display liquid level indicator (control room) | Liquid level in LFP-VSL-00004 | 0 to 4,590 gallons | 6,280 gallons[2] | ±0.4 inches | ~~Level Switch High-High~~Maximum liquid level 6,280 gallons ~~Less than 6,280 gallons~~[3] | Overfill protection; measure and transmits liquid level to PCJ |

**Table 4E-1 LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument Tag Number | Type and Location | Monitored Parameter | Expected Operating Range[1] | Vessel Overflow[1] | Accuracy [1] | Action Level~~Operating Limit~~[1] | Control Function |
|---|---|---|---|---|---|---|---|
| LFP-TT-2147; LFP-TI-2147; LFP-TSHH-2147 | Temperature transmitter (L-0202); Graphic display liquid level indicator (control room); Temperature interlock (software) | Temperature in LFP-VSL-00004 | 77 to 123 °F | Not applicable | 0.3 percent of span / ±0.6 °F | ~~Less than~~ Maximum vessel temperature 200 °F | Loss of containment. Indicates proximity to design temperature; measures and transmit temperature in to PCJ |
| LFP-FT-2170; LFP-FI-2170 | Thermal flow transmitter (L-0202); graphic display flow indicator (control room) | Plant service air flow to vessel LFP-VSL-00004 | Normal flow = > 1 standard cubic foot per minute | Not applicable | ±2.0 percent of full scale | Less than 1 standard cubic foot per minute | Hydrogen mitigation; measures and transmit air flow to PCJ |
| **Caustic Collection Tank (LVP-TK-00001) in L-0218 (see 24590-LAW-M6-LVP-00002003)** | | | | | | | |
| LVP-LT-0055; LVP-LI-0055B; LVP-LSHH-0055B | Differential pressure liquid level transmitter (L-0218); Graphic liquid level display (control room); Level interlock (software) | Liquid level in LVP-TK-00001; Overfill protection | 0 to 6,553 gallons | 7,000 gallons[2] | ±0.05 percent of span | ~~Level Switch High-High~~Maximum liquid level 7,000 gallons ~~Less than 7,000 gallons~~[3] | Overfill protection; transmits liquid level to PCJ |
| **Melter 1 SBS Condensate Vessel (LOP-VSL-00001) in L-0123 (see 24590-LAW-M6-LOP-00001002)** | | | | | | | |
| LOP-LT-1018; LOP-LI-1018A; LOP-LSHH-1018A | Radar level transmitter (L-0202); graphic display liquid level indicator (control room); | Liquid level in LOP-VSL-00001 | 0 to 6,650 gallons | 7,330 gallons[2] | ±0.4 inches | ~~Level Switch High-High~~Maximum liquid level 7,330 gallons | Overfill protection; measures and transmit liquid level to PCJ |

**Table 4E-1 LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument Tag Number | Type and Location | Monitored Parameter | Expected Operating Range[1] | Vessel Overflow[1] | Accuracy [1] | Action Level~~Operating Limit~~[1] | Control Function |
|---|---|---|---|---|---|---|---|
| | level interlock (software) | | | | | ~~Less than 7,330 gallons~~[3] | |
| **Melter 2 SBS Condensate Vessel (LOP-VSL-00002) in L-0124 (see 24590-LAW-M6-LOP-00002002)** | | | | | | | |
| LOP-LT-2018; LOP-LI-2018A; LOP-LSHH-2018A | Radar level transmitter (L-0202); graphic display liquid level indicator (control room); level interlock (software) | Liquid level in LOP-VSL-00002 | 0 to 6,650~~1~~ gallons | 7,330 gallons[2] | ±0.4 inches | ~~Level Switch High-High~~Maximum liquid level 7,330 gallons ~~Less than 7,330 gallons~~[3] | Overfill protection; transmit liquid level to PCJ |
| **Plant Wash Vessel (RLD-VSL-00003) in L-0126 (see 24590-LAW-M6-RLD-00001002)** | | | | | | | |
| RLD-LT-2130 / RLD-LT-2131; RLD-LI-2130A; RLD-LSHH-2130A | Radar liquid level transmitter (L-0202); graphic display liquid level indicator (control room); level interlock (software) | Liquid level in RLD-VSL-00003 | 0 to 20,300 gallons | 23,300 gallons[2] | ±0.4 inches | ~~Level Switch High-High~~Maximum liquid level 23,300 gallons ~~Les than 23,300 gallons~~[3] | Overfill protection; transmit liquid level to PCJ |
| **Effluent Cell West Sump (RLD-SUMP-00035) in L-0126 (see 24590-LAW-M6-RLD-00003003)** | | | | | | | |
| RLD-LT-2307; RLD-LI-2307; RLD-LKY-2307 | Radar level transmitter (L-0202); graphic liquid level and leak rate display (control room) | Liquid level in RLD-SUMP-00035 | 0~~ to 5~~ gallons, sump normally dry | 34 gallons | ±0.4 inches | ~~Less than 5~~ Lowest sump pump operating level 7 inches (11.5. gallons)~~gallons~~ ~~3~~ | Leak detection; measure and transmit liquid level to PCJ |
| **Effluent Cell East Sump (RLD-SUMP-00036) in L-0126 (see 24590-LAW-M56-RLD-00003003)** | | | | | | | |

## Table 4E-1 LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters

| Instrument Tag Number | Type and Location | Monitored Parameter | Expected Operating Range[1] | Vessel Overflow[1] | Accuracy [1] | Action Level~~Operating Limit~~[1] | Control Function |
|---|---|---|---|---|---|---|---|
| RLD-LT-2308; RLD-LI-2308; RLD-LKY-2308 | Radar level transmitter (L-0202); graphic display liquid level and leak rate indicator (control room) | Liquid level in RLD-SUMP-00036 | 0 ~~to 5~~ gallons, sump normally dry | 34 gallons | ±0.4 inches | ~~Less than 5~~ Lowest sump pump operating level 7 inches (11.5. gallons)~~gallons~~ ~~3~~ | Leak detection; measure and transmit liquid level to PCJ |
| **C3/C5 Drains/Sump Collection Vessel (RLD-VSL-00004) in L-B001B (see 24590-LAW-M6-RLD-00002002)** | | | | | | | |
| RLD-LT-2205 / RLD-LT-2206; RLD-LI-2205A; RLD-LSHH-2205A | Radar liquid level transmitter (L-0202); graphic display liquid level indicator (control room); level interlock (software) | Liquid level in RLD-VSL-00004 | 0 to 5,890 gallons | 6,460 gallons[2] | ±0.4 inches | ~~Level Switch High High~~Maximum liquid level 6,460 gallons ~~Less than 6,460 gallons~~[3] | Overfill protection; transmit liquid level to PCJ |
| ~~**C3/C5 Drain/Sump Collection (RLD-VSL-00004) in L-B001B (see 24590-LAW-M6-RLD-00002001)**~~ | | | | | | | |
| RLD-FT-2259; RLD-FI-2259 | Thermal flow transmitter (LCB001); graphic flow indicator (control room) | Plant service air flow to RLD-VSL-00004 | Normal flow = 1 standard cubic feet per minute | Not applicable | ±2.0 percent of full scale | Less than 1.0~~0.75~~ standard cubic feet per minute | Hydrogen mitigation; measure and transmit flow rate to PCJ |
| **C3/C5 Drain Collection Cell Sump (RLD-SUMP-00028) in L-B001B (see 24590-LAW-M6-RLD-00002005)** | | | | | | | |
| RLD-LT-2233; RLD-LI-2233, RLD-LKY-2233 | Radar level transmitter (L-B001A); Graphic display liquid level and leak rate indicator (control room) | Liquid level in RLD-SUMP-00028 | 0 ~~to 5~~ gallons, sump normally dry | 57 gallons | ±0.4 inches | ~~Less than 5~~ Lowest sump pump operating level 7 inches (11.5 gallons)~~gallons~~ ~~3~~ | Leak detection; measure and transmits liquid level to PCJ |

**Table 4E-1 LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument Tag Number | Type and Location | Monitored Parameter | Expected Operating Range[1] | Vessel Overflow[1] | Accuracy [1] | Action Level~~Operating Limit~~[1] | Control Function |
|---|---|---|---|---|---|---|---|
| **SB~~D~~S Condensate Collection Vessel (RLD-VSL-00005) in L-0126 (see 24590-LAW-M6-RLD-00001004)** | | | | | | | |
| RLD-LT-2142 / RLD-LT-2143; RLD-LI-2142A; RLD-LSHH-2142A | Radar liquid level transmitter (L-0202); graphic display liquid level indicator (control room); Level interlock (software) | Liquid level in RLD-VSL-00005 | 0 to 20,680 gallons | 23,300 gallons[2] | ±0.4 inches | ~~Level Switch High-High~~Maximum liquid level 23,300 gallons ~~Less than 23,300 gallons[3]~~ | Overfill protection; transmit liquid level to PCJ |
| **ASX-SMPLR-00012 (see 24590-LAW-M6-ASX-00001002)** | | | | | | | |
| ASX-LSH-2162 | Thermal level switch in (L-0301); Graphic liquid alarm display (control room) | ~~Liquid level in~~Presence or absence of liquid in ASX-SMPLR-00012 drain | Not applicable | ~~Detected at 0.25 inches~~Not applicable | ± 0.25 inches~~No applicable~~ | ~~Upon detection~~Maximum LDB liquid level 0.5 inches | Leak detection in sampler drain; high liquid level alarm in the control room |
| **ASX-SMPLR-00013 (see 24590-LAW-M6-ASX-00002002)** | | | | | | | |
| ASX-LSH-2262 | Thermal level switch in (L-0301); Graphic liquid alarm display (control room) | Presence or absence of liquid in ~~Liquid level in~~ ASX-SMPLR-00013 drain | Not applicable | ~~Detected at 0.25 inches~~Not applicable | ~~No applicable~~± 0.25 inches | ~~Upon detection~~Maximum LDB liquid level 0.5 inches | Leak detection in sampler drain; high liquid level alarm in the control room |
| **LAW Melter 1 Feed Line Encasement Assembly (LMP-LDB-00001) in L-0112 (see 24590-LAW-M6-LMP-00012001)** | | | | | | | |
| LMP-LE-1632; LMP-LSH-1632 | Conductivity level element – LDS sensing cable (LP0112), Level | Melter 1 feed encasement assembly (LMP-LDB- | Normal or alarm | Not applicable | Not applicable | 1 = normal<br>0 = alarm | Leak detection; notification in control room |

**Table 4E-1 LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument Tag Number | Type and Location | Monitored Parameter | Expected Operating Range[1] | Vessel Overflow[1] | Accuracy [1] | Action Level~~Operating Limit~~[1] | Control Function |
|---|---|---|---|---|---|---|---|
| | alarm (control room) | 00001) leak detection | | | | | |
| **LAW Melter 2 Feed Line Encasement Assembly (LMP-LDB-00002) in L-0112 (see 24590-LAW-M6-LMP-00042001)** | | | | | | | |
| LMP-LE-2632; LMP-LSH-2632 | Conductivity level element – LDS sensing cable (LP0112), Level alarm (control room) | Melter 2 feed encasement assembly (LMP-LDB-00002) leak detection switch | Normal or alarm | Not applicable | Not applicable | 1 = normal<br>0 = alarm | Leak detection; notification in control room |

**Footnotes:**

NOTE 1: These values (i.e., expected operating range, vessel overflow, accuracy and action level~~operating limit~~) are estimated, not automatic waste feed cut-offs and under the control of the permittee

NOTE 2: nominal, corresponding to vessel overflow

~~NOTE 3: Sump action level provides minimum submergence for sump pump operation -lnominal, below vessel overflow~~

**Table 4E-~~1~~2 LAW Vitrification Facility Tank Systems**

| ~~No.~~ | ~~System~~ | Vessel Number/Location | Description (Tank System Name, Drawing Numbers) | Material | ~~Total~~ Vessel Overflow Volume (US Gallons) | Approximate Dimensions (Inside Diameter) × Height or Length in feet and inches (tangent line/tangent line) |
|---|---|---|---|---|---|---|
| ~~1.~~ | ~~LCP~~ | LCP-VSL-00001<br>L-0123 | LAW Melter 1 Concentrate Receipt Vessel<br>24590-LAW-M6-LCP-00001002<br>24590-LAW-M6-LCP-00001003<br>24590-LAW-P1-P01T-00002 | Stainless Steel | ~~18,130~~ 14,800 | 14’-0” X 12’-~~9~~5” |
| ~~2.~~ | ~~LCP~~ | LCP-VSL-00002<br>L-0124 | LAW Melter 2 Concentrate Receipt Vessel<br>24590-LAW-M6-LCP-00002003<br>24590-LAW-M6-LCP-00002004<br>24590-LAW-P1-P01T-00002 | Stainless Steel | ~~18,130~~14,800 | 14’-0” X 12’-~~9~~5” |
| ~~3.~~ | ~~LFP~~ | LFP-VSL-00001<br>L-0123 | Melter 1 Feed Preparation Vessel<br>24590-LAW-M6-LFP-00001001<br>24590-LAW-M6-LFP-00001002<br>24590-LAW-P1-P01T-00002 | Stainless Steel | ~~9,123~~7,690 | 11’-0” X- 10’-~~6~~2” |
| ~~4.~~ | ~~LFP~~ | LFP-VSL-00002<br>L-0123 | Melter 1 Feed Vessel<br>24590-LAW-M6-LFP-00001003<br>24590-LAW-M6-LFP-00001004<br>24590-LAW-P1-P01T-00002 | Stainless Steel | ~~9,123~~6,280 | 11’-0” X- 10’-~~6~~2” |
| ~~5.~~ | ~~LFP~~ | LFP-VSL-00003<br>L-0124 | Melter 2 Feed Preparation Vessel<br>24590-LAW-M6-LFP-00003001<br>24590-LAW-M6-LFP-00003002<br>24590-LAW-P1-P01T-00002 | Stainless Steel | ~~9,123~~7,690 | 11’-0” X- 10’-~~6~~2” |
| ~~6.~~ | ~~LFP~~ | LFP-VSL-00004<br>L-0124 | Melter 2 Feed Vessel<br>24590-LAW-M6-LFP-00003003<br>24590-LAW-M6-LFP-00003004<br>24590-LAW-P1-P01T-00002 | Stainless Steel | ~~9,123~~6,280 | 11’-0” X- 10’-~~6~~2” |

| Table 4E-~~1~~2 LAW Vitrification Facility Tank Systems | | | | | | |
|---|---|---|---|---|---|---|
| ~~No.~~ | ~~System~~ | Vessel Number/Location | Description (Tank System Name, Drawing Numbers) | Material | ~~Total~~ Vessel Overflow Volume (US Gallons) | Approximate Dimensions (Inside Diameter) × Height or Length in feet and inches (tangent line/tangent line) |
| ~~7.~~ | ~~LVP~~ | LVP-TK-00001<br>L-0218 | LAW Caustic Collection Tank<br>24590-LAW-M6-LVP-00002003<br>24590-LAW-P1-P01T-00004 | Stainless Steel | ~~14,232~~7,000 | 13’-0’ (od) X 14’-4” |
| ~~8.~~ | ~~LOP~~ | LOP-VSL-00001<br>L-0123 | LAW Melter 1 SBS Condensate Vessel<br>24590-LAW-M6-LOP-00001002<br>24590-LAW-P1-P01T-00002 | Hastelloy | ~~9,056~~7,330 | ~~12’~~11’-~~0~~8” X- 8’-2” |
| ~~9.~~ | ~~LOP~~ | LOP-VSL-00002<br>L-0124 | LAW Melter 2 SBS Condensate Vessel<br>24590-LAW-M6-LOP-00002002<br>24590-LAW-P1-P01T-00002 | Hastelloy | ~~9,056~~7,330 | ~~12’~~11’-~~0~~8” X- 8’-2” |
| ~~10.~~ | ~~RLD~~ | RLD-VSL-00003<br>L-0126 | Plant Wash Vessel<br>24590-LAW-M6-RLD-~~M6~~-00001001<br>24590-LAW-M6-RLD-~~M6~~-00001002<br>24590-LAW-P1-P01T-00002 | 6% Mo/Stainless Steel | ~~25,680~~23,300 | 16’-0” X- 14’-10” |
| ~~11.~~ | ~~RLD~~ | RLD-VSL-00004<br>L-B001B | LAW C3/C5 Drains/Sump Collection Vessel<br>24590-LAW-M6-RLD-~~M6~~-00002001<br>24590-LAW-M6-RLD-~~M6~~-00002002<br>24590-LAW-P1-P01T-00001 | Stainless Steel/Inconel 625 | ~~7,675~~6,460 | 10’-0” X 11’-0” |
| ~~12.~~ | ~~RLD~~ | RLD-VSL-00005<br>L-0126 | SBS Condensate Collection Vessel<br>24590-LAW-M6-RLD-~~M6~~-00001003<br>24590-LAW-M6-RLD-~~M6~~-00001004<br>24590-LAW-P1-P01T-00002 | 6% Mo/Stainless Steel | ~~20,680~~ 23,300 | 16’-0” X- 15’-2” |

**Table 4E-~~2~~3 LAW Vitrification Facility Miscellaneous Units (Systems and Sub-Systems)**

| No. | System/ Subsystem | Component Number/Location | Description | Material | Total Volume (US Gallons) |
|---|---|---|---|---|---|
| **LAW Vitrification Facility** | | | | | |
| **1.** | LOP | LOP-FCLR-00001<br>L-0112 | Melter 1 Primary Film Cooler | Stainless Steel | NA |
| **2.** | LOP | LOP-FCLR-00002<br>L-0112 | Melter 1 Standby Film Cooler | Stainless Steel | NA |
| **3.** | LOP | LOP-FCLR-00003<br>L-0112 | Melter 2 Primary Film Cooler | Stainless Steel | NA |
| **4.** | LOP | LOP-FCLR-00004<br>L-0112 | Melter 2 Standby Film Cooler | Stainless Steel | NA |
| **5.** | LOP | LOP-SCB-00001<br>L-0123 | Melter 1 SBS | Ceramic Packing/Hastelloy | 4,948 |
| **6.** | LOP | LOP-SCB-00002<br>L-0124 | Melter 2 SBS | Ceramic Packing/Hastelloy | 4,948 |
| **7.** | LOP | LOP-WESP-00001<br>L-0123 | Melter 1 WESP | 6% Molybdenum/Stainless Steel | N/A |
| **8.** | LOP | LOP-WESP-00002<br>L-0124 | Melter 2 WESP | 6% Molybdenum/Stainless Steel | N/A |
| **9.** | LMP | LMP-MLTR-00001<br>L-0112 | LAW Melter 1 | Stainless Steel/Alloys | 1,860 |
| **10.** | LMP | LMP-MLTR-00002<br>L-0112 | LAW Melter 2 | Stainless Steel/Alloys | 1,860 |
| **11.** | LVP | LVP-SCB-00001<br>L-0304F | Melter Offgas Caustic Scrubber | Hastelloy/Metal Intalox Packing/Stainless Steel | TBD |
| **12.** | LVP | LVP-HEPA-00001A<br>L-0304H | Melter Offgas HEPA Filter | Synthetic Fibrous Materials/Stainless Steel | NA |

**Table 4E-~~2~~3 LAW Vitrification Facility Miscellaneous Units (Systems and Sub-Systems)**

| No. | System/ Subsystem | Component Number/Location | Description | Material | Total Volume (US Gallons) |
|---|---|---|---|---|---|
| **13.** | LVP | LVP-HEPA-00001B L-0304H | Melter Offgas HEPA Filter | Synthetic Fibrous Materials/Stainless Steel | NA |
| **14.** | LVP | LVP-HEPA-00002A L-0304H | Melter Offgas HEPA Filter | Synthetic Fibrous Materials/Stainless Steel | NA |
| **15.** | LVP | LVP-HEPA-00002B L-0304H | Melter Offgas HEPA Filter | Synthetic Fibrous Materials/Stainless Steel | NA |
| **16.** | LVP | LVP-HEPA-00003A L-0304H | Melter Offgas HEPA Filter | Synthetic Fibrous Materials/Stainless Steel | NA |
| **17.** | LVP | LVP-SCO-00001 (located on LVP SKID-00002) L-0304F | Thermal Catalytic Oxidizer | Stainless Steel | NA |
| **18.** | LVP | LVP-SCR-00001 (located on LVP SKID-00002) L-0304F | NOx Selective Catalytic Reduction Unit | Stainless Steel | NA |
| **19.** | LVP | LVP-HTR-00001A L-0304H | Melter Offgas HEPA Preheater | Stainless Steel/Incoloy 800 | NA |
| **20.** | LVP | LVP-HTR-00003A L-0304H | Melter Offgas HEPA Preheater | Stainless Steel/Incoloy 800 | NA |
| **21.** | LVP | LVP-HTR-00002 (located on LVP SKID-00002) L-0304F | Catalytic Oxidizer Electric Heater | Stainless Steel | NA |
| **22.** | LVP | LVP-HX-00001 (located on LVP SKID-00002) L-0304F | Catalytic Oxidizer Heat Recovery Unit | Stainless Steel | NA |
| **23.** | LVP | LVP-ADBR-00001A (located on LVP-SKID-00001) L-0304F | Offgas Mercury Adsorber | Stainless Steel | NA |

**Table 4E-~~2~~3 LAW Vitrification Facility Miscellaneous Units (Systems and Sub-Systems)**

| No. | System/ Subsystem | Component Number/Location | Description | Material | Total Volume (US Gallons) |
|---|---|---|---|---|---|
| **24.** | LVP | LVP-ADBR-00001B (located on LVP-SKID-00001) L-0304F | Offgas Mercury Adsorber | Stainless Steel | NA |
| **25.** | LVP | LVP-EXHR-00001A L-0304C | Melter Offgas Exhausters | Stainless Steel | NA |
| **26.** | LVP | LVP-EXHR-00001B L-0304D | Melter Offgas Exhausters | Stainless Steel | NA |
| **27.** | LVP | LVP-EXHR-00001C L-0304E | Melter Offgas Exhausters | Stainless Steel | NA |

**Table 4E-~~3~~4 LAW Vitrification Facility Secondary Containment Rooms/Areas**

| Room/Area | Approximate Room/Area Dimensions (L × W, in feet) | Miscellaneous Treatment Units or Tanks in Room/Area (Largest Plant Item) | Volume of Largest Plant Item in Room/Area (US Gallons) | Minimum Secondary Containment Height (feet) |
|---|---|---|---|---|
| **LAW Vitrification Facility** | | | | |
| 1. L-0123, Melter 1 Process Cell | Minimum secondary containment for these cells has been deleted and superceded by *Flooding Volume for LAW Facility*, 24590-LAW-PER-M-02-002 (DWP, Operating Unit Group, Appendix 9.8). | | | |
| 2. L-0124, Melter 2 Process Cell | | | | |
| 3. L-0126, Effluent Cell | | | | |
| 4. L-B001B, C3/C5 Drains/Sump Collection Vessel Room | | | | |
| 5. L-0218, Caustic Scrub Blowdown Collection Berm | | | | |
| 6. L-0304 F, Caustic Scrubber Curb Area | | | | |
| 7. ASX Sampler Cabinets<br>• ASX-SMPLR-00012 (L-0301)<br>• ASX-SMPLR-00013 (L-0301) | Secondary containment liners for Isolok flush tubing, no minimum liner height required.<br>The LAW ASX sampler upper secondary containment area liner dimensions are approximately 33” X 34”. The lower containment area liner dimensions are approximately 39” X 68” | | | |
| 8. Bulges<br>• LCP-BULGE-00001 (L-0202)<br>• LCP-BULGE-00002 (L-0202)<br>• LCP-BULGE-00003 (L-0202)<br>• LFP-BULGE-00001 (L-0202)<br>• LFP-BULGE-00002 (L-0202)<br>• LOP-BULGE-00001 (L-0202)<br>• LOP-BULGE-00002 (L-0202)<br>• RLD-BULGE-00001 (L-B001A)<br>• RLD-BULGE-00004 (L-0202) | Secondary containment for ancillary equipment, no minimum liner height required. | | | |

**Table 4E-~~4~~5 LAW Vitrification Facility Sumps, Leak Detection Boxes, and Floor Drains/Lines**

| Sump/Leak Detection Box or Floor Drain/Line I.D. #, Room, and Elevation | Maximum Sump/Leak Detection Box Capacity (US Gallons) | Sump/Leak Detection Box Level Detection Type | Sump/Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction | Piping and Instrumentation Diagram Number and General Arrangement Diagram Number |
|---|---|---|---|---|
| **LAW Vitrification Facility** | | | | |
| **Sumps** | | | | |
| RLD-SUMP-00028<br>L-B001B (C3/C5 Drains/Sump Collection Vessel Cell, El. –21') | 5~~9~~7 | Radar | 24" Dia. x 30" Deep<br>Stainless Steel<br>(6% Mo) | **24590-LAW**<br>-M6-RLD-00002005<br>-P1-P01T-00001 |
| RLD-SUMP-00029<br>L-0123 (Process Cell, El. 3') | 37 | Radar | 30" Dia. x 12" Deep<br>Stainless Steel<br>(6% Mo) | **24590-LAW**<br>-M6-RLD-00003002<br>-P1-P01T-00002 |
| RLD-SUMP-00030<br>L-0123 (Process Cell, El. 3') | 37 | Radar | 30" Dia. x 12" Deep<br>Stainless Steel<br>(6% Mo) | **24590-LAW**<br>-M6-RLD-00003002<br>-P1-P01T-00002 |
| RLD-SUMP-00031<br>L-0124 (Process Cell Sump, El. 3') | 37 | Radar | 30" Dia. x 12" Deep<br>Stainless Steel<br>(6% Mo) | **24590-LAW**<br>-M6-RLD-00003002<br>-P1-P01T-00002 |
| RLD-SUMP-00032<br>L-0124 (Process Cell, El. 3') | 37 | Radar | 30" Dia. x 12" Deep<br>Stainless Steel<br>(6% Mo) | **24590-LAW**<br>-M6-RLD-00003002<br>-P1-P01T-00002 |
| RLD-SUMP-00035<br>L-0126 (Effluent Cell, El. 3') | 37 | Radar | 30" Dia. x 12" Deep<br>Stainless Steel<br>(6% Mo) | **24590-LAW**<br>-M6-RLD-00003003<br>-P1-P01T-00002 |
| RLD-SUMP-00036<br>L-0126 (Effluent Cell, El. 3') | 37 | Radar | 30" Dia. x 12" Deep<br>Stainless Steel<br>(6% Mo) | **24590-LAW**<br>-M6-RLD-00003003<br>-P1-P01T-00002 |

**Table 4E-~~4~~5 LAW Vitrification Facility Sumps, Leak Detection Boxes, and Floor Drains/Lines**

| Sump/Leak Detection Box or Floor Drain/Line I.D. #, Room, and Elevation | Maximum Sump/Leak Detection Box Capacity (US Gallons) | Sump/Leak Detection Box Level Detection Type | Sump/Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction | Piping and Instrumentation Diagram Number and General Arrangement Diagram Number |
|---|---|---|---|---|
| **Bulges/Floor Drains** | | | | |
| RLD-FD-00001 Floor Drain<br>L-B001A~~B~~ (RLD-BULGE-00001 Drain, El. -21') | N/A | N/A | 2" Dia.<br>316L | **24590-LAW**<br>-M6-RLD-00002003<br>-P1-P01T-00001 |
| RLD-FD-00035 Floor Drain<br>L-0126 (RLD-BULGE-00004 Drain, El. 3') | N/A | N/A | 2" Dia.<br>6% Mo | **24590-LAW**<br>-M6-RLD-00001005<br>-P1-P01T-00002 |
| LOP-FD-00001 Floor Drain<br>L-0123 (LOP-BULGE-00001 Drain, El. 3') | N/A | N/A | 2" Dia.<br>6% Mo | **24590-LAW**<br>-M6-LOP-00001003<br>-P1-P01T-00002 |
| LCP-FD-00001 Floor Drain<br>L-0123 (LCP-BULGE-00001 Drain, El. 3') | N/A | N/A | 2" Dia.<br>316L | **24590-LAW**<br>-M6-LCP-00001001<br>-P1-P01T-00002 |
| LCP-FD-00002 Floor Drain<br>L-0123 (LCP-BULGE-00002 Drain, El. 3') | N/A | N/A | 2" Dia.<br>316L | **24590-LAW**<br>-M6-LCP-00001004<br>-P1-P01T-00002 |
| LFP-FD-00001 Floor Drain<br>L-0123 (LFP-BULGE-00001 Drain, El. 3') | N/A | N/A | 2" Dia.<br>316L | **24590-LAW**<br>-M6-LFP-00001005<br>-P1-P01T-00002 |
| LOP-FD-00002 Floor Drain<br>L-0124 (LOP-BULGE-00002 Drain, El. 3') | N/A | N/A | 2" Dia.<br>6% Mo | **24590-LAW**<br>-M6-LOP-00002003<br>-P1-P01T-00002 |
| LCP-FD-00003 Floor Drain<br>L-0124 (LCP-BULGE-00003 Drain, El. 3') | N/A | N/A | 2" Dia.<br>316L | **24590-LAW**<br>-M6-LCP-00002001<br>-P1-P01T-00002 |

**Table 4E-45 LAW Vitrification Facility Sumps, Leak Detection Boxes, and Floor Drains/Lines**

| Sump/Leak Detection Box or Floor Drain/Line I.D. #, Room, and Elevation | Maximum Sump/Leak Detection Box Capacity (US Gallons) | Sump/Leak Detection Box Level Detection Type | Sump/Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction | Piping and Instrumentation Diagram Number and General Arrangement Diagram Number |
|---|---|---|---|---|
| LFP-FD-00002 Floor Drain<br>L-0124 (LFP-BULGE-00002 Drain, El. 3') | N/A | N/A | 2" Dia.<br>316L | **24590-LAW**<br>-M6-LFP-00003005<br>-P1-P01T-00002 |
| LVP-FD-00001 Floor Drain<br>L-0218 (Berm floor drain for LVP-TK-00001, El. 28') | N/A | N/A | 4" Dia.<br>316L | **24590-LAW**<br>-M6-LVP-00002003<br>-P1-P01T-00004 |
| RLD-FD-00025 Floor Drain<br>L-0304F (Curb floor drain for LVP-SCB-00001, El. 48') | N/A | N/A | 4" Dia.<br>316L | **24590-LAW**<br>-M6-RLD-00003001<br>-P1-P01T-00005 |
| **Drain Lines** | | | | |
| RLD-WS-20037-S11B-01 Drain Line<br>L-0123 (Melter 1 Encasement Assembly Drain, El. 3') | N/A | N/A | 1" Dia.<br>316L | **24590-LAW**<br>-M6-LMP-00012001<br>-P1-P01T-00002 |
| RLD-WS-20033-S11B-01 Drain Line<br>L-0124 (Melter 2 Encasement Assembly Drain, El. 3') | N/A | N/A | 1" Dia.<br>316L | **24590-LAW**<br>-M6-LMP-00042001<br>-P1-P01T-00002 |
| **Autosampler Drain Lines** | | | | |
| RLD-WU-22123-S11B-03 ASX Sampler 00012 Lower Containment Trough Drain Line (L-0301, El. 48') | N/A | Thermal Dispersion | 3" Dia.<br>Stainless Steel<br>316L | **24590-LAW**<br>-M6-RLD-00003001<br>-P1-P01T-00005 |
| RLD-WU-22117-S11B-03 ASX Sampler 00013 Lower Containment Trough Drain Line (L-0301, El. 48') | N/A | Thermal Dispersion | 3" Dia.<br>Stainless Steel<br>316L | **24590-LAW**<br>-M6-RLD-00003001<br>-P1-P01T-00005 |

**Table 4E-~~5~~6 LAW Vitrification Facility Containment Buildings Summary**

| Location | Approximate Room Dimensions (L × W × H in feet) |
|---|---|
| **LAW Vitrification Facility** | |
| 1. L-0112 LAW LSM Gallery Containment Building | 150 x 62 x 24 |
| 2. ILAW Container Finishing Containment Building: | |
| L-0109B Swabbing Area Line 2 | 21 × 15 × 24 |
| L-0109C Decontamination Area Line 2 | 18 × 15 × 24 |
| L-0109D Inert Fill Area Line 2 | 55 × 15 × 24 |
| L-0115B Swabbing Area Line 1 | 21 × 15 × 24 |
| L-0115C Decontamination Area Line 1 | 18 × 15 × 24 |
| L-0115D Inert Fill Area Line 1 | 55 × 15 × 24 |
| L-0109E Container Monitoring/Export Area | 19 × 18 × 14 |
| L-0115E Container Monitoring/Export Area | 19 × 18 × 14 |
| 3. L-0119B LAW Consumable Import/Export Containment Building | 30 x 28 x 17 |
| 4. L-0226A LAW C3 Workshop Containment Building | 34 x 22 x 19 |
| 5. LAW Pour Cave Containment Building: | |
| L-B015A Melter 1 Pour Cave | 16.5 × 20 x 23 |
| L-B013C Melter 1 Pour Cave | 16.5 × 20 x 23 |
| L-B013B Melter 2 Pour Cave | 16.5 × 20 x 23 |
| L-B011C Melter 2 Pour Cave | 16.5 × 20 x 23 |
| L-B011B Future Melter 3 Pour Cave | 16.5 × 20 x 23 |
| L-B009B Future Melter 3 Pour Cave | 16.5 × 20 x 23 |
| 6. ILAW Container Buffer Storage Containment Building: | |
| L-B025C Container Buffer Store | 22 x 22 x 23 |
| L-B025D Container Rework | 22 x 14 x 23 |

# WASTE TREATMENT AND IMMOBILIZATION PLANT
# CHANGE CONTROL LOG

Change Control Logs ensure that changes to this unit are performed in a methodical, controlled, coordinated, and transparent manner. Each unit addendum will have a "**Last Modification Date**" which represents the last date the portion of the unit has been modified. The "**Modification Number**" represents Ecology's method for tracking the different versions of the permit. This log will serve as an up to date record of modifications and version history of the unit.

Last modification to Waste Treatment and Immobilization Plant **March 22, 2019**

| Chapters | Last Modification Date | Modification Number |
|---|---|---|
| Unit-Specific Conditions | 03/22/2019 | 24590-WTP-PCN-ENV-18-013 (8C.2019.Q1) |
| 1.0 Part A Form | 08/30/2018 | 8C.2018.3F |
| 2.0 Topographic Map | 09/05/2017 | 8C.2017.6F |
| 3.0 Waste Analysis Plan | 06/2011 | |
| 3A Waste Treatment Plant Waste Analysis Plan | 12/6/2018 | 24590-WTP-PCN-ENV-18-012 (8C.2018.Q4) |
| 3B Quality Assurance Project Plan for Waste Analysis Plan | 09/05/2017 | 8C.2017.6F |
| 4.0 Process Information | 10/01/2018 | 24590-WTP-PCN-ENV-18-003 (8C.2018.Q4) |
| 4A Figures and Drawings | 09/05/2017 | 8C.2017.6F |
| 4C Compliance with Uniform Building Code Seismic Design Requirements | 11/17/2008 | |
| 4D Pretreatment Facility | 10/01/2018 | 24590-WTP-PCN-ENV-18-003 (8C.2018.Q4) |
| 4E Low-Activity Waste Vitrification Facility | 12/7/2018 | 24590-WTP-PCN-ENV-18-001 (8C.2018.Q4) |
| 4F High-Level Waste Vitrification Facility | 10/01/2018 | 24590-WTP-PCN-ENV-18-003 (8C.2018.Q4) |
| 4G Direct-Feed Low-Activity Waste (Effluent Management Facility) | 05/17/2018 | 8C.2018.2F |
| 4H Analytical Laboratory | 03/22/2019 | 24590-WTP-PCN-ENV-18-013 (8C.2019.Q1) |
| 4I Balance of Facilities | 09/05/2017 | 8C.2017.6F |
| 5.0 Reserved | | |
| 6.0 Procedures to Prevent Hazards | 09/05/2017 | 8C.2017.6F |
| 6A Inspection Plan | 04/05/2018 | 8C.2018.1F |
| 7.0 Contingency Plan | 11/01/2017 | 8C.2017.Q3 |
| 8.0 Personnel Training | 04/05/2018 | 8C.2018.1F |
| 9.0 Reserved | | |
| 10.0 Reserved | | |
| 11.0 Closure Plan | 09/05/2017 | 8C.2017.6F |
| 11A Sampling and Analysis Plan for Closure of WTP Facility | 05/23/2016 | 8C.2016.Q1 |
| 12.0 Reporting and Recordkeeping | 08/2011 | |

# WASTE TREATMENT AND IMMOBILIZATION PLANT
# CHANGE CONTROL LOG

| Appendices | Last Modification Date | Modification Number |
|---|---|---|
| Appendices 1: WTP Interim Compliance Schedule | 10/02/2018 | 24590-WTP-PCN-ENV-18-008 (8C.2018.Q4) |
| Appendices 2: Critical Systems for the WTP | 09/05/2017 | 8C.2017.6F |
| Appendices 3: Reserved | | |
| Appendices 4: Reserved | | |
| Appendices 5: Reserved | | |
| Appendices 6: Risk Assessment | 01/28/2016 | 8C.2016.1F |
| Appendices 7: WTP Documents Applicable to all Regulated Areas | 10/01/2018 | 24590-WTP-PCN-ENV-18-003 (8C.2018.Q4) |
| Appendices 8: Pretreatment Facility | 07/06/2017 | 8C.2017.2F |
| Appendices 9: Low-Activity Waste Building | 03/06/2019 | 24590-LAW-PCN-ENV-18-008 (8C.2019.Q1) |
| Appendices 10: High-Level Waste Building | 02/01/2018 | 8C.2017.Q4 |
| Appendices 11: Laboratory Building | 03/14/2019 | 24590-LAB-PCN-ENV-18-001 (8C.2019.Q1) |
| Appendices 12: Balance of Facilities | 07/06/2017 | 8C.2017.2F |
| Appendices 13: Effluent Management Facility | 08/23/2018 | 8C.2018.4F |

# WASTE TREATMENT AND IMMOBILIZATION PLANT
# PART III, OPERATING UNIT GROUP 10 – SPECIFIC CONDITIONS

## CHANGE CONTROL LOG

Change Control Logs ensure that changes to this unit are performed in a methodical, controlled, coordinated, and transparent manner. Each unit addendum will have its own change control log with a modification history table. The "**Modification Number**" represents Ecology's method for tracking the different versions of the permit. This log will serve as an up to date record of modifications and version history of the unit.

Modification History Table CHAPTER 10

| Modification Date | Modification Number |
|---|---|
| 03/22/2019 | 24590-WTP-PCN-ENV-18-013 (8C.2019.Q1) |
| 01/31/2019 | 24590-WTP-PCN-ENV-18-011 (8C.2019.Q1) |
| 12/7/2018 | 24590-WTP-PCN-ENV-18-001 (8C.2018.Q4) |
| 10/16/2018 | 24590-LAW-PCN-ENV-18-005 (8C.2018.Q4) |
| 09/13/2018 | 24590-LAW-PCN-ENV-17-013 (8C.2018.Q3) |
| 08/30/2018 | 8C.2018.3F |
| 06/08/2018 | 24590-LAW-PCN-ENV-17-006 (8C.2018.Q2) |
| 06/07/2018 | 24590-WTP-PCN-ENV-18-002 (8C.2018.Q2) |
| 05/18/2018 | 24590-LAW-PCN-ENV-17-012 (8C.2018.Q2) |
| 05/17/2018 | 8C.2018.2F |
| 05/15/2018 | 24590-LAB-PCN-ENV-14-001 (8C.2018.Q2) |
| 04/05/2018 | 8C.2018.1F |
| 03/08/2018 | 24590-LAW-PCN-ENV-16-008 (8C.2018.Q1) |
| 03/06/2018 | 24590-LAW-PCN-ENV-17-005 (8C.2018.Q1) |
| 02/14/2018 | 24590-LAW-PCN-ENV-17-011 (8C.2018.Q1) |
| 02/01/2018 | 8C.2017.Q4 |
| 11/28/2017 | 8C.2017.8F |
| 11/01/2017 | 8C.2017.Q3 |
| 09/05/2017 | 8C.2017.6F |
| 07/06/2017 | 8C.2017.2F |
| 03/01/2017 | 8C.2016.Q4 |
| 12/15/2016 | 8C.2016.Q3 |
| 12/1/2016 | 8C.2016.7F |

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# PART III, OPERATING UNIT GROUP 10 – SPECIFIC CONDITIONS
# WASTE TREATMENT AND IMMOBILIZATION PLANT

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# PART III, OPERATING UNIT GROUP 10 – SPECIFIC CONDITIONS WASTE TREATMENT AND IMMOBILIZATION PLANT

The Waste Treatment and Immobilization Plant (WTP) is the operating treatment and storage unit designed to treat the mixed (radioactive and dangerous) waste currently stored in underground tanks at the Hanford Site. Once the mixed waste is received at the WTP, it will be separated into high-level and low-activity waste streams in the Pretreatment (PT) Building. The waste streams are then transferred to either the High-Level Waste (HLW) Building or the Low-Activity Waste (LAW) Building, mixed with glass forming additives and heated to 950-1250° C in melters, and then poured into containers. As the containerized waste cools, it is immobilized in the glass matrix. Once the waste is immobilized, the container is finished (i.e. provided with a lid and decontaminated), and then transported from the WTP for disposal.

## III.10.A COMPLIANCE WITH APPROVED PERMIT

The Permittees shall comply with all requirements set forth in the Hanford Facility Resource Conservation and Recovery Act (RCRA) Dangerous Waste Permit including all approved modification. All chapters, subsection, files, tables, addendums, and appendices included in the following Unit-Specific Conditions are enforceable in their entirety. In the event that a Unit-Specific Condition conflicts with Permit Conditions in Parts I or II of this Permit, the Unit-Specific Conditions shall prevail.

Where information regarding treatment, management, and disposal of the radioactive source, byproduct material, special nuclear material (as defined by the Atomic Energy Act of 1954, as amended) and/or the radionuclide component of mixed waste has been incorporated into this permit, it is not incorporated for the purpose of regulating the radiation hazards of such components under the authority of this permit and chapter 70.105 Revised Code of Washington. In the event of any conflict between Permit Condition III.10.A and any statement relating to the regulation of source, special nuclear, and byproduct material contained in portions of the permit application that are incorporated into this permit, Permit Condition III.10.A will prevail.

OPERATING UNIT GROUP 10

| | | |
|---|---|---|
| Chapter 1 | Part A Form, Revision 3 | |
| Chapter 2 | Topographic Map | |
| Chapter 3 | Waste Analysis Plan | |
| | Appendix 3A | Waste Treatment Plant Waste Analysis Plan |
| | Appendix 3B | Quality Assurance Project Plan for Waste Analysis Plan |
| Chapter 4 | Process Information | |
| | Chapter 4A | Engineering Figures |
| | Chapter 4C | §RPP-WTP Compliance with Uniform Building Code Seismic Design |
| | Chapter 4D | Pretreatment Facility (PTF) |
| | Chapter 4E | Low-Activity Waste (LAW) Vitrification Facility |
| | Chapter 4F | High-Level Waste (HLW) Vitrification Facility |
| | Chapter 4G | Direct-Feed Low-Activity Waste (Effluent Management Facility) |
| | Chapter 4H | Analytical Laboratory (LAB) |

| | |
|---|---|
| | Chapter 4I Balance of Facilities (BOF) |
| Chapter 5 | Groundwater Monitoring (RESERVED) |
| Chapter 6 | Procedures to Prevent Hazards |
| | Chapter 6A Inspection Plan |
| Chapter 7 | Contingency Plan |
| Chapter 8 | Personnel Training |
| Chapter 11 | Closure |
| | Chapter 11.A Sampling and Analysis Plan for Closure of WTP Facility |
| Chapter 12 | Reporting and Recordkeeping |
| Appendix 1.0 | WTP Interim Compliance Schedule |
| Appendix 1.0, §1.1 | WTP Facility Interim Compliance Schedule |
| Appendix 1.0, §1.2 | WTP Pretreatment Facility Interim Compliance Schedule |
| Appendix 1.0, §1.3 | WTP Low-Activity Waste Facility Interim Compliance Schedule |
| Appendix 1.0, §1.4 | WTP Effluent Management Facility Interim Compliance Schedule |
| Appendix 1.0, §1.5 | WTP High-Level Waste Facility Interim Compliance Schedule |
| Appendix 2.0 | Critical Systems |
| Appendix 3.0 | RESERVED |
| Appendix 4.0 | RESERVED |
| Appendix 5.0 | RESERVED |
| Appendix 6.0 | Risk Assessment |
| Appendix 6.0, §6.1 | Environmental Risk Assessment Work Plan for the Hanford Tank Waste Treatment and Immobilization Plant 07/30/2003 |
| Appendix 6.0, §6.1.1 | Final Work Plan for Screening Level Risk Assessment for the RPP-WTP 04/28/2000 |
| Appendix 6.0, §6.1.2 | Ecology/EPA Technical Comments on Hanford River Protection Privatization Project Review of BNFL Final Work Plan for Screening Level Risk Assessment for RPP-WTP |
| Appendix 6.0, §6.2 | Final Risk Assessment Work Plan |
| Appendix 6.0, §6.2.1 | Supplement 1 – Constituents of Potential concerns for the WTP Air and Dangerous Waste Permits |
| Appendix 6.0, §6.2.2 | Supplement 2 – Integrated Emissions Baseline Report for the Hanford Tank Waste Treatment and Immobilization Plant |
| Appendix 6.0, §6.2.3 | Supplement 3 – Estimated Organic Emissions from Process Cells |
| Appendix 6.0, §6.2.4 | Supplement 4 – Chemical Parameters and Toxicological Inputs for the Environmental Risk Assessment for the Hanford Tank Waste Treatment and Immobilization Plant |

| | |
|---|---|
| Appendix 6.0, §6.2.5 | Supplement 5 – Hanford Tank Waste Treatment and Immobilization Plant Risk Assessment Air Quality Modeling Protocol |
| Appendix 6.0, §6.3 | Pre-Demonstration Test Risk Assessment Report (RESERVED) |
| Appendix 6.0, §6.4 | Final Risk Assessment (RESERVED) |
| Appendix 7.0 | WTP Documents Applicable to All Regulated Areas |
| Appendix 7.0, §7.1 | Process Flow Diagrams |
| Appendix 7.0, §7.2 | Piping and Instrumentation Diagrams & Related Documents |
| Appendix 7.0, §7.3 | System Description Documentation (Administrative Record) |
| Appendix 7.0, §7.4 | General Arrangement Drawings (RESERVED) |
| Appendix 7.0, §7.5 | Civil, Structural, and Architectural Criteria and Typical Design Details |
| Appendix 7.0, §7.6 | Mechanical Drawings (RESERVED) |
| Appendix 7.0, §7.7 | Specifications |
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| Appendix 7.0, §7.9 | Material Selection Documentation |
| Appendix 7.0, §7.10 | Critical Systems Equipment/Instrument List (RESERVED) |
| Appendix 7.0, §7.11 | Independent, Qualified, Registered Professional Engineer (IQRPE) Reports |
| Appendix 7.0, §7.12 | Installation Plans |
| Appendix 7.0, §7.13 | Instrument Control Logic and Narrative Description |
| Appendix 7.0, §7.14 | Descriptions of Instrument Installation and Testing Procedures (RESERVED) |
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| Appendix 8.0, §8.9 | Material Selection and Corrosion Evaluation Documentation |
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| Appendix 8.0, §8.13 | Instrument Control Logic and Narrative Description |
| Appendix 8.0, §8.14 | Descriptions of Instrument Installation and Testing Procedures (RESERVED) |

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| Appendix 8.0, §8.15 | Demonstration Test Plan (RESERVED) |
| Appendix 8.0, §8.16 | Demonstration Test Report (RESERVED) |
| Appendix 8.0, §8.17 | Treatment Effectiveness Report (RESERVED) |
| Appendix 8.0, §8.18 | Operating Documents |
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| Appendix 9.0, §9.14 | Descriptions of Instrument Installation and Testing Procedures (RESERVED) |
| Appendix 9.0, §9.15 | Demonstration Test Plan |
| Appendix 9.0, §9.16 | Demonstration Test Report (RESERVED) |
| Appendix 9.0, §9.17 | Treatment Effectiveness Report (RESERVED) |
| Appendix 9.0, §9.18 | Operating Documents |
| Appendix 10.0 | High Level Waste (HLW) Building |
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| Appendix 10.0, §10.4 | General Arrangement Drawings |
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| Appendix 10.0, §10.12 | Installation Plans (RESERVED) |
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| Appendix 10.0, §10.16 | Demonstration Test Report (RESERVED) |
| Appendix 10.0, §10.17 | Treatment Effectiveness Report (RESERVED) |
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| Appendix 11.0 | Laboratory Building |
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| Appendix 12.0, §12.8 | Engineering Calculations (RESERVED) |

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| Appendix 12.0, §12.9 | Material Selection and Corrosion Evaluation Documentation (RESERVED) |
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| Appendix 12.0, §12.11 | Independent, Qualified, Registered Professional Engineer (IQRPE) Reports (RESERVED) |
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| Appendix 12.0, §12.13 | Instrument Control Logic and Narrative Description (RESERVED) |
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| Appendix 13.0, §13.18 | Operating Documents |

## Facility-Specific Definitions

The following definitions are specific to the WTP Unit:

**Ash:** refers to the particulate matter (PM) that will be measured in the off-gas during the Environmental Performance Demonstration Test (EPDT) in accordance with U.S. Environmental Protection Agency (EPA) Method 5. The regulatory limit for ash is established in III.10.H.1.b.ii.

**Batch:** refers to waste staged in one Double Shell Tank (DST) designated as mixed waste for transfer to the WTP Unit for treatment.

**Continuous monitoring system:** means using a device which continuously samples the regulated parameter specified on Permit Tables III.10.H.F, III.10.I.F, III.10.J.F, and III.10.K.F, except as defined otherwise by the Continuous Emissions Monitoring System (CEMS) Performance Specifications in Appendix B, 40 CFR Part 60. For the parameter pressure, the term "continuous monitoring system" (CMS) means using a device that continuously samples the pressure without interruption and evaluates the detector response without averaging at least once each second and records the value at least every sixty (60) seconds.

**Cascade event:** A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.H.F, III.10.I.F, III.10.J.F and III.10.K.F from which the set-point is deviated (III.10.H.1.c.vii, III.10.I.1.c.vii, III.10.J.1.c.vii and III.10.K.1.c.vii).

**Critical System:** as applied to determining whether a Permit Modification is required, means those specific portions of a Treatment, Storage, and Disposal (TSD) unit's structure, or equipment, whose failure could lead to the release of dangerous waste into the environment, and/or systems which include processes which treat, transfer, store, or dispose of regulated wastes. A list identifying the critical systems for the WTP is included in Appendix 2.

**Dangerous and/or mixed waste management unit:** means dangerous and/or mixed waste management units, areas, systems, and sub-systems as detailed in Permit Tables III.10.D.A, III.10.E.A ~~through~~, C, D, III.10.F.A, III.10.G.A, III.10.H.A, III.10.I.A, III.10.J.A, III.10.K.A, III.10.M.A, and III.10.E.R through III.10.E.T.

**Demonstration Test (DT):** test conducted to show compliance with performance standards applicable to the LAW and HLW melters, also referred to as the EPDT.

**Dioxin/furan" and "dioxins and furans:** means tetra-, penta-, hexa-, hepta-, and octa-chlorinated dibenzo dioxins and furans.

**Effluent Management Facility (EMF) Vitrification System:** is defined as specified on Permit Tables III.10.M.A and III.10.E.R through III.10.E.T.

**HLW Vitrification System:** is defined as specified on Permit Tables III.10.J.A and B, and III.10.K.A and B.

**Hourly rolling average (HRA):** will mean the arithmetic mean of the sixty (60) most recent one-minute readings recorded by the CMS.

**LAW Vitrification System:** is defined as specified on Permit Tables III.10.H.A and B, and III.10.I.A and B.

**Malfunction:** means any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

**Mode of operation:** means operation of the LAW Vitrification System or the HLW Vitrification System within set limits for each operating parameter specified in Permit Tables III.10.H.D and F (for LAW) and Permit Tables III.10.I.D and F (for HLW).

**One-minute average:** means the average of detector responses calculated at least every sixty (60) seconds from responses obtained at least every fifteen (15) seconds.

**Permittees:** means the United States Department of Energy (owner/operator) and Bechtel National, Inc. (Co-operator).

**Pretreatment Plant Miscellaneous Unit Systems:** is defined as specified on Permit Tables III.10.G.A and B.

**Primary sump:** means any pit or reservoir that meets the Washington Administrative Code (WAC) 173-303-040 definition of "tank," and those troughs/trenches connected to it, that serve to collect dangerous/hazardous waste, deliberately introduced from treatment activities for transport to TSD facilities. Primary sumps are equipped with an additional liner, leak detector, and waste removal capability. A typical primary sum design is shown in Figure 4A-128 in Chapter 4A.

**Process Control System:** The process control system (PCJ) provides non-safety monitoring and control functions. Monitored and control functions include but are not limited too monitoring vessel headspace pressure and liquid temperature, monitoring vessel liquid level and terminating transfers on high and low liquid level, nonitoring and controlling vessel transfer pump operation, detecting and indicating liquid level in the sumps and starting and stopping sump pump.

**Rolling average:** means the average of all one-minute averages over the averaging period.

**Secondary sump:** means any pit or reservoir that meets the WAC 173-303-040 definition of "tank," and those troughs/trenches connected to it, that serve to collect dangerous/hazardous waste from spills, leaks, overflows, or decontamination activities for transport to TSD facilities.

**Secondary mixed waste stream:** means treatment residues and materials derived from the treatment of mixed waste which continue to designate as a dangerous, extremely hazardous, or acutely hazardous waste and contains a radioactive component.

**Shutdown**: the period from ~~melter~~the cutoff of dangerous or mixed waste feed ~~cutoff~~to the melter until the cold cap has been burnt off.

**Simulant:** a material used during the shakedown, demonstration test, and post-demonstration testing described in the EPDT in Appendix 9.15 which serves as a required surrogate for Tank Farm Waste.

**Standard operating procedure (SOP):** will mean a written description of the procedures by which a process, equipment, etc. will be operated. An SOP may be written by the manufacturer and/or the Permittees.

**Startup:** the period starting with the ~~indroduction~~introduction of dangerous or mixed waste feed to the melter until steady state operations are achieved.

**Successful completion of the demonstration test:** will mean operations including a minimum of three test runs without significant interruptions (i.e., once initiated, each test run must be continuous, and the samples have been preserved and maintained intact, and one in which sampling of exhaust gas was representative of the LAW Vitrification System or HLW Vitrification System Operations, whichever is applicable, and adequate to achieve evaluation of principal organic dangerous constituents (PODCs) destruction and removal efficiency (DRE) to 99.99%).

**Toxic equivalents (TEQ):** refer to the sum of the weighted potencies of 7 polychlorinated dibenso-p-dioxins (PCDDs), 10 polychlorinated dibensofurans (PCDFs), and 12 dioxin-like (coplanar)

polychlorinated biphenyl (PCBs), relative to a reference compound, 2, 3, 7, 8 – tetrachlorodibenzo-p-dioxin (2, 3, 7, 8 – TCDD).

**Pre-process:** means prior to introduction into a dangerous or mixed waste management unit at the WTP Unit.

**In-process:** means duration of a waste in a dangerous or mixed waste management unit at the WTP Unit.

**Post-process:** means prior to the introduction into a subsequent dangerous or mixed waste management unit at the WTP Unit or prior to shipment from the WTP Unit.

**Receipt of dangerous and/or mixed waste:** for the purpose of this Permit, this term generally refers to the receipt of Tank Farm Waste but other materials that are processed (e.g. listed spiking materials) may also require proper management as dangerous waste based on characterization.

**Vendor information:** means documentation prepared by a vendor (e.g., catalog cut sheets) for plant items that are routinely manufactured and stocked by vendors (i.e., items that are considered "off the shelf") and are not being procured in accordance with Permittees' engineering drawings and specifications. Documentation such as catalog cut sheets will be annotated to specify selected items which meet Permittee's procurement requirements equipment specification. Documentation associated with "one of a kind", custom items, and commercial grade items (e.g., bulk pipe, valves) that will be procured in accordance with the Permittees engineering drawings and specifications is not considered vendor information. Changes to the drawings and specifications may require a permit modification.

## FACILITY-SPECIFIC ACRONYMS

The following acronyms are specific to the WTP Unit:

| | |
|---|---|
| AWFCO | Automatic Waste Feed Cut-off |
| CDR | Construction Deficiency Report |
| CEMS | Continuous Emissions Monitoring System |
| CMS | Continuous Monitoring System |
| CNP | Cesium Nitric Acid Recovery Process System |
| CRP | Cesium Resin Addition Process System |
| CPE | Cathodic Protection Electrical System |
| CXP | Cesium Ion Exchange Process System |
| DEP | Direct Feed LAW EMF Process System |
| DFETP | Dioxin and Furan Emission Test Plan |
| DRE | Destruction and Removal Efficiency |
| Dscf | Dry standard cubic feet |
| DT | Demonstration Test |
| EMF | Effluent Management Facility |
| EPDT | Environmental Performance Demonstration Test |
| ERP | Emergency Response Plan |
| FEP | Waste Feed Evaporation Process System |
| FRP | Waste Feed Receipt Process System |
| HCP | HLW Concentrate Receipt Process System |
| HDH | HLW Canister Decontamination Handling System |
| HEH | HLW Canister Export Handling System |
| HEME | High Efficiency Mist Eliminator |
| HEPA | High Efficiency Particulate Air Filter |
| HFH | HLW Filter Cave Handling System |
| HFP | HLW Melter Feed Process System |
| HLP | HLW Lag Storage and Feed Blending Process System |
| HLW | High-level Waste |
| HMH | HLW Melter Handling System |
| HMP | HLW Melter Process System |
| HOP | HLW Vit Primary Offgas Treatment System |
| HPH | HLW Canister Pour Handling System |
| HSH | HLW Melter Cave Support Handling System |
| IHLW | Immobilized High-Level Waste (Glass) |
| ILAW | Immobilized Low-Activity Waste (Glass) |
| IQRPE | Independent, qualified, registered, professional engineer |
| LAB | WTP Laboratory Building |
| LAW | Low Activity Waste |
| LCP | LAW Concentrate Receipt Process System |
| LEH | LAW Container Export Handling System |

| | |
|---|---|
| LFH | LAW Canister Finishing Handling System |
| LFP | LAW Melter Feed Process System |
| LMH | LAW Melter Handling System |
| LMP | LAW Melter Process System |
| LOP | LAW Primary Offgas Process System |
| LPH | LAW Container Pour Handling System |
| LSH | LAW Melter Equipment Support Handling System |
| LSM | Locally Shielded Melter |
| LVP | LAW Secondary Offgas/Vessel Vent Process System |
| NCR | Nonconformance Report |
| PFH | Pretreatment Filter Cave Handling System |
| PIH | Pretreatment In-Cell Handling System |
| PJV | Pulse Jet Ventilation System |
| PODC | Principal Organic Dangerous Constituents |
| PTF | Pretreatment Building |
| PVP | Pretreatment Vessel Vent Process System |
| PVV | Process Vessel Vent System |
| PWD | Plant Wash and Disposal System |
| RDP | Spent Resin and Dewatering Process System |
| RDTP | Revised Demonstration Test Plan |
| RLD | Radioactive Liquid Waste Disposal System |
| RPP-WTP | River Protection Project-Waste Treatment Plant |
| RWH | Radioactive Solid Waste Handling System |
| SBS | Submerged Bed Scrubber |
| TCP | Treated LAW Evaporation Process System |
| TLP | Treated LAW Evaporation System |
| TOC | Total Organic Carbon |
| TXP | Technetium Ion Exchange Process System |
| TEP | Technetium Eluant Recovery Process System |
| UFP | Ultrafiltration Process System |
| WESP | Wet Electrostatic Precipitator |
| WTP | River Protection Project – Waste Treatment and Immobilization Project (also known as the Waste Treatment Plant and Vitrification Plant) |
| 6% Mo | Six Percent Molybdenum Alloy |
| 304L | ASTM A240 Grade 304L Stainless Steel |
| 316L | ASTM A240 Grade 316L Stainless Steel |

## III.10.A COMPLIANCE WITH APPROVED PERMIT

## III.10.B STANDARD CONDITIONS AND GENERAL FACILITY CONDITIONS

In addition to the conditions in this chapter, the Permittees must comply with all the applicable portions of the Dangerous Waste Permit for the Hanford Facility. In the event that a Unit-Specific Condition for the WTP Unit in Permit Conditions III.10.C through III.10.M conflicts with a general condition in Permit Conditions I and II of this permit, the Unit-Specific Condition will apply to the WTP Unit.

## III.10.C UNIT-SPECIFIC CONDITIONS FOR THE WTP UNIT

### III.10.C.1 RESERVED

### III.10.C.2 General Waste Management

**III.10.C.2.a** Treatment or storage of dangerous waste or mixed waste in any new or modified portion of the facility may commence when the Permittees have submitted to Ecology, by certified mail, or hand delivery, a letter signed by the Permittees and a registered professional engineer stating that the facility has been constructed or modified in compliance with the Permit in accordance with WAC 173-303-810(14)(a); and

**III.10.C.2.a.i** The Permittee has received a Permit modification approval pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, or III.10.C.2.g, and

**III.10.C.2.a.ii** Ecology has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the Permit, or

**III.10.C.2.a.iii** Within fifteen days, of the date of submission of the Permittees' letter, Ecology has not notified the Permittees of intent to inspect.

**III.10.C.2.b** The Permittees are authorized to accept the dangerous and/or mixed waste specified in Operating Unit Group 10, Chapter 1 (Part A Form), and Chapter 3 (Waste Analysis Plan [WAP]).

**III.10.C.2.c** All dangerous and/or mixed waste must be managed only in areas authorized for dangerous and/or mixed waste management under the Permit conditions, except as allowed under WAC 173-303-200. The authorized dangerous and/or mixed waste management areas of the WTP Unit are specified in Conditions III.10.D through III.10.M.

**III.10.C.2.d** Dangerous and/or mixed waste may be transferred from dangerous waste management units within the WTP operating unit to an on-site dangerous waste management unit or an off-site permitted TSD Facility using the manifest/tracking system required by Permit Condition II.N.

**III.10.C.2.e** Permit modifications pursuant to this Permit for dangerous and/or mixed waste at the request of the Permittees must be done according to the three tiered modification system specified in WAC 173-303-830(4) and Condition I.C.3. The Permit modification request must include page changes to the Permit, attachments, and permit application supporting documentation necessary to incorporate the proposed permit modification.

**III.10.C.2.f** In addition to other requirements in WAC 173-303-830, within forty-five (45) days of a permit change (i.e., permit modification) being put into effect or approved, the Permittees will provide copies of the Permit attachments to incorporate the change (if not already reflected in the change pages submitted in the original permit modification request). This submittal does not require re-certification in accordance with WAC 173-303-810(13).

**III.10.C.2.g** Permit modifications pursuant to Operating Unit Group 10, Appendix 1.0 will be prepared and issued pursuant to WAC 173-303-830(3)(a)(ii) and WAC 173-303-840.

**III.10.C.2.h** The Permittees must complete Compliance Schedule interim requirements as specified in Operating Unit Group 10, Appendix 1.0. If an interim requirement is not completed as specified, the Permittees will, within 14 days, notify Ecology in writing of its non-compliance. The notification will include the following:

**III.10.C.2.h.i** A description of any portion of the interim requirement completed;

**III.10.C.2.h.ii** Summaries of any problems affecting timely completion of the interim requirement;

**III.10.C.2.h.iii** A description of the plans for completing the remaining portion of the interim requirement, including any alternatives;

**III.10.C.2.h.iv** Projected interim requirement completion date.

**III.10.C.2.i** RESERVED

**III.10.C.2.j** RESERVED

**III.10.C.2.k** RESERVED

**III.10.C.2.l** During demonstration testing of the LAW Vitrification System and HLW Vitrification System, pursuant to Permit Sections III.10.H and J, processing of materials in the LAW and HLW Vitrification Systems that would designate as dangerous waste are fully subject to the requirements of this Permit, excluding the glass formers and simulant, transferred from the melter feed system as identified in Tables III.10.H.A and III.10.J.A, respectively. This exclusion does not apply to mixed waste.

**III.10.C.2.m** The Facility Owner will ensure WTP input is provided to the risk budget tool developed in accordance with permit condition III.11.I.5.

**III.10.C.2.n** The Permittees will submit the following reports, based on the August 2006 mass balance submitted to Ecology (DOE Letter 06-ESQ-081), for Ecology's review and comment/resolution. Updated information to the August 2006 Mass Balance may be used if available and mutually agreed upon by the Permittees and Ecology. The reports will describe all of the treatment approaches identified in Permit Conditions III.10.C.2.n.i through III.10.C.2.n.v, and will be included in the Administrative Record.

**III.10.C.2.n.i** By June 30, 2010, the Permittees will perform an assessment that projects mixed waste constituents and the concentrations that are expected to be contained in each secondary mixed waste stream anticipated to be generated;

**III.10.C.2.n.ii** By June 30, 2010, the Permittees will identify appropriate Land Disposal Restrictions (LDR) treatment standards for each mixed waste stream identified in Permit Condition III.10.C.2.n.i;

**III.10.C.2.n.iii** By June 30, 2010, the Permittees will identify which mixed waste streams that, from a qualitative risk perspective, reasonably may cause or may significantly contribute to an exceedance of applicable environmental standards at a disposal facility; and

**III.10.C.2.n.iv** By June 30, 2010, the Permittees will, for the mixed waste streams identified in Permit Condition III.10.C.2.n.iii, identify potential treatment approaches that mitigate their environmental impacts;

**III.10.C.2.n.v** By December 31, 2015, or 12 months prior to cold commissioning of the facility producing the waste, whichever is earlier, the Permittees will, for the mixed waste streams identified in Permit Condition III.10.C.2.n.iii, select appropriate treatment approaches that mitigate their environmental impacts.

**III.10.C.2.o** The facility owner will evaluate all waste streams generated at the WTP for potential exceedances of applicable environmental standards and will ensure all mixed and dangerous waste streams generated at the WTP will not cause an exceedance of applicable environmental standards at an appropriate disposal facility on-site and is subject to the following requirements:

**III.10.C.2.o.i** Immobilized Low-Activity Waste (ILAW) glass will be engineered to be compliant with the disposal facility Waste Acceptance Criteria (WAC). The waste feed and ILAW glass recipes will be verified to be compliant with the permitted glass formulations (including planning for pertinent operating parameters) prior to vitrification.

**III.10.C.2.o.ii** Treatment methods for secondary waste streams projected to be generated by the WTP that are slated for disposal at the Hanford Site will be engineered to ensure that treated secondary wastes will comply with the on-site disposal facility WAC and applicable LDRs prior to generation. Prior to treatment, secondary wastes must be evaluated to ensure that selected treatment methods are still appropriate and continue to comply with the on-site disposal facility WAC and applicable LDRs; and

**III.10.C.2.o.iii** On a case-by-case basis, for any WTP mixed waste that does not meet the WAC for the disposal facility, Ecology will approve or deny acceptance of that waste into the disposal facility. This decision will be based on the disposal facility's WAC and compliance with WAC 173-303-140.

**III.10.C.3 Waste Analysis**

**III.10.C.3.a** RESERVED

**III.10.C.3.b** RESERVED

**III.10.C.3.c** The Permittees are responsible for obtaining accurate information for each waste stream. Inaccurate waste analysis information provided by the generating site (or unit) is not a defense for noncompliance by the Permittees with conditions of this Permit.

**III.10.C.3.d** Records and results of waste analyses conducted under the WAP will be maintained in accordance with Permit Condition II.I.1. The WTP Unit operating record will include, but not be limited to, information requirements for monitoring in Permit Conditions I.E.10.

**III.10.C.3.e** Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will submit to Ecology for review and approval a revised WAP and Quality Assurance Program Plan (QAPP) pursuant to Conditions III.10.C.2.e and III.10.C.2.f, and the Compliance Schedule in Operating Unit Group 10, Appendix 1.0. The revised WAP and QAPP will include:

**III.10.C.3.e.i** All the elements listed in WAC 173-303-300(5), and Permit Condition II.D.1.

**III.10.C.3.e.ii** Requirements that characterization will be performed on the waste feed prior to transfer to the WTP Unit in conformance with the regulatory data quality objectives identified in the Regulatory Data Quality Objective (DQO) Optimization Report (24590-WTP-RPT-MGT-04-001, Rev 0), or any other parameters, and the rational for selecting these parameters. Requirements that the following analyses, at a minimum, will be conducted on each new batch prior to waste transfer to the WTP Unit, in accordance with the methods under WAC 173-303-110: Ammonia, pH, metals, organic acids, mercury, cyanide, volatiles, semi-volatiles, PCBs/pesticides, anions, Total Organic Carbon (TOC), and compatibility (ASTM Method D5058-90).

For the purposes of this Permit Condition, a "new batch" is one that has been sampled and analyzed in accordance with the Regulatory DQO Optimization Report (24590-WTP-RPT-MGT-04-001, Rev 0), and has received no further additions. Further additions require the Permittees to resample and reanalyze, unless an exception is approved by Ecology on a case-by-case basis. Only mixed waste meeting the definition of "new batch", or granted an exception as discussed above, are authorized for transfer to the WTP Unit. Water additions for the purposes of waste transfer are not considered additions for the purposes of this Permit Condition.

**III.10.C.3.e.iii** Identify and include operating parameters to be monitored/controlled and limitations for these parameters for pre-process, in-process, and post-process operations addressing on a unit specific basis treatment effectiveness, as specified in Tables III.10.E.E, G, H and S, III.10.G.C, III.10.H.C, III.10.I.C, III.10.J.C, III.10.K.C, waste compatibility, safe operation, and compatibility with unit materials of construction. Amend the sampling, analysis, and Quality Assurance/Quality Control (QA/QC) procedures to include these parameters and the monitoring frequency.

**III.10.C.3.e.iv** Requirements that the Permittees will, for Type I (primary) sumps if liquids are detected, and for Type II (secondary) sumps, as defined in Operating Unit Group 10, Chapter 4, if liquid levels are outside normal operating parameters, either collect the liquid and return to the treatment process, or designate the sump contents for proper management and disposal prior to removal.

**III.10.C.3.e.v** For ILAW containers and Immobilized High-Level Waste (IHLW) canisters, a description of the procedures used for removal of mixed dangerous waste from exterior container surfaces, including a description of how contamination removal will be measured.

**III.10.C.3.e.vi** Requirement that wastes generated at the WTP Unit meet the receiving authorized TSD Facility waste acceptance criteria prior to a waste stream transfer.

**III.10.C.3.e.vii** The frequency with which analysis of each waste will be reviewed, or repeated, to ensure that the analysis is accurate and current, including requirements and criteria for reevaluation of the sampling and analysis frequency for all waste streams.

**III.10.C.3.e.viii** Documentation demonstrating methods for obtaining samples of wastes are representative as discussed in WAC 173-303-110(2).

**III.10.C.3.e.ix** Where applicable, the methods for meeting the additional waste analysis requirements for specific waste management methods, as specified in WAC 173-303-140(4), 173-303-395(1), 173-303-630 through 173-303-695.

**III.10.C.3.e.x** For waste transferred from other permitted TSDs, the procedures for confirming that each dangerous waste received matches the identity of the waste specified on the accompanying waste profile documentation. This includes the procedure for identifying each waste movement at the facility.

### III.10.C.4 Recordkeeping

**III.10.C.4.a** The unit specific portion of the Hanford Facility Operating Record will include the documentation specified in Permit Attachment 6, Permit Condition II.I, (applicable to the WTP Unit), and other documentation specified in Operating Unit Group 10. Permit Attachment 6 provides a list of required records, and the methods of submittal for the facility and each unit group.

### III.10.C.5 Procedure to Prevent Hazards

**III.10.C.5.a** The Permittees will design, construct, and operate the WTP Unit in compliance with Operating Unit Group 10, Chapter 6, Section 6.1.

**III.10.C.5.b** The WTP Unit fire protection systems will be constructed to the applicable codes listed in Operating Unit Group 10, Chapter 6, Section 6.3.1.4. Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will update Operating Unit Group 10, Chapter 6, Sections 6.3, 6.4, and 6.5 to be consistent with design details, and resubmit for approval as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, and Operating Unit Group 10, Appendix 1.0. In addition to the stand-by diesel generator for the LAW and HLW melters, updated Section 6.4.4 will include descriptions of the essential loads and critical systems supplied with back-up, un-interruptible, and standby power.

**III.10.C.5.c** The Permittees will inspect the WTP Unit to prevent malfunctions and deterioration, operator errors, and discharges that may cause or lead to the release of dangerous waste constituents to the environment, or a threat to human health. Inspections must be conducted in accordance with the WTP Unit Inspection Plan, Operating Unit Group 10, Chapter 6, Section 6.2, and Chapter 6A. Prior to the receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will update and resubmit to Ecology for review and approval Chapter 6, Section 6.2 and the Inspection Plan in Chapter 6A as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, and Compliance Schedule in Operating Unit Group 10, Appendix 1.0. The revised schedule will include, but not be limited to the requirements in WAC 173-303-320(2) and III.10.C.5.c.i through v below.

**III.10.C.5.c.i** Detailed dangerous and/or mixed waste management unit specific and general inspection schedules and description of procedures pursuant to WAC 173-303-395(1)(d), 173-303-630(6), 173-303-640(4)(a)(i) and (6), 173-303-670(7)(b) in accordance with 173-303-680(3), and 173-303-695. The inspection schedule will be presented in the form of a table that includes a description of the inspection requirements, inspection frequency, and types of problems to look for during the inspections.

**III.10.C.5.c.ii** The proposed locations (scaled drawing with layout) and capabilities of camera(s) (i.e., zoom angles, field of view, etc.) to be used for remote inspections.

**III.10.C.5.c.iii** Schedule and program description for performing integrity assessments as specified in Permit Conditions III.10.E.9.e.i, III.10.G.10.e.i, III.10.H.5.e.i, III.10.I.1.a.v, III.10.J.5.e.i, and III.10.K.1.a.v.

**III.10.C.5.c.iv** Inspection schedules for leak detection system and control instrumentation to include, but not limited to, valves pressure devices, flow devices, measuring devices, as specified in Permit Conditions III.10.E.9.e.xi, III.10.F.3.c, and III.10.G.10.e.xii, and Permit Conditions III.10.H.5.f.xvi, and III.10.J.5.f.xvi.

**III.10.C.5.c.v** Inspection schedule will include inspections for all dangerous and/or mixed waste management units specified in Permit Sections III.10.D, E, F, G, H, I, J, and K.

**III.10.C.5.d** The Permittees will equip the WTP Unit with the equipment specified in Operating Unit Group 10, Chapter 6, as required by Permit Condition II.B.1.

**III.10.C.5.e** The Permittees will test and maintain the equipment specified in Operating Unit Group 10, Chapter 6 and Chapter 6A, as necessary, to assure proper operation in the event of emergency.

**III.10.C.5.f** The Permittees will maintain access to communications or alarms as provided in the Contingency Plan, Operating Unit Group 10, Chapter 7 and Permit Condition II.B.2.

**III.10.C.6 Contingency Plan**

**III.10.C.6.a** The Permittees will immediately carry out applicable provisions of Permit Condition II.A.1 and the Contingency Plan, Operating Unit Group 10, Chapter 7 whenever there is a release of dangerous and/or mixed waste or dangerous waste constituents, or other emergency circumstance, any of which threatens human health or the environment.

**III.10.C.6.b** Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will update the Contingency Plan, Operating Unit Group 10, Chapter 7, to be consistent with design details and WAC 173-303-350(3), incorporated by reference, and resubmit as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, in compliance with WAC 173-303-350(5)(c), and Operating Unit Group 10, Appendix 1.0.

**III.10.C.6.c** After initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will review and amend, if necessary, the applicable portions of the Contingency Plan, Operating Unit Group 10, Chapter 7 in accordance with the provision of WAC 173-303-350(5). Chapter 7 will be amended as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f.

**III.10.C.6.d** RESERVED

**III.10.C.6.e** RESERVED

**III.10.C.7 Personnel Training**

**III.10.C.7.a** Prior to the initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will update and resubmit, to Ecology for review and approval, the Training Program description in Operating Unit Group 10, Chapter 8 as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, and Compliance Schedule in Operating Unit Group 10, Appendix 1.0. The revised Training Program description will include but not be limited to:

**III.10.C.7.a.i** Detailed unit specific and general Training Program descriptions as required to demonstrate compliance with WAC 173-303-330 and to include:

**III.10.C.7.a.i.A** Job titles and descriptions for each dangerous waste management position (e.g. waste designator, waste operator, laboratory technician, etc.);

**III.10.C.7.a.i.B** Outline of the training program updated to discuss initial, refresher, and on-the-job training; correlated to each dangerous waste management position;

**III.10.C.7.a.i.C** Table 8-1 in Operating Unit Group 10, Chapter 8, updated to include the type and amount of introductory, refresher, and on-the-job training required for each dangerous waste management position [WAC 173-303-806(4)(a)(xii)].

**III.10.C.7.a.ii** Sufficient detail to document that the training and qualification program for all categories of personnel whose activities may reasonably be expected to directly affect emissions from the LAW, HLW, and EMF Systems, except control room operators, is appropriately consistent with 40 CFR 63.1206(c)(6)(ii), and for control room operators, is appropriately consistent with 40 CFR 63.1206(c)(6)(i) and 63.1206(c)(6)(iii) through 63.1206(c)(6)(vi) [WAC 173-303-680(2)].

**III.10.C.7.b** The Permittees will ensure that the LAW, HLW, and EMF Systems are operated and maintained, at all times, by persons who are trained and qualified to perform these and any other duties that may reasonably be expected to directly affect emissions from the LAW, HLW, and EMF Systems [WAC 173-303-680(2)].

**III.10.C.7.c** The Permittees will conduct personnel training in accordance with the approved description of the WTP Dangerous Waste Training Plan, Operating Unit Group 10, Chapter 8, pursuant to WAC 173-303-330. The Permittees will maintain documents in accordance with Permit Condition II.C.1 and WAC 173-303-330(2) and (3).

**III.10.C.7.d** RESERVED

**III.10.C.7.e** The Permittees will submit, under separate cover, the actual detailed WTP Dangerous Waste Training Plan in accordance with the Compliance Schedule in Operating Unit Group 10, Appendix 1.0. The WTP Dangerous Waste Training Plan will be reviewed for compliance with the outline of the training program in Operating Unit Group 10, Chapter 8 and requirements of WAC 173-303-330. The Training Plan will be incorporated into the Administrative Record.

**III.10.C.8 Closure**

**III.10.C.8.a** The Permittees must conduct closure of the WTP Unit according to the Closure Plan in Operating Unit Group 10, Chapter 11, and Permit Condition III.10.C.8. The Closure Plan will be modified according to provisions of Permit Condition I.C.3.

**III.10.C.8.b** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will update and resubmit the Closure Plan, Operating Unit Group 10, Chapter 11 for approval as a permit modification pursuant to Permit Condition III.10.C.2.g, to be consistent with design details and schedule described in Operating Unit Group 10, Appendix 1.0. The updated Closure Plan must be consistent with the closure performance standards specified in WAC 173-303-610(2)(a)-(b), WAC 173-340 and, in addition for Containment Buildings, consistent with 40 CFR 264.1102(b) as referenced by WAC 173-303-695.

**III.10.C.8.c** The Permittees will submit, for Ecology review and approval, an update to the Closure Plan, Operating Unit Group 10, Chapter 11, including all documentation required by Permit Condition II.D, within one hundred eighty (180) days prior to commencing partial closure, as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f.

**III.10.C.8.d** One hundred eighty (180) days prior to commencing final closure of Operating Unit Group 10, the Permittees must submit to Ecology, for review and approval, a revised Closure Plan, including all documentation required by Permit Condition II.D, as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f.

**III.10.C.8.e** RESERVED

**III.10.C.8.f** To achieve clean closure, the Permittees will remove dangerous waste, dangerous waste constituents, and dangerous waste residues throughout the closing unit and throughout any areas affected by releases from the closing unit to concentrations that do not exceed numeric cleanup levels determined using residential exposure assumptions according to the Model Toxics Control Act (MTCA) Regulations, Chapter 173-340 WAC and all structures, equipment, bases, liners, and other materials containing or contaminated with dangerous waste, constituents, or residues have met specific waste removal and decontamination standards approved by Ecology, in accordance with WAC 173-303-610(2)(b)(i)-(ii).

**III.10.C.8.g** RESERVED

**III.10.C.8.h** Documentation supporting the Independent Registered Professional Engineer's certification of closure must be submitted to Ecology with the closure certification required by WAC 173-303-610(6). In addition to the items in Operating Unit Group 10, Chapter 11, the documentation must include the following and other information Ecology may request.

**III.10.C.8.h.i** Sampling procedures that were followed;

**III.10.C.8.h.ii** Soil and concrete locations that were sampled;

**III.10.C.8.h.iii** Sample labeling and handling procedures that were followed, including chain of custody procedures;

**III.10.C.8.h.iv** Description of procedures that were followed to decontaminate concrete or metal to meet the clean closure standards approved by Ecology, in accordance with the closure performance standards of WAC 173-303-610(2)(a)(ii) and in a manner that minimizes or eliminates post-closure escape of dangerous waste constituents, or to achieve a "clean debris surface" as specified in 40 CFR 268.45, Table 1, concrete surfaces, as incorporated by reference in WAC 173-303-140. [WAC 173-303-610(2)(b)(ii)].

**III.10.C.8.h.v** Laboratory and field data, including supporting QA/QC summary;

**III.10.C.8.h.vi** Report that summarizes closure activities;

**III.10.C.8.h.vii** Copy of all field notes taken by the independent registered professional engineer; and

**III.10.C.8.h.viii** Copy of all contamination survey results.

**III.10.C.9 Critical Systems**

**III.10.C.9.a** The WTP Unit critical systems, as defined in the definition section of Operating Unit 10 and are identified in Operating Unit Group 10, Appendix 2.0.

**III.10.C.9.b** As the design proceeds, Ecology will modify this Permit for reasons described in the WAC 173-303-830(3) to add additional systems to the Critical Systems in Operating Unit Group 10, Appendix 2.0.

**III.10.C.9.c** The Permittees will conduct all construction subject to this Permit in accordance with the approved designs, plans, and specifications that are required by this Permit, except as specified in Conditions III.10.C.9.d or III.10.C.9.e. For purposes of Conditions III.10.C.9.d and III.10.C.9.e, the Ecology representative will be an Ecology construction inspector, project manager, or other designated representative of Ecology.

**III.10.C.9.d** The Permittees will submit a nonconformance report (NCR) or construction deficiency report (CDR) to the Ecology representative (s), as applicable, within seven (7) calendar days of the Permittees becoming aware of incorporation of minor nonconformance or construction deficiency from the approved designs, plans, and specifications into the construction of critical systems, as defined in the Hanford Site-wide Permit definition section. Such minor nonconformance or construction deficiency will be defined, for the purposes of this Permit Condition, as nonconformance or construction deficiency that is necessary to accommodate proper construction and the substitution or the use of equivalent or superior materials or equipment that do not substantially alter the Permit Conditions or reduce the capacity of the facility to protect human health or the environment. Such minor nonconformance or construction deficiency will not be considered a modification of this Permit. If Ecology determines that the nonconformance or construction deficiency is not minor, it will notify the Permittees in writing that a

permit modification is required for the deviation and whether prior approval is required from Ecology before work proceeds which affect the nonconforming or construction deficiency item.

**III.10.C.9.e** The Permittees will formally document, with a NCR or CDR, as applicable, incorporation of minor nonconformance or construction deficiency from the approved designs, plans, and specifications into the construction of non-critical systems subject to this Permit. Such minor nonconformance or construction deficiency will not be considered a modification of this Permit. All NCR's and CDR's will be maintained in the WTP Unit Operating Record and will be made available to Ecology upon request or during the course of an inspection. If Ecology determines that the nonconformance or construction deficiency is not minor, it will notify the Permittees in writing that a permit modification is required for the deviation and whether prior approval is required from Ecology before work proceeds which affect the nonconforming or construction deficiency item.

**III.10.C.9.f** For each Critical System identified in Operating Unit Group 10, Appendix 2.0, the Permittees will submit to Ecology for review and approval, following the schedule in Operating Unit Group 10, Appendix 1.0, the information identified in Permit Conditions III.10.D.10, III.10.E.9, III.10.F.7, III.10.G.10, III.10.H.5, III.10.J.5, and III.10.M.9. Information Ecology determines to incorporate into the Permit will follow the Permit Condition III.10.C.2.g process, unless stated otherwise within the specific permit condition. Information Ecology determines necessary to support design basis will be incorporated into the Administrative Record.

**III.10.C.9.g** Upon completion of the WTP Unit construction subject to this Permit, the Permittees will produce as-built drawings of the project which incorporate the design and construction modifications resulting from all change documentation as well as modifications made pursuant to Permit Conditions III.10.C.2.e, III.10.C.2.f, and III.10.C.2.g. The Permittees will place the as-built drawings into the operating record within twelve (12) months of completing construction.

**III.10.C.9.h** The Permittees will formally document changes to approved designs, plans, and specifications with design change documentation [e.g., Design Change Notice (DCN), Field Change Request (FCR), Field Change Notice (FCN), Specification Change Notice (SCN), and Supplier Deviation Disposition Request (SDDR)]. All design change documentation will be maintained in the WTP Unit-specific Operating Record and will be made available to Ecology upon request or during the course of an inspection. For any design change documentation affecting any critical systems, the Permittees will provide copies to Ecology within seven (7) calendar days. Identification of critical systems will be included by the Permittees in each WTP Unit-specific dangerous waste permit application, closure plan, or permit modification, as appropriate. If Ecology determines that the design change is not minor, it will notify the Permittees in writing that a permit modification is required for the design change and whether prior approval is required from Ecology before work affected by the design change may proceed.

**III.10.C.9.i** Ventilation system duct work is not required to be doubly contained within the WTP Unit. However, upon discovery of accumulation of liquids within the duct work, a compliance plan will be submitted within sixty (60) days of discovery to correct the problem.

### III.10.C.10 Equivalent Materials

**III.10.C.10.a** If certain equipment, materials, and administrative information (such as names, phone numbers, addresses, formatting) are specified in this Permit, the Permittees may use equivalent or superior substitutes. Use of such equivalent or superior items within the

limits (e.g., ranges, tolerances, and alternatives) already clearly specified in sufficient detail in Operating Unit Group 10, are not considered a Permit modification. However, the Permittees must place documentation of the substitution, accompanied by a narrative explanation and the date the substitution became effective in the operating record within seven (7) days of putting the substitution into effect, and submit documentation of the substitution to Ecology, for approval. Upon review of the documentation of the substitution, if deemed necessary, Ecology may require the Permittees to submit a permit modification in accordance with Permit Conditions III.10.C.2.e and III.10.C.2.f.

**III.10.C.10.b** If Ecology determines that a substitution was not equivalent to the original, they will notify the Permittees that the Permittees' claim of equivalency has been denied, of the reasons for the denial, and that the original material or equipment must be used. If the product substitution is denied, the Permittees will comply with the original approved product specification, find an acceptable substitution, or apply for a permit modification in accordance with Permit Conditions III.10.C.2.e and III.10.C.2.f.

## III.10.C.11 Risk Assessment

**III.10.C.11.a** The Permittees will submit a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, in accordance with Operating Unit Group 10, Appendix 1.0, to Ecology to incorporate revisions to the Environmental Risk Assessment Work Plan, Appendix 6.1. The revised document will be submitted for incorporation into Appendix 6.2 as the Final Risk Assessment Workplan. The Permittee will make revisions in consultation with Ecology to address the comments documented in Operating Unit Group 10, Appendix 6.1 and updated to address the following:

**III.10.C.11.a.i** EPA guidance for performance of Human Health and Ecological Risk Assessments for Hazardous Waste Combustion Facilities current at the time of the submittal, assuming both residential and non-residential use scenarios;

**III.10.C.11.a.ii** Toxicity data current at the time of the submittal;

**III.10.C.11.a.iii** Compounds newly identified or updated emissions data from current waste characterization and emission testing;

**III.10.C.11.a.iv** Air modeling updated to include stack gas parameters based on most current emissions testing and WTP Unit design;

**III.10.C.11.a.v** Physical/transport properties of constituents, current at the time of the submittal;

**III.10.C.11.a.vi** Process Description based on most current WTP Unit design;

**III.10.C.11.a.vii** Emissions data and all supporting calculations based on most current WTP Unit; and

**III.10.C.11.a.viii** Update of receptor locations based on land use or land use zoning changes, if any.

**III.10.C.11.b** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will submit for Ecology review and approval as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, a Pre-Demonstration Test Risk Assessment Report as Appendix 6.3. The Pre-Demonstration Test Risk Assessment Report will address and include the following:

**III.10.C.11.b.i** Direct and indirect human health and ecological risk assessments performed pursuant to the Final Risk Assessment Work Plan in Permit Condition III.10.C.11.a.

**III.10.C.11.b.ii** Submittal of projected stack emissions data for Tables III.10.G.D, III.10.H.E, and III.10.J.E and;

**III.10.C.11.b.iii** Submittal of the Basis and Assumptions (for incorporation into Appendix 6.3) for these emissions, including but not limited to, projected operating conditions, feed-rates, and treatment effectiveness, consistent with information provided and approved pursuant to Permit Conditions III.10.G.6, III.10.G.10, III.10.H.1, III.10.H.5, III.10.J.1, and III.10.J.5.

**III.10.C.11.c** Within ninety (90) days of Ecology approval of the Demonstration Report(s) submitted pursuant to Permit Condition III.10.H.3.d.i, the Permittees will submit a Final Risk Assessment Report as Operating Unit Group 10, Appendix 6.4, incorporating the emission test results from the Demonstration Report(s). The Final Risk Assessment Report will be prepared in accordance with the Final Risk Assessment Work Plan in Appendix 6.2, (as approved pursuant to Permit Condition III.10.C.11.a), except the following updates are hereby incorporated. The Permittees will also submit with this Final Risk Assessment Report, Permit Tables III.10.G.D and III.10.I.E and Operating Unit Group 10, Appendix 6.4 (Basis and Assumptions) updated to incorporate the emissions data from this Final Risk Assessment Report(s), as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f.

**III.10.C.11.c.i** Toxicity data current at the time of the submittal;

**III.10.C.11.c.ii** Compounds newly identified or updated emissions data from current waste characterization and emission testing;

**III.10.C.11.c.iii** Air modeling updated to include stack gas parameters based on most current emissions testing;

**III.10.C.11.c.iv** Physical/transport properties of constituents current at the time of the submittal;

**III.10.C.11.c.v** Update of receptor locations based on land use or land use zoning changes, if any;

**III.10.C.11.c.vi** Process description based on current WTP Unit design;

**III.10.C.11.c.vii** Emissions data and all supporting calculations based on current WTP Unit; and

**III.10.C.11.c.viii** Data from final risk assessment report pursuant to Permit Condition III.10.C.11.d, if available first, or simultaneously.

**III.10.C.11.d** Within ninety (90) days of Ecology approval of the Demonstration Report(s) submitted pursuant to Permit Condition III.10.J.3.d.i, the Permittees will submit a Final Risk Assessment Report as Operating Unit Group 10, Appendix 6.4, incorporating the emission test results from the Demonstration Report(s). The Final Risk Assessment Report will be prepared in accordance with the Final Risk Assessment Work Plan in Appendix 6.2, (as approved by Ecology pursuant to Permit Condition III.10.C.11.a), except the following updates are hereby incorporated. The Permittees will also submit with this Final Risk Assessment Report, Permit Tables III.10.G.D and III.10.K.E and Operating Unit Group 10, Appendix 6.4 (Basis and Assumptions) updated to incorporate the emissions data from this Final Risk Assessment Report, as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f.

**III.10.C.11.d.i** Toxicity data current at the time of the submittal;

**III.10.C.11.d.ii** Compounds newly identified or updated emissions data from current waste characterization and emission testing;

**III.10.C.11.d.iii** Air modeling updated to include stack gas parameters based on most current emissions testing;

**III.10.C.11.d.iv** Physical/transport properties of constituents current at the time of the submittal;

**III.10.C.11.d.v** Update of receptor locations based on land use or land use zoning changes, if any;

**III.10.C.11.d.vi** Process description based on current WTP Unit design;

**III.10.C.11.d.vii** Emissions data and all supporting calculations based on current WTP Unit; and

**III.10.C.11.d.viii** Data from final risk assessment report pursuant to Permit Condition III.10.C.11.c, if available first, or simultaneously.

**III.10.C.11.e** The Final Risk Assessment Report(s) required by Permit Conditions III.10.C.11.c and III.10.C.11.d may be combined, or provided separately, as appropriate.

**III.10.C.12 RESERVED**

**III.10.C.13 Remote Data Access**

Onsite, unrestricted, twenty-four (24) hour access to key WTP Unit operating data and emissions monitoring data will be provided to Ecology. This onsite, unrestricted access will include providing and maintaining for Ecology only use a computer terminal and printer with access to key WTP Unit operating data bases and emissions monitoring data bases. This terminal will be equipped with all necessary software and hardware to monitor, retrieve, and trend this data. Additional remote access will be provided on Ecology request if security concerns can be addressed.

**III.10.C.14 Interim Period of Operation during Post Demonstration Test Period prior to receiving Ecology approval of the complete Demonstration Test Reports and the Final Risk Assessment Report**

**III.10.C.14.a** During this Interim Period of Operation, the Permittees are authorized to treat dangerous waste and mixed waste feed meeting the waste acceptance criteria of the WAP in Chapter 3, subject to the following conditions:

**III.10.C.14.a.i** RESERVED

**III.10.C.14.a.ii** Obtain receipt of Ecology's approval for the HLW Vitrification System according to Permit condition III.10.J.3.d.iii, prior to receiving dangerous or mixed waste feed into the HLW Vitrification System

**III.10.C.14.a.iii** Accept and treat up to 3 million gallons of Hanford tank waste feed in WTP.

**III.10.C.15 Support Systems**

**III.10.C.15.a** Mechanical Handling Systems

**III.10.C.15.a.i** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, in accordance with the Compliance Schedule, as specified in Operating Unit Group 10, Appendix 1.0, engineering information as specified below, for incorporation into Appendices 9.6, 9.10, 10.6, and 10.10, or into the Administrative Record where noted.

A. System Descriptions for each Mechanical Handling system identified in Permit Table III.10.C.A, for incorporation into the Administrative Record (Compliance Schedule Item 36).

B. Mechanical Handling Diagrams and Mechanical Handling Data Sheets for the following pieces of equipment (Compliance Schedule Item 37):

a. HDH-CRN-00005

b. HEH-CRN-00003

c. HPH-CRN-00001

d. HPH-CRN-00002
e. HSH-CRN-00001
f. HSH-CRN-00014
g. LEH-CRN-00003
h. LPH-CRN-00002
i. HEH-CRN-00001

C. Permit Condition III.10.C.15.a does not require:

a. Additional submittals beyond those described in Permit Condition III.10.C.15.a;
b. Independent, Qualified, Registered, Professional Engineer (IQRPE) reports for equipment identified in III.10.C.15.a.i(B);
c. Installation inspections for equipment identified in III.10.C.15.a.i(B); and
d. Other inspection, verification, operability, maintenance, or records management beyond that which is specified elsewhere in this permit, for equipment identified in III.10.C.15.a.i(B), or by conditions III.10.C.15.a.ii and III.10.C.15.a.iii.

**III.10.C.15.a.ii** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to initial receipt of dangerous waste and/or mixed waste in the WTP Unit, engineering information as identified below for incorporation into Appendices 9.13, 9.18, 10.13, and 10.18.

A. Equipment instrument logic narrative description related to safe operation of equipment covered by III.10.C.15.a.i(B), including but not limited to allowed travel path for bridge and trolley, upper and lower hook travel limits, two-blocking prevention, hook load limits, wire rope misreeling, and overspeed protection (Compliance Schedule Item 38).

B. Descriptions of operational procedures demonstrating appropriate controls and practices are in place to ensure equipment covered by III.10.C.15.a.i(B) will be operated in a safe and reliable manner that will not result in damage to regulated tank systems, miscellaneous unit systems, or canisters of vitrified waste (Compliance Schedule Item 39).

**III.10.C.15.a.iii** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, the following for incorporation into Chapter 4: Updated Narrative Description and figures for all Mechanical Handling Systems identified in Permit Table III.10.C.A, to include but not limited to travel path, fail safe conditions, fail safe logic control, safety features and controls that minimize the potential for release of dangerous/mixed waste during normal operations, and lifting and/or load capabilities of each crane specified in III.10.C.15.a.i(B).

**Tables III.10.C.A – Mechanical Handling Systems**

| **Pretreatment Building** | |
|---|---|
| Pretreatment Filter Cave Handling System | PFH |
| Pretreatment In-Cell Handling System | PIH |
| Radioactive Solid Waste Handling System | RWH |
| **Low-Activity Waste Building** | |
| Radioactive Solid Waste Handling System | RWH |
| LAW Melter Equipment Support Handling System | LSH |
| LAW Container Pour Handling System | LPH |
| LAW Container Finishing Handling System | LFH |
| LAW Melter Handling System | LMH |
| LAW Canister Export Handling System | LEH |
| **High-Level Waste Building** | |
| HLW Melter Cave Support Handling System | HSH |
| HLW Canister Export Handling System | HEH |
| HLW Filter Cave Handling System | HFH |
| HLW Canister Pour Handling System | HPH |
| HLW Canister Decontamination Handling System | HDH |
| HLW Melter Handling System | HMH |
| Radioactive Solid Waste Handling System | RWH |

### III.10.C.16 Secondary Containment Devices

**III.10.C.16.a** According to WAC 173-303-640(4)(d), WTP tank systems and miscellaneous units, regulated as tank systems in accordance with WAC 173-303-680, may utilize secondary containment that include one or more of the following devices;

- A liner (external to the tank);
- A vault installed with chemical resistant water stops at all joints, in compliance with WAC 173-303-640(4)(e)(ii)(C), and an impermeable interior coating or lining that is compatible with the stored waste and will prevent the migration of waste into the concrete, in compliance with WAC 173-303-640(4)(e)(ii)(D);
- A double walled tank;
- An equivalent device approved by the department.

**III.10.C.16.a.i** Special protective coating systems, as defined in the *Engineering Specification for Field Applied Special Protective Coatings for Secondary Containment Areas* and incorporated into Appendix 7.7, have been approved by Ecology for use as equivalent devices on a case-by-case basis, allowable under WAC 173-303-640(4)(d)(iv).

**III.10.C.16.a.ii** The secondary containment areas located in Table III.10.C.B are approved to use special protective coating systems as an equivalent device.

**III.10.C.16.a.iii** Approved special protective coating systems satisfy containment requirements found in permit conditions III.10.E.5.h, III.10.G.5.i, III.10.H.1.a.xxii, III.10.I.1.a.xvi, and III.10.K.1.a.xvi.

**III.10.C.16.a.iv** Fully welded stainless steel liners or chemical resistant water stops are not required when an equivalent device is approved for use, with the exception of concrete secondary containment for regulated tanks located in outdoor areas, which must be provided with chemical resistant water stops when the approved special protective coating system is used.

**III.10.C.16.a.v** Fully welded stainless steel liners are considered a liner external to the tank (otherwise defined as an external liner system), as described in WAC 173-303-640(4)(d)(i) and are designed and operated in accordance with WAC 173-303-640(4)(e)(i).

**III.10.C.16.a.vi** Revisions to Table III.10.C.B will be submitted to Ecology for review and approval pursuant to permit conditions III.10.C.2.e and III.10.C.2.f.

**Table III.10.C.B – Secondary Containment Locations Approved for Equivalent Device Use**

| Row Number | Room Number | Room/Area Description | Building | Elevation (feet) | Additional Requirements |
|---|---|---|---|---|---|
| **1.** | P-0105 | Bulge area | PTF | 0 | Daily visual inspection[c] |
| **2.** | P-0105A | Bulge area | PTF | 0 | Daily visual inspection[c] |
| **3.** | P-0105B | Bulge area | PTF | 0 | Daily visual inspection[c] |
| **4.** | P-0105C | Bulge area | PTF | 0 | Daily visual inspection[c] |
| **5.** | P-B005 | Fire water collection pit | PTF | -19 | Daily visual inspection[c] |
| **6.** | P-0304 | Waste feed evaporation room | PTF | 56 | Daily visual inspection[c] |
| **7.** | P-0325 | Treated LAW evaporation room | PTF | 56 | Daily visual inspection[c] |
| **8.** | P-0320 | Ion exchange evaporator | PTF | 56 | Daily visual inspection[c] |
| **9.** | P-0430 | CNP evaporator condenser room | PTF | 77 | Portable, impermeable berm[a]<br>Daily visual inspection[c] |
| **10.** | P-0110F | CXP C3/C5 process enclosure | PTF | 0 | Portable, impermeable berm[a]<br>Continuous leak detection[b] |
| **11.** | P-0110H | TLP C3/C5 process enclosure | PTF | 0 | Portable, impermeable berm[a]<br>Continuous leak detection[b] |

**Table III.10.C.B – Secondary Containment Locations Approved for Equivalent Device Use**

| Row Number | Room Number | Room/Area Description | Building | Elevation (feet) | Additional Requirements |
|---|---|---|---|---|---|
| **12.** | P-0116A | TCP C3/C5 process enclosure | PTF | 0 | Portable, impermeable berm[a]<br>Continuous leak detection[b] |
| **13.** | L-0218 | Caustic scrubber blow down pump room | LAW | 28 | Daily visual inspection[c] |
| **14.** | L-0304F | Caustic scrubber (LVP-SCB-0001) area | LAW | 48 | Daily visual inspection[c] |
| **15.** | H-B039A | Bogie maintenance/canister rinse room | HLW | -21 | Daily visual inspection[c] |

Footnotes:

[a] Requires the use of a portable, impermeable berm or a similar device at the base of all doors.

[b] Requires the use of continuous leak detection, in accordance with Permit Conditions III.10.E.5.b and III.10.G.5.c.

[c] Inspections of all secondary containment areas will occur in accordance with the WTP Inspection Schedule, Operating Unit Group 10, Addendum E in this Permit.

## III.10.D CONTAINERS

### III.10.D.1 Container Storage Areas and Storage Limits

**III.10.D.1.a** The Permittees may store dangerous and/or mixed waste meeting the waste acceptance criteria for containerized waste in the WAP, Operating Unit Group 10, Chapter 3, (as approved pursuant to Permit Conditions III.10.C.3 and III.10.C.2), for storage in dangerous and/or mixed waste container storage units identified in Permit Tables III.10.D.A through C.

**III.10.D.1.b** The Permittees may store containerized dangerous and mixed waste only in container storage areas listed in Permit Tables III.10.D.A (as approved/modified pursuant to Permit Condition III.10.D.10), in accordance with Permit Section III.10.D, and in accordance with Operating Unit Group 10, Chapters 1.0 and 4.0, and Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 9.18, 10.4, 10.5, 10.7, 10.8, 10.9, 10.18, 12.4, 12.5, 12.7, 12.8, 12.9, and 12.15, as approved pursuant to Permit Conditions III.10.D.10.b through d. The Permittees will limit the total volume of waste to quantities specified for the individual container storage areas listed in Permit Table III.10.D.A.

**III.10.D.1.c** The Permittees must maintain a free volume (i.e., free volume = total capacity of containment system minus volume occupied by equipment and containers within containment systems) within containment systems identified in Permit Tables III.10.D.B and III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10), equal to ten percent (10%) of the total volume of dangerous and mixed waste stored within the containment system, or the volume of the largest container stored within the containment system, whichever is greater.

**III.10.D.1.d** The Permittees will maintain documentation in the operating record for each container storage area listed in Permit Table III.10.D.A (as approved/modified pursuant to Permit Condition III.10.D.10), in accordance with WAC 173-303-380.

**III.10.D.1.e** For the purpose of determining compliance with container storage area capacity limits and containment system requirements, every waste container will be considered to be full.

**III.10.D.1.f** RESERVED

### III.10.D.2 Container Storage Areas Design and Construction

**III.10.D.2.a** The Permittees will construct container storage areas identified in Permit Tables III.10.D.A through III.10.D.C, as specified in all applicable drawings and specifications in Operating Unit Group 10, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9, as approved pursuant to Permit Condition III.10.D.10.b.

**III.10.D.2.b** RESERVED

**III.10.D.2.c** All container storage areas identified in Permit Tables III.10.D.A through III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10), must be constructed to protect containers from contact with accumulated liquids (e.g., leaks, spills, precipitation, fire water, liquids from damaged or broken pipes) [WAC 173-303-630(7)(a)(i) and WAC 173-303-630(7)(c)(ii)].

**III.10.D.2.d** Modifications to approved design, plans, and specifications for the container storage areas identified in Permit Tables III.10.D.A through III.10.D.C must be made in accordance with Permit Conditions III.10.C.2.e, f, and g, or III.10.C.9.d, e, and h.

### III.10.D.3 Container Storage Area Installation

**III.10.D.3.a** RESERVED

**III.10.D.3.b** The Permittees will obtain and place in the WTP Unit operating record, within thirty (30) days of completion of each container storage area identified in Permit Tables III.10.D.A, through III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10), written statements by a qualified installation inspector or a registered professional engineer, attesting that these areas were installed in compliance with WAC 173-303-630(7)(a), (b), and (c) [WAC 173-303-630(7), WAC 173-303-806(4)(b)(i)].

### III.10.D.4 Container Management Practices

**III.10.D.4.a** RESERVED

**III.10.D.4.b** The Permittees will manage all waste in container storage areas identified in Permit Tables III.10.D.A through III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10), in accordance with procedures described in Operating Unit Group 10, Chapter 4, Appendices 9.18, 10.18, and 12.15, as approved pursuant to Permit Condition III.10.D.10.c, and the following conditions:

**III.10.D.4.b.i** The operating records and waste tracking procedures will indicate all times at which containerized dangerous and mixed waste were removed from and returned to designated staging, storage, segregation, and treatment areas as approved pursuant to Permit Condition III.10.D.10.c.vi (WAC 173-303-380).

**III.10.D.4.b.ii** The physical arrangement (i.e., spacing) of dangerous and mixed waste containers will be as specified in WAC 173-303-630(5)(c), except for the ILAW containers and IHLW waste canisters, which must be as described in Operating Unit Group 10,

Chapter 4, Sections 4E.1.2.1, 4F.1.2.1, as updated pursuant to Permit Condition III.10.D.10.c.i.

**III.10.D.4.b.iii** All container storage areas must be operated to protect containers from contact with accumulated liquids resulting from leaks, spills, or precipitation [WAC 173-303-630(7)(a)(i) and (c)(ii)].

**III.10.D.4.b.iv** At all times, the Permittees will place and store ignitable and/or reactive dangerous and/or mixed waste in accordance with the procedures described in Operating Unit Group 10, Appendix 8.18, 9.18, 10.18, 11.18, 12.18, and 13.18 as approved pursuant to Permit Condition III.10.D.10.c.xi.

**III.10.D.4.b.v** At all times, the Permittees will place and store incompatible dangerous and/or mixed waste in accordance with the procedures described in Operating Unit Group 10, Appendix 8.18, 9.18, 10.18, 11.18, 12.18, and 13.18 as approved pursuant to Permit Condition III.10.D.10.c.xii.

**III.10.D.4.b.vi** At all times, storage containers holding dangerous and/or mixed waste that contain free liquids and/or exhibit either the characteristic of ignitability or reactivity as described in WAC 173-303-090(5) or (7), must be provided with a containment system in accordance with WAC 173-303-630(7)(a)(i) through (iii) [WAC 173-303-630(7)(c)].

**III.10.D.4.b.vii** At all times, containers holding dangerous and/or mixed waste in container storage areas must be closed, except when it is necessary to add or remove waste [WAC 173-303-630(5)(a)].

**III.10.D.4.b.viii** At all times, containers holding dangerous and/or mixed waste must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak [WAC 173-303-630(5)(b)].

**III.10.D.4.b.ix** A storage container holding a dangerous and/or mixed waste that is incompatible, as defined in WAC 173-303-040, with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other waste or materials or protected from them by means of a dike, berm, or wall. [WAC 173-303-630(9)(c)].

**III.10.D.4.b.x** If a container holding dangerous and/or mixed waste is not in good condition (e.g., exhibits severe rusting, apparent structural defects, or any other condition that could lead to container rupture or leakage) or is leaking, the Permittees will manage the container in accordance with procedures described in Operating Unit Group 10, Appendices 8.15, 9.18, 10.18, 11.15, and 12.15, as approved pursuant to Permit Condition III.10.D.10.c.viii [WAC 173-303-630(2)].

**III.10.D.4.b.xi** RESERVED

**III.10.D.4.b.xii** The Permittees will ensure that all containers used for dangerous and/or mixed waste management, are made of or lined with materials which will not react with and are otherwise compatible with the waste to be stored [WAC 173-303-630(4)].

**III.10.D.4.b.xiii** Except for lab packs assembled in compliance with WAC 173-303-161 requirements, the Permittees will not place incompatible wastes, or incompatible wastes and materials, in the same container, unless WAC 173-303-395(1)(b) is complied with [WAC 173-303-630(9)(a)].

**III.10.D.4.b.xiv** The Permittees will not place dangerous and/or mixed waste in an unwashed container that previously held an incompatible waste or material [WAC 173-303-630(9)(b)].

### III.10.D.5 Identification of Containers and Container Storage Areas

**III.10.D.5.a** Pursuant to WAC 173-303-630(3), the Permittees will ensure that all dangerous and/or mixed waste containers (except as otherwise specified in Operating Unit Group 10, Chapter 4, Sections 4D.1.3, 4E.1.3, 4F.1.3, 4H.1.3, 4I.1.3, as updated pursuant to Permit Condition III.10.D.10.c.i, for containers of ILAW and IHLW) are labeled in a manner that adequately identifies the major risk(s) associated with the contents. For purposes of container labeling, major risk(s) could include but are not limited to the following:

**III.10.D.5.a.i** PERSISTENT (if a WP01 or WP02 waste code);

**III.10.D.5.a.ii** TOXIC (if a WT01, WT02, or D waste code other than D001, D002, or D003);

**III.10.D.5.a.iii** IGNITABILITY (if a D001 and other waste codes);

**III.10.D.5.a.iv** CORROSIVE (if a D002 and other waste codes);

**III.10.D.5.a.v** REACTIVE (if a D003 and other waste codes).

**III.10.D.5.b** For all dangerous and mixed waste containers (except as otherwise specified in Operating Unit Group 10, Chapter 4, Sections 4D.1.3, 4E.1.3, 4F.1.3, 4H.1.3, 4I.1.3, as updated pursuant to Permit Condition III.10.D.10.c.i, for containers of ILAW and canisters of IHLW), the Permittees will ensure that:

**III.10.D.5.b.i** Labels are not obscured or otherwise unreadable;

**III.10.D.5.b.ii** Waste containers are oriented so as to allow inspection of the labels identified in Permit Conditions III.10.D.5.a and III.10.D.5.b, the container tracking number, and, to the extent possible, any labels which the generator placed upon the container; and

**III.10.D.5.b.iii** Empty dangerous and mixed waste containers, as defined by WAC 173-303-160(2), must have their dangerous and/or mixed waste labels destroyed or otherwise removed immediately upon being rendered empty.

**III.10.D.5.c** The Permittees will post entrances and access points to all ILAW containers and IHLW canister storage areas, and any other areas where containers of ILAW and IHLW are handled, with signs that, in addition to meeting the requirements of WAC 173-303-310(2)(a), clearly identify the major risk(s) associated with the containers of ILAW and IHLW.

### III.10.D.6 Containment Systems

Containerized dangerous and mixed waste, and other materials that are incompatible, will not be staged, segregated, or stored within the same containment system as identified in Permit Table III.10.D.C, as approved/modified pursuant to Permit Condition III.10.D.10 (e.g., metal pan, concrete berm, portable containment system) [WAC 173-303-630(9)(c)].

**III.10.D.6.a** The integrity of containment systems identified in Permit Table III.10.D.C (as approved/modified pursuant to Permit Condition III.10.D.10) must be maintained so that cracks, gaps, loss of integrity, deterioration, corrosion, or erosion of containment pads, joints in containment pads, berms, curbs, trenches, sumps, and coatings are repaired in accordance with Operating Unit Group 10, Chapter 6, as approved/modified pursuant to Permit Conditions III.10.D.10.c.vii, III.10.C.5.b, and III.10.C.5.c [WAC 173-303-320, WAC 173-303-630(7)(a)(i)].

**III.10.D.6.b** An impermeable coating, as specified in Operating Unit Group 10, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9 will be maintained for all concrete containment systems and will meet the following performance standards [WAC 173-303-630(7)(a)]:

**III.10.D.6.b.i** The coating must seal the containment system surface such that no cracks, seams, or other pathways through which liquid could migrate are present;

**III.10.D.6.b.ii** The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before waste could migrate from the containment system; and

**III.10.D.6.b.iii** The coating must be compatible with the waste managed in the containment system.

**III.10.D.6.c** The Permittees must inspect all containment systems specified in Permit Table III.10.D.C in accordance with the inspection schedules and requirements in Operating Unit Group 10, Chapter 6, as approved/modified pursuant to Permit Conditions III.10.D.10.c.vii and III.10.C.5.c, and take the following actions if liquid is detected in these containment systems:

**III.10.D.6.c.i** Remove the liquid from the containment system in accordance with procedures described in Operating Unit Group 10, Chapter 6, (as modified pursuant to Permit Conditions III.10.C.5.b and III.10.C.5.c), Permit Condition III.10.C.6.a, and Operating Unit Group 10, Chapter 7 (as modified pursuant to Permit Condition III.10.C.6.b and III.10.C.6.c). The liquid removed from containment systems will be managed as dangerous and/or mixed waste, except for liquids from the Non-Radioactive Dangerous Waste Container Storage Area which will be managed as dangerous waste, unless the Permittees demonstrate through designation, (in accordance with WAC 173-303-070, incorporated by reference), that the liquid is no longer dangerous.

**III.10.D.6.c.ii** Determine the source of the liquid.

**III.10.D.6.c.iii** If the source of the liquid is determined to be a leak in a container, the Permittees must follow the procedures specified in Permit Condition III.10.D.4.b.x.

**III.10.D.6.c.iv** The Permittees must take action to ensure the incident that caused liquid to enter the containment system will not reoccur.

**III.10.D.6.c.v** The Permittees will document in the WTP Unit operating record actions/procedures taken to comply with i through iv above in accordance with WAC 173-303-630(6).

**III.10.D.6.c.vi** The Permittees will notify and report releases to the environment to Ecology in accordance with Permit Condition III.10.C.6.a.

**III.10.D.7** **Inspections**

**III.10.D.7.a** The Permittees will inspect the container storage areas in accordance with the Inspection Schedules in Operating Unit Group 10, Chapter 6 of this Permit, as modified pursuant to Permit Condition III.10.C.5.c.

**III.10.D.7.b** The inspection data for the container storage areas will be recorded, and the records will be placed in the WTP Unit operating record in accordance with Permit Condition III.10.C.4.

### III.10.D.8 Recordkeeping (WAC 173-303-380)

For the container storage areas, the Permittees will record and maintain in the WTP Unit operating record, all monitoring, recording, maintenance, calibration, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Condition III.10.C.4 and III.10.C.5.

### III.10.D.9 Closure

The Permittees will close the container storage areas identified in Permit Tables III.10.D.A through III.10.D.C in accordance with Operating Unit Group 10, Chapter 11 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

### III.10.D.10 Compliance Schedules

**III.10.D.10.a** All information identified for submittal to Ecology in III.10.D.10.b through III.10.D.10.d of this compliance schedule must be signed in accordance with requirements in WAC 173-303-810(12).

**III.10.D.10.b** The Permittees will submit to Ecology, consistent with the schedule described in Operating Unit Group 10, Appendix 1.0, for review and approval, prior to construction of container storage area and associated containment systems as identified in Permit Tables III.10.D.A and III.10.D.B respectively, engineering information as specified below, for incorporation into Operating Unit Group 10, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9 of this Permit. In order to incorporate engineering information specified below into Operating Unit Group 10, Appendices 9.4, 9.5, 9.7, 9.8, 9.9, 10.4, 10.5, 10.7, 10.8, 10.9, 12.4, 12.5, 12.7, 12.8, and 12.9, Permit Condition III.10.C.2.g process will be followed. At a minimum, container storage area and containment system drawings and specifications will show the following pursuant to WAC 173-303-806(4)(b):

**III.10.D.10.b.i** Design drawings (General Arrangement Drawings - in plan) and specifications including references to specific building codes (e.g., Uniform Building Code, American Society of Civil Engineers) for each container storage areas' foundation and associated containment system. These items should show basic design parameters and dimensions, and location of the container storage areas and associated containment systems; how containment system design promotes positive drainage control (such as a locked drainage valve) to prevent release of contaminated liquids and so that uncontaminated liquids can be drained promptly for convenience of operation; capacity of the containment system relative to the volume of the largest container to be stored; how the base underlying the containers is sloped (i.e., floor slopes to sumps) or the containment system is otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or other liquids, or how containers are kept from contact with standing liquids in the containment system (i.e., elevated or are otherwise protected); for container storage areas without associated containment systems, a description of how the storage area is designed or operated to drain and remove liquids or how containers are kept from contact with standing liquids;

**III.10.D.10.b.ii** Containment systems materials selection documentation (including, but not limited to, materials of construction, coatings and liner materials for concrete portions of containment systems);

**III.10.D.10.b.iii** Sketches, drawings, or data demonstrating compliance with WAC 173-303-630(8) (location of buffer zone and containers holding ignitable or reactive waste) and WAC 173-303-630(9)(c) (location of incompatible waste), where applicable;

**III.10.D.10.b.iv** Submit Permit Table III.10.D.B completed to provide for all containment systems, the information as specified in each column heading, consistent with information to be provided in III.10.D.10.b.i through iii above.

**III.10.D.10.c** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will update and submit to Ecology, consistent with the schedule described in Operating Unit Group 10, Appendix 1.0, for review and approval, the following, as specified below, for incorporation into Operating Unit Group 10, Chapter 4, and Appendices 9.18, 10.18, and 12.15, except Permit Condition III.10.D.10.c.vii, which will be incorporated into Operating Unit Group 10, Chapter 6. In order to incorporate the following information (specified below) into Operating Unit Group 10, Appendix 9.18, 10.18, and 12.18, Permit Condition III.10.C.2.g will be followed. All information provided under this permit condition must be consistent with information provided pursuant to Permit Conditions III.10.D.10.b, III.10.D.10.c, and III.10.D.10.d as approved by Ecology, and will include at a minimum, the following information as required pursuant to WAC 173-303-630 and WAC 173-303-340:

**III.10.D.10.c.i** Operating Unit Group 10, Chapter 4, Narrative Descriptions, updated;

**III.10.D.10.c.ii** Descriptions of procedures for addition and removal of waste from containers;

**III.10.D.10.c.iii** Descriptions of procedures for opening and closing of containers, including any inspections performed prior to opening;

**III.10.D.10.c.iv** Descriptions of procedures for handling and transport of containers within the WTP Unit;

**III.10.D.10.c.v** Description of the tracking system used to track containers throughout the WTP Unit pursuant to WAC 173-303-380. The tracking system, at a minimum, will do the following:

A. Track the location of containers within the WTP Unit;
B. Track which containers have been shipped off-facility and/or off-site, and to where they have been shipped;
C. For containers intended for transport off-site, include information in accordance with the requirements specified in WAC 173-303-190(3)(b);
D. Record the date container is placed in the container storage area;
E. Record the nature of the waste in any given container, including dangerous waste designation codes, any associated LDR treatment requirements, and the major risk(s) associated with the waste (as described in Permit Conditions III.10.D.5.a and III.10.D.5.c).

**III.10.D.10.c.vi** Descriptions of procedures for container spacing, stacking, and labeling pursuant to WAC 173-303-630(3), WAC 173-303-630(5)(c), WAC 173-303-340(3), WAC 173-303-630(6);

**III.10.D.10.c.vii** Descriptions of procedures for investigating container storage areas and investigating and repairing containment systems [WAC 173-303-320, WAC 173-303-630(6)];

**III.10.D.10.c.viii** Descriptions of procedures for responding to damaged (e.g., severe rusting, apparent structural defects) or leaking containers [WAC 173-303-630(2)];

**III.10.D.10.c.ix** Descriptions of operational procedures demonstrating how accumulated liquids can be analyzed and removed from containment systems to prevent overflow [WAC 173-303-806(4)(b)(i)(E)];

**III.10.D.10.c.x** For portable containment systems, vendor information, design drawings, or sketches showing the following information. These items will include as a minimum basic design parameters, dimensions, and materials of construction; how the design promotes positive drainage control (such as a locked drainage valve) to prevent release of contaminated liquids and so that uncontaminated liquids can be drained promptly for convenience of operation; how the base underlying the containers is sloped (i.e., floor slopes to sumps) or the containment system is otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or other liquids, or how containers are kept from contact with standing liquids in the containment system (i.e., elevated or are otherwise protected); and capacity of the containment system relative to the volume of the largest container to be stored;

**III.10.D.10.c.xi** Where ignitable and reactive waste are stored or otherwise managed in containers, a description of the procedures used to ensure compliance with WAC 173-303-630(8)(a) and (b);

**III.10.D.10.c.xii** Where incompatible waste are stored or otherwise managed in containers, a description of the procedures used to ensure compliance with WAC 173-303-630(9)(a) and (b), and 173-303-395(1)(b) and (c);

**III.10.D.10.c.xiii** Submit Permit Table III.10.D.C completed to provide for all portable containment systems, the information as specified in each column heading, consistent with information to be provided in III.10.D.10.c.i through xii above;

**III.10.D.10.c.xiv** Test procedures and results or other documentation or information to show that the waste do not contain free liquids, as applicable.

**III.10.D.10.d** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will submit to Ecology, consistent with the schedule described in Operating Unit Group 10, Appendix 1.0, for review and approval, completed Permit Tables III.10.D.A, III.10.D.B, and III.10.D.C, for incorporation into Operating Unit Group 10, Chapter 4, and Appendices 8.18, 9.18, and 10.18 of this Permit. In order to incorporate the information into Operating Unit Group 10, Chapter 4, and Appendices 8.18, 9.18, and 10.18 of this Permit, Permit Condition III.10.C.2.g process will be followed.

**III.10.D.10.e** The Permittees will submit to Ecology, consistent with the schedule described in Operating Unit Group 10, Appendix 1.0, for review and submittal to the Administrative Record, a gap analysis that identifies:

**III.10.D.10.e.i** Changes to projected operating conditions that result from the redesign of PTF and HLW (Interim Compliance Schedule Item WTP-47).

**III.10.D.10.e.ii** Changes to projected operating conditions that result from DFLAW operations (Interim Compliance Schedule Item WTP-48).

**Table III.10.D.A – Container Storage/Containment Building Areas Description**

| Dangerous and Mixed Waste Container Storage Areas | Maximum Capacity Gallons (Solids)($ft^3$)[d] | Maximum Operating Volume (Liquid[c]) |
|---|---|---|
| **HLW Vitrification Plant** | | |
| IHLW Canister Storage Cave[a] (Room H-0132) | 163,599 gal. (21,870 $ft^3$) | NA |
| HLW East Corridor El. 0' (Rooms HC-0108/09/10) | 183,721 gal. (24,560 $ft^3$) | NA |
| HLW Loading Area (Room H-0130) | 142,204 gal. (19,010 $ft^3$) | NA |
| **Other Areas** | | |
| Non-Radioactive Dangerous Waste Container Storage Area[b] | 56,104 gal. (7,500 $ft^3$) | RESERVED |
| Failed Melter Storage Facility (Building 32)[f] | 403,947 gal. (54,000 $ft^3$) | RESERVED |
| Lab Waste Management Area (Rooms A-0139, A-0139A/B/C/D) | 139,586 gal. (18,660 $ft^3$) | RESERVED |
| **Containment Buildings/ Container Storage** | **Maximum Capacity Gallons (Solids)($ft^3$)[d]** | **Maximum Operating Volume (Liquid[c])** |
| **Pretreatment Plant** | | |
| P-0123 Pretreatment Hotcell Containment Building | RESERVED | RESERVED |
| Pretreatment Maintenance Containment Building | RESERVED | RESERVED |
| PM0124 Hotcell Crane Maintenance Area | RESERVED | RESERVED |
| P-0121A Spent Resin Dewatering | RESERVED | RESERVED |
| P-0421A General Filter Room | RESERVED | RESERVED |
| P-0122A Waste Packaging Area | RESERVED | RESERVED |
| P-0123A Remote Decontamination Maintenance Cave | RESERVED | RESERVED |
| P-0124 C3 Workshop | RESERVED | RESERVED |
| P-0124A C3 Workshop | RESERVED | RESERVED |
| P-0125 Filter Cask Airlock | RESERVED | RESERVED |
| P-0125A Filter Cask Area | RESERVED | RESERVED |
| P-0128A MSM Repair Area | RESERVED | RESERVED |
| P-0128 Temporary Storage Room | RESERVED | RESERVED |

**Table III.10.D.A – Container Storage/Containment Building Areas Description**

| Dangerous and Mixed Waste Container Storage Areas | Maximum Capacity Gallons (Solids)($ft^3$)[d] | Maximum Operating Volume (Liquid[c]) |
|---|---|---|
| P-0223 Pretreatment Filter Package Maintenance Containment Building | | |
| P-0335 Pretreatment Filter Cave Room | RESERVED | RESERVED |
| P-0335A Decon Chamber | RESERVED | RESERVED |
| P-0431A General Filter Room | RESERVED | RESERVED |
| **LAW Vitrification Plant** | | |
| L-0112 LAW LSM Gallery Containment Building | RESERVED | RESERVED |
| LAW Container Finishing Containment Building | RESERVED | RESERVED |
| L-0109B Swabbing Area Line 2 | RESERVED | RESERVED |
| L-0109C Decontamination Area Line 2 | RESERVED | RESERVED |
| L-0109D Inert Fill Area Line 2 | RESERVED | RESERVED |
| L-0115B Swabbing Area Line 1 | RESERVED | RESERVED |
| L-0115C Decontamination Area Line 1 | RESERVED | RESERVED |
| L-0115D Inert Fill Area Line 1 | RESERVED | RESERVED |
| L-0109E Container Monitoring/Export Area | RESERVED | RESERVED |
| L-0115E Container Monitoring/Export Area | RESERVED | RESERVED |
| L-0119B LAW Consumable Import/Export Containment Building | RESERVED | RESERVED |
| L-0226A LAW C3 Workshop Containment Building | RESERVED | RESERVED |
| LAW Pour Cave Containment Building | RESERVED | RESERVED |
| L-B015A Melter 1 Pour Cave | RESERVED | RESERVED |
| L-B013C Melter 1 Pour Cave | RESERVED | RESERVED |
| L-B013B Melter 2 Pour Cave | RESERVED | RESERVED |
| L-B011C Melter 2 Pour Cave | RESERVED | RESERVED |
| L-B011B Future Melter 3 Pour Cave | RESERVED | RESERVED |
| L-B009B Future Melter 3 Pour Cave | RESERVED | RESERVED |
| LAW Buffer Container Containment Building | RESERVED | RESERVED |

**Table III.10.D.A – Container Storage/Containment Building Areas Description**

| Dangerous and Mixed Waste Container Storage Areas | Maximum Capacity Gallons (Solids)($ft^3$)[d] | Maximum Operating Volume (Liquid[c]) |
|---|---|---|
| L-B025C Container Buffer Store | RESERVED | RESERVED |
| L-B025D Container Rework | RESERVED | RESERVED |
| **HLW Vitrification Plant** | | |
| HLW Melter Cave 1 Containment Building | RESERVED | RESERVED |
| H-0117 Melter Cave 1 | | |
| H-0116B Melter Cave 1 C3/C5 Airlock | | |
| H-0310A Melter Cave 1 Equipment Decon Pit | | |
| HLW Melter Cave 2 Containment Building | RESERVED | RESERVED |
| H-0106 Melter Cave 2 | | |
| H-0105B Melter Cave 2 C3/C5 Airlock | | |
| H-0304A Melter Cave 2 Equipment Decon Pit | | |
| H-0136 IHLW Canister Handling Cave Containment Building | RESERVED | RESERVED |
| H-0133 IHLW Canister Swab and Monitoring Cave Containment Building | RESERVED | RESERVED |
| HLW C3 Workshop Containment Building | RESERVED | RESERVED |
| H-0311A C3 Workshop | | |
| H-0311B C3 MSM Maintenance Workshop | | |
| H-0104 HLW Filter Cave Containment Building | RESERVED | RESERVED |
| H-B032 HLW Pour Tunnel 1 Containment Building | RESERVED | RESERVED |
| H-B005A HLW Pour Tunnel 2 Containment Building | RESERVED | RESERVED |
| HLW Waste Handling Area Containment Building | RESERVED | RESERVED |
| H-0410B E&I Room | | |
| H0411 Waste Handling Room | | |
| HLW Drum Swabbing and Monitoring Area Containment Building | RESERVED | RESERVED |

**Table III.10.D.A – Container Storage/Containment Building Areas Description**

| Dangerous and Mixed Waste Container Storage Areas | Maximum Capacity Gallons (Solids)($ft^3$)[d] | Maximum Operating Volume (Liquid[c]) |
|---|---|---|
| H-0126A Crane Maintenance Room | | |
| H-0126B Swabbing and Monitoring Area | | |
| H-B028 Cask Transfer Tunnel | | |

[a] Capacity is for immobilized glass waste storage.

[b] Capacity is for dangerous and/or mixed waste storage.

[c] All material within the containment systems will be considered waste for the purposes of calculating free volume, where free volume is the amount of space available in containment systems (i.e., free volume = total capacity of containment systems [which includes total capacity of portable containment systems] minus volume occupied by equipment and containers within containment systems).

[d] Gallons converted to cubic feet using a conversion factor of 1 gallon (liquid) x 0.134 = 1$ft^3$ (rounded to the nearest whole number).

[e] Location and capacities of containers stored within portable containment systems specified on Permit Table III.10.D.C are limited to the dangerous and mixed waste container storage areas and capacities specified above.

[f] The dimension for height (H) is based on the height of the largest waste container stored in the area (i.e., LAW container is 7.5 ft., HLW canister is 15 ft., melters are assumed to be 16 ft., and a B-25 box is 5 ft. – stacked a maximum of two high is 10ft).

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**Table III.10.D.B – Container Storage Area Containment Systems**

| Container Storage Areas | Permanent Containment System Description – Drawing #s | Permanent Containment System Sump/Floor Drain ID # | Permanent Containment System Dimensions[a] (ft) & Materials of Construction | Permanent Containment System Capacity (gal) (relative to 10% of the volume of all containers within the container storage area, or 100% of the volume of the largest container, whichever is greater) |
|---|---|---|---|---|
| Failed Melter Storage Facility (Building 32) | 24590-BOF-P1-32-00001 | N/A | 45’ x 75” x 16’[b] | 403,947 gal. (54,000 $ft^3$) |

[a] Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).

[b] The dimension for height (H) is based on the height of the largest waste container stored in the area (i.e., LAW container is 7.5 ft., HLW canister is 15 ft., melters are assumed to be 16 ft., and a B-25 box is 5 ft. – stacked a maximum of two high is 10 ft).

2

**Table III.10.D.C – Container Storage Area Portable Containment Systems[a]**

| Portable Containment System Description – Specifications and Vendor Information | Portable Containment System Container Storage Area(s) Location(s) | Portable Containment System Dimensions[b] (ft) & Materials of Construction | Portable Containment System Capacity (gal) (relative to 10% of the volume of all containers managed within the portable containment system, or 100% of the volume of the largest container, whichever is greater) |
|---|---|---|---|
| RESERVED | RESERVED | RESERVED | RESERVED |

[a] Location and capacities of containers stored within portable containment systems specified on this Permit Table are limited to the dangerous and mixed waste container storage areas and capacities specified in Permit Table III.10.D.A.

[b] Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).

## III.10.E TANK SYSTEMS

### III.10.E.1 Approved Waste and Storage Limits

**III.10.E.1.a** The Permittees may store in tank systems all dangerous and/or mixed waste listed in the Part A Forms, Operating Unit Group 10, Chapter 1 of this Permit and in accordance with the WAP, Operating Unit Group 10, Chapter 3 as approved pursuant to Permit Condition III.10.C.3 of this Permit. Total tank system dangerous and/or mixed waste storage at the Facility will not exceed the volume(s) specified in the Part A Form 3 Permit Application, Chapter 1 of this permit.

**III.10.E.1.b** The Permittees may store and manage dangerous and/or mixed waste only in approved tank systems listed in Permit Tables III.10.E.A, C, D, I, M, O, and R as approved/modified pursuant to Permit Condition III.10.E.9, in accordance with Permit Section III.10.E of this Permit, and in accordance with Operating Unit Group 10, Chapter 1 and 4, and Operating Unit Group 10, Appendices 8.1 through 8.15, 9.1 through 9.14, 9.18, 10.1 through 10.14, 10.18, 11.1 through 11.15, and 13.1 through 13.18 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.b through e. The Permittees will limit the total volume of waste to quantities specified for the individual units listed in Permit Tables III.10.E.A, C, D, I, M, O, and R.

**III.10.E.1.c** The Permittees will manage ignitable and reactive, and incompatible waste in accordance with WAC 173-303-395(1). Any tank system specified in Permit Tables III.10.E.A, C, D and III.10.E, I, M, O, and ~~S~~R as approved/modified pursuant to Permit Condition III.10.E.9, in which ignitable, reactive, or incompatible waste are managed will meet the requirements specified in WAC 173-303-640(9) and (10).

**III.10.E.1.d** The Permittees will ensure all certifications required by specialists (e.g., independent qualified registered professional engineer; independent corrosion expert; independent qualified installation inspector; etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10 of this Permit:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new tank system or component located at (address), and owned/operated by (name(s)). My duties were:

(e.g., installation inspector, testing for tightness, etc.), for the following tank system components (e.g., the tank, venting piping, etc.), as required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs (i.e., (a) through (g)).

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

**III.10.E.1.e** In all future permit submittals, the Permittees will include tank names with the tank designation (e.g., Process Condensate Vessels located in the RLD System are designated V45028A and V45028B, respectively).

**III.10.E.2 Tank System Design and Construction**

**III.10.E.2.a** The Permittees will construct the tank systems identified in Permit Tables III.10.E.A, C, D, I, M, O, and R as approved/modified pursuant to Permit Condition III.10.E.9, as specified in Operating Unit Group 10, Appendices 8.1 through 8.14, 9.1 through 9.14, 10.1 through 10.14, 11.1 through 11.14, and 13.1 through 13.14 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.b, III.10.E.9.c, and III.10.E.9.d.

**III.10.E.2.b** The Permittees will construct all secondary containment systems identified in Permit Tables III.10.E.~~A , C, D,~~I, J, M, N and ~~I, J, L~~ R through ~~P, R and~~ TS, as approved/modified pursuant to Permit Condition III.10.E.9, as specified in Operating Unit Group 10, Appendices 8.2, 8.4 through 8.15, 9.2, 9.4 through 9.14, 9.18, 10.2, 10.4 through 10.14, 10.18, 11.2, 11.4 through 11.14, 11.18, and 13.2, 13.4 through 13.14, and 13.18 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.b, III.10.E.9.c, and III.10.E.9.d.

**III.10.E.2.c** Modifications to approved design, plans, and specifications in Operating Unit Group 10 of this Permit for the WTP Unit Tank Systems will be allowed only in accordance with Permit Conditions III.10.C.2.e and f, or III.10.C.2.g, III.10.C.9.d, e, and h.

**III.10.E.2.d** The Permittees will maintain construction access to the internal portions of installed tanks with pulse jet mixers until Ecology has provided written approval of the tank system designs for wear allowance pursuant to WAC 173-303-640(3)(a).

**III.10.E.2.d.i** The Permittees will not install the following tanks in the WTP Unit until Ecology has provided written approval of the tank system designs for wear allowance pursuant to WAC 173-303-640(3)(a):

- Plant Wash Vessel, PWD-VSL-00044.
- Acidic Waste Vessel, RLD-VSL-00007.
- Plant Wash and Drains Vessel, RLD-VSL-00008.
- HLW Feed Receipt Vessel, HLP-VSL-00022.
- HLW Lag Storage Vessels, HLP-VSL-00027A and HLP-VSL-00027B.
- HLW Feed Blend Vessel, HLP-VSL-00028.
- Ultrafiltration Feed Preparation Vessels, UFP-VSL-00001A and UFP-VSL-00001B.
- Ultrafiltration Feed Vessels, UFP-VSL-00002A and UFP-VSL-00002B.

**III.10.E.2.d.ii** Except where exempted in writing by Ecology on the basis that wear allowance provisions will not be affected, fabrication and assembly of the following tanks and their internal components will be suspended until Ecology has provided written approval of the tank system designs for wear allowance pursuant to WAC 173-303-640(3)(a).

- HLW Feed Receipt Vessel, HLP-VSL-00022.
- HLW Lag Storage Vessels, HLP-VSL-00027A and HLP-VSL-00027B.
- HLW Feed Blend Vessel, HLP-VSL-00028.
- Ultrafiltration Feed Vessels, UFP-VSL-00002A and UFP-VSL-00002B.

**III.10.E.3 Tank System Installation and Certification**

**III.10.E.3.a** The Permittees must ensure that proper handling procedures are adhered to in order to prevent damage to the system during installation. Prior to covering, enclosing, or placing a new tank system or component in use, an independent qualified installation inspector or an independent qualified registered professional engineer, either of whom is trained and experienced in the proper installation of tank systems or components, must inspect the system for the presence of any of the following items:

**III.10.E.3.a.i** Weld breaks;

**III.10.E.3.a.ii** Punctures;

**III.10.E.3.a.iii** Scrapes of protective coatings;

**III.10.E.3.a.iv** Cracks;

**III.10.E.3.a.v** Corrosion;

**III.10.E.3.a.vi** Other structural damage or inadequate construction/installation.

All discrepancies must be remedied before the tank system is covered, enclosed, or placed in use [WAC 173-303-640(3)(c)].

**III.10.E.3.b** For tank systems or components that are placed underground and that are back-filled, the Permittees must provide a backfill material that is a non-corrosive, porous, homogeneous substance. The backfill must be installed so that it is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported [WAC 173-303-640(3)(d)].

**III.10.E.3.c** The Permittees must test for tightness all new tanks and ancillary equipment prior to these components being covered, enclosed, or placed into use. If a tank system is found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the tank system being covered, enclosed, or placed in use [WAC 173-303-640(3)(e)].

**III.10.E.3.d** The Permittees must ensure ancillary equipment is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction [WAC 173-303-640(3)(f)].

**III.10.E.3.e** The Permittees must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in Operating Unit Group 10, Appendices 8.9, 8.11, 9.9, 9.11, 10.9, 10.11, 11.9, 11.11, and 13.11 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.b.i, III.10.E.9.b.iv, III.10.E.9.b.v, III.10.E.9.c.i, III.10.E.9.c.iv, III.10.E.9.c.v, III.10.E.9.d.i, III.10.E.9.d.iv, and III.10.E.9.d.v or other corrosion protection if the Ecology believes other corrosion

protection is necessary to ensure the integrity of the tank system during use of the tank system. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation [WAC 173-303-640(3)(g)].

**III.10.E.3.f** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will obtain, and keep on file in the WTP Unit operating record, written statements by those persons required to certify the design of the tank system and supervise the installation of the tank system in accordance with the requirements of WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), attesting that each tank system and corresponding containment system listed in Permit Tables III.10.E.A, C D and III.10.E.I, J, L through P, R and S, as approved/modified pursuant to Permit Condition III.10.E.9, were properly designed and installed, and that repairs, pursuant to WAC 173-303-640(3)(c) and (e) were performed [WAC 173-303-640(3)(a) WAC 173-303-640(3)(h)].

**III.10.E.3.g** The independent tank system installation inspection and subsequent written statements will be certified pursuant to Permit Condition III.10.E.1.d, comply with all requirements of WAC 173-303-640(3)(h) and will consider, but not be limited to, the following tank system installation documentation:

**III.10.E.3.g.i** Field installation report with date of installation;

**III.10.E.3.g.ii** Approved welding procedures;

**III.10.E.3.g.iii** Welder qualifications and certification;

**III.10.E.3.g.iv** Hydro-test reports, as applicable, in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 1, American Petroleum Institute (API) Standard 620, or Standard 650 as applicable;

**III.10.E.3.g.v** Tester credentials;

**III.10.E.3.g.vi** Field inspector credentials;

**III.10.E.3.g.vii** Field inspector reports;

**III.10.E.3.g.viii** Field waiver reports; and

**III.10.E.3.g.ix** Non-compliance reports and corrective action (including field waiver reports) and repair reports.

**III.10.E.4 Integrity Assessments**

**III.10.E.4.a** The Permittees will ensure periodic integrity assessments are conducted on the WTP Unit Tank Systems listed in Permit Tables III.10.E.A, C D, I, M, O, and R as approved/modified pursuant to Permit Condition III.10.E.9, over the term of this Permit as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Operating Unit Group 10, Chapter 6 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.e.i and III.10.C.5.c. Results of the integrity assessments will be included in the WTP Unit operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

**III.10.E.4.b** The Permittees will address problems detected during the tank integrity assessments specified in Permit Condition III.10.E.4.a following the integrity assessment program in Operating Unit Group 10, Chapter 6 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.e.i and III.10.C.5.c.

**III.10.E.4.c** The Permittees must immediately and safely remove from service any Tank System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Conditions III.10.E.5.i.i through iv, vi, and vii. The affected tank system or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.E.5.i.v. [WAC 173-303-640(7)(e) and (f), WAC 173-303-640(8)].

**III.10.E.5 Tank Management Practices**

**III.10.E.5.a** No dangerous and/or mixed waste will be managed in the WTP Unit Tank System unless the operating conditions, specified under Permit Condition III.10.E.5 are complied with.

**III.10.E.5.b** The Permittees will install and test all process and leak detection system monitoring/instrumentation, as specified in Permit Tables III.10.E.E, G, H, and S as approved/modified pursuant to Permit Condition III.10.E.9.e xi, in accordance with Operating Unit Group 10, Appendices 8.1, 8.2, 8.14, 9.1, 9.2, 9.14, 10.1, 10.2, 10.14, 11.1, 11.2, 11.14, and 13.1, 13.2, and 13.14 of this Permit, as approved pursuant to Permit Conditions III.10.E.9.e.ix and III.10.E.9.d.x.

**III.10.E.5.c** The Permittees will not place dangerous and/or mixed waste, treatment reagents, or other materials in the WTP Unit Tank System if these substances could cause the tank system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a)].

**III.10.E.5.d** The Permittees will operate the WTP Unit Tank System to prevent spills and overflows using the description of controls and practices as required under WAC 173-303-640(5)(b) described in Permit Condition III.10.C.5, and Operating Unit Group 10, Appendices 8.16, 9.18, 10.18, 11.18, and 13.18 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.iv. [WAC 173-303-640(5)(b), WAC 173-303-806(4)(c)(ix)].

**III.10.E.5.e** For routinely non-accessible WTP Unit Tank Systems, as specified in Operating Unit Group 10, Chapter 4 of this Permit, as updated pursuant to Permit Condition III.10.E.9.e.vi, the Permittees will mark all routinely non-accessible tank system access points with labels or signs to identify the waste contained in the tanks. The label, or sign, must be legible at a distance of at least fifty (50) feet and must bear a legend that identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the tank system(s). For the purposes of this Permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d)].

**III.10.E.5.f** For all tank systems not addressed in Permit Condition III.10.E.5.e, the Permittees will mark all these tank systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the tank. The labels, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend that identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the tank system(s) [WAC 173-303-640(5)(d)].

**III.10.E.5.g** The Permittees will ensure that the secondary containment systems for the WTP Unit Tank Systems listed in Permit Tables III.10.E.A, C D, I, M, O, and R as approved/modified pursuant to Permit Condition III.10.E.9, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, ground water, or surface water at any time that waste is in the tank system. Any indication that a crack or gap may exist in the containment systems will be investigated and repaired in accordance with Operating Unit Group 10, Appendices 8.18,

9.18, 10.18, 11.18, and 13.18 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.v [WAC 173-303-320, WAC 173-303-640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), WAC 173-303-640(6), and WAC 173-303-806(4)(c)(vii)].

**III.10.E.5.h** An impermeable coating, as specified in Operating Unit Group 10, Appendices 8.4, 8.5, 8.7, 8.9, 8.11, 8.12, 9.4, 9.5, 9.7, 9.9, 9.11, 9.12, 10.4, 10.5, 10.7, 10.9, 10.11, 10.12, 11.4, 11.5, 11.7, 11.9, 11.11, 11.12, and 13.4, 13.5, 13.7, 13.9, 13.11 and 13.12 of this Permit, as approved pursuant to Permit Condition III.10.E.9.b.v, will be maintained for all concrete containment systems and concrete portions of containment systems for each WTP Unit Tank System listed in Permit Tables III.10.E.A, C D, I, J, M through O, and R through T as approved/modified pursuant to Permit Condition III.10.E.9. Concrete containment systems that do not have a liner and have construction joints, must meet the requirements of WAC 173-303-640(4)(e)(ii)(C) and -806(4)(c)(vii). The coating will prevent migration of any dangerous and/or mixed waste into the concrete. All coatings will meet the following performance standards:

**III.10.E.5.h.i** The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

**III.10.E.5.h.ii** The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and/or mixed waste could migrate from the system; and

**III.10.E.5.h.iii** The coating must be compatible with the dangerous and/or mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), WAC 173-303-806(4)(c)(vii)].

**III.10.E.5.i** The Permittees will inspect all secondary containment systems for WTP Unit Tank Systems listed in Permit Tables III.10.E.A, C D, I, J, M through O, and R through T as approved/modified pursuant to Permit Condition III.10.E.9, in accordance with the Inspection Plan specified in Operating Unit Group 10, Chapter 6A of this Permit, as approved pursuant to Permit Conditions III.10.E.9.e.v and III.10.C.5, and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-320, WAC 173-303-640(5)(c), WAC 173-303-640(6), WAC 173-303-640(7), WAC 173-303-806(4)(a)(v)]:

**III.10.E.5.i.i** Immediately and safely stop the flow of dangerous and/or mixed waste into the tank system or secondary containment system, in accordance with procedures based on all applicable safety analysis documentation;

**III.10.E.5.i.ii** Determine the source of the dangerous and/or mixed waste;

**III.10.E.5.i.iii** Remove the waste from the secondary containment area pursuant to WAC 173-303-640(7)(b). The waste removed from containment areas of WTP Unit Tank Systems will be managed as dangerous and/or mixed waste;

**III.10.E.5.i.iv** If the cause of the release was a spill that has not damaged the integrity of the tank system, the Permittees may return the tank system to service pursuant to WAC 173-303-640(7)(e)(ii). In such a case, the Permittees will take action to ensure the incident that caused liquid to enter the containment systems of these tank systems will not reoccur [WAC 173-303-320(3);

**III.10.E.5.i.v** If the source of the dangerous waste and/or mixed waste is determined to be a leak from a primary WTP Unit Tank System, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees must comply with the requirements of WAC 173-303-640(7) and take the following actions [WAC 173-303-640(5)(c)]:

A. Close the tank system according to procedures in WAC 173-303-640(7)(e)(i), and Operating Unit Group 10, Chapter 11 of this Permit, as approved pursuant to Permit Condition III.10.C.8; or

B. Repair and re-certify (in accordance with WAC 173-303-810(13)(a) as modified pursuant to Permit Condition III.10.E.1.d) the tank system in accordance with Operating Unit Group 10, Appendices 8.18, 9.18, 10.18, 11.18, and 13.18 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.v before the tank system is placed back into service [WAC 173-303-640(7)(e) and (f), and WAC 173-303-806(4)(c)(vii)];

**III.10.E.5.i.vi** The Permittees will document in the operating record actions/procedures taken to comply with III.10.E.5.i.i through v above in accordance with WAC 173-303-640(6)(d);

**III.10.E.5.i.vii** The Permittees will notify and report releases to the environment to Ecology in accordance with WAC 173-303-640(7)(d).

**III.10.E.5.j** If liquids (e.g., dangerous and/or mixed waste leaks and spills, precipitation, fire water liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification will provide the information in A, B, and C listed below. The Permittees will provide Ecology with a written demonstration within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv), WAC 173-303-640(7)(b)(ii), WAC 173-303-806(4)(c)(vii)]:

A. Reasons for delayed removal;

B. Measures implemented to ensure continued protection of human health and the environment;

C. Current actions being taken to remove liquids from secondary containment.

**III.10.E.5.k** The Permittees will operate the WTP Unit Tank System in accordance with Operating Unit Group 10, Chapter 4 as updated pursuant to Permit Condition III.10.E.9.e.vi and Appendices 8.18, 9.18, 10.18, 11.18, and 13.18 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e, and the following:

**III.10.E.5.k.i** The Permittees will operate the WTP Unit Tank System in order to maintain the systems and process parameters listed in Permit Tables III.10.E.E, G and H, as approved/modified pursuant to Permit Condition III.10.E.9, within the operating trips and operating ranges specified in Permit Tables III.10.E.E, G and H, and consistent with assumptions and basis which are reflected in Operating Unit Group 10, Appendix, 6.3. as approved pursuant to Permit Condition III.10.C.11.b [WAC 173-303-815(2)(b)(ii) and WAC 173-303-640(5)(b)]. For the purposes of this permit condition, Operating Unit Group 10, Appendix 6.3 will be superseded by Appendix 6.4 upon its approval pursuant to either Permit Conditions III.10.C.11.c or III.10.C.11.d;

**III.10.E.5.k.ii** The Permittees will calibrate/function test the instruments listed on Permit Tables III.10.E.E, G, H and S in accordance with Operating Unit Group 10, Appendices 8.18, 9.18, 10.18, 11.18, and 13.18 of this Permit, as approved pursuant to Permit Condition III.10.E.9.e.xi.

**III.10.E.5.l** Tank systems that have the potential for formation and accumulation of hydrogen gases must be operated to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

**III.10.E.5.m** For each tank system holding dangerous waste which are acutely or chronically toxic by inhalation, operate the system to prevent escape of vapors, fumes or other emissions into the air [WAC 173-303-640(5)(e), WAC 173-303-806(4)(c)(xii)].

**III.10.E.6 Inspections [WAC 173-303-640(6)]**

**III.10.E.6.a** The Permittees will inspect the WTP Unit Tank Systems in accordance with the Inspection Plan in Operating Unit Group 10, Chapter 6A of this Permit, as modified pursuant to Permit Condition III.10.C.5.c.

**III.10.E.6.b** The inspection data for the WTP Unit Tank Systems will be recorded, and the records will be placed in the WTP Unit operating record, in accordance with Permit Condition III.10.C.4.

**III.10.E.7 Recordkeeping (WAC 173-303-380)**

For the WTP Unit Tank Systems, the Permittees will record and maintain in the WTP Unit operating record, all monitoring, calibration, recording, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4 and III.10.C.5.

**III.10.E.8 Closure**

The Permittees will close the WTP Unit Tank Systems in accordance with Operating Unit Group 10, Chapter 11 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

**III.10.E.9 Compliance Schedule**

**III.10.E.9.a** All information identified for submittal to Ecology in b. through e. of this compliance schedule must be signed and certified in accordance with requirements in WAC 173-303-810(12), as modified in accordance with Permit Condition III.10.E.1.d [WAC 173-303-806(4)].

**III.10.E.9.b** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to construction of each secondary containment and leak detection system for the WTP Unit Tank System (per level, per WTP Unit building and outside the WTP Unit buildings) as identified in Permit Tables III.10.E.~~A~~E~~, C, D, J, L, N, P,~~ G, H, J, and ~~S~~ ~~engineering~~Sengineering information as specified below, for incorporation into Operating Unit Group 10, Appendices 8.4, 8.5, 8.7, 8.8, 8.9, 8.11, 8.12, 9.4, 9.5, 9.7, 9.8, 9.9, 9.11, 9.12, 10.4, 10.5, 10.7, 10.8, 10.9, 10.11, 11.4, 11.5, 11.7, 11.8, 11.9, 11.11, and 13.4, 13.5, 13.7, 13.8, 13.9 and 13.11 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640 (the information specified below will include dimensioned engineering drawings and information on sumps and floor drains):

**III.10.E.9.b.i** IQRPE Reports (specific to foundation, secondary containment, and leak detection system) will include review of design drawings, calculations, and other information on which the certification report is based and will include as applicable, but not limited to, review of such information described below. Information (drawings,

specifications, etc.) already included in Operating Unit Group 10, Appendices 8.0 through 11.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. IQRPE Reports will be consistent with the information separately provided in Permit Conditions III.10.E.9.b.ii through ix below. The IQRPE Report(s) (specific to foundation, secondary containment and leak detection system) for the LAW and HLW buildings (-21 foot elevation only) will be submitted with the first IQRPE Report for tanks, identified in Permit Condition III.10.E.9.c.i [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

**III.10.E.9.b.ii** Design drawings (General Arrangement Drawings in plan) and specifications for the foundation, secondary containment, including, liner installation details, and leak detection methodology [Note: leak detection systems for areas where daily, direct, or remote visual inspection is not feasible, will be continuous in accordance with WAC 173-303-640(4)(e)(iii)(C)]. These items should show the dimensions, volume calculations, and location of the secondary containment system, and should include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC 173-303-640(4)(b) through (f), WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

**III.10.E.9.b.iii** The Permittees will provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the secondary containment system. This information will demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), WAC 173-303-806(4)(c)(vii)];

**III.10.E.9.b.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion as required under WAC 173-303-640(3)(a)(iii)(B) [WAC 173-303-806(4)(c)(v)];

**III.10.E.9.b.v** Secondary containment/foundation and leak detection system materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials as applicable) [WAC 173-303-806(4)(c)(i)];

**III.10.E.9.b.vi** Detailed description of how the secondary containment for each tank system will be installed in compliance with WAC 173-303-640(3)(c) [WAC 173-303-806(4)(c)(vi)];

**III.10.E.9.b.vii** Submit Permit Tables III.10.E.J, N, and S completed to provide for all secondary containment sumps and floor drains, the information as specified in each column heading, consistent with information to be provided in Permit Conditions III.10.E.9.b.i through vi above;

**III.10.E.9.b.viii** Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit and in accordance with Appendix 7.15 for incorporation into the Administrative Record [WAC 173-303-340].

**III.10.E.9.b.ix** A detailed description of how tank system design provides access for conducting future tank integrity assessments [WAC 173-303-640(3)(b), WAC 173-303-806(4)(c)(vi)];

**III.10.E.9.c** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to installation of each tank as identified in Permit Tables III.10.E.A, C, D, I, M, O, and R engineering information as specified below, for incorporation into Operating Unit Group 10, Appendices 8.1 through 8.9, 8.11 through 8.14, 9.1 through 9.9, 9.11 through 9.14, 10.1 through 10.9, 10.11 through 10.14, 11.1 through 11.9, 11.11 through 11.14, 13.1 through 13.9, and 13.11 through 13.14 of this Permit. Tanks will include primary sumps. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640 (the information specified below will include dimensioned engineering drawings):

**III.10.E.9.c.i** IQRPE Reports (specific to tanks) will include review of design drawings, calculations, and other information on which the certification report is based and will include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendices 8.0 through 13.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports will be consistent with the information separately provided in Permit Conditions III.10.E.9.c.ii through xii below and the IQRPE Report specified in Permit Condition III.10.E.9.b.i [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

**III.10.E.9.c.ii** Design drawings (General Arrangement Drawings in plan, Process Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control systems], Mechanical Drawings) and specifications, and other information, specific to tanks (to show location and physical attributes of each tank) [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i) through (iv)];

**III.10.E.9.c.iii** The Permittees will provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the tank(s). Structural support calculations specific to off-specification, non-standard, and field fabricated tanks will be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

**III.10.E.9.c.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with water, including factors affecting the potential for corrosion as required under WAC 173-303-640(3)(a)(iii)(B) [WAC 173-303-806(4)(c)(v)];

**III.10.E.9.c.v** Tank materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

**III.10.E.9.c.vi** Tank vendor information (including, but not limited to required performance warranties, as available), consistent with information submitted under ii. above, will be submitted for incorporation into the Administrative Record [WAC 173-303-640, and WAC 173-303-806(4)(c)];

**III.10.E.9.c.vii** System Descriptions related to tanks will be submitted for incorporation into the Administrative Record;

**III.10.E.9.c.viii** Mass balance for each projected operating condition, including assumptions and formulas used to complete the mass balance, so that they can be independently verified, and will be submitted for incorporation into the Administrative Record;

**III.10.E.9.c.ix** A detailed description of how the tanks will be installed in compliance with WAC 173-303-640(3)(c), (d), and (e) [WAC 173-303-806(4)(c)(vi)];

**III.10.E.9.c.x** Submit Permit Tables III.10.E.I, M, ~~O, and R~~and S completed to provide for all primary containment sumps and floor drains, the information as specified in each column heading, consistent with information to be provided in Permit Conditions III.10.E.9.c.i through ix;

**III.10.E.9.c.xi** Documentation that tanks are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-340];

**III.10.E.9.c.xii** Documentation that tanks are designed to prevent escape of vapors and emissions of acutely or chronically toxic (upon inhalation) Extremely Hazardous Waste limit and in accordance with Appendix 7.15 for incorporation into the Administrative Record [WAC 173-303-640(5)(e), WAC 173-303-806(4)(c)(xii)];

**III.10.E.9.d** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to installation of ancillary equipment for each tank system, as identified in Permit Tables III.10.E.A, C, D, I, J, M through O, and R through T not addressed in Permit Condition III.10.E.9.c, engineering information as specified below, for incorporation into Operating Unit Group 10, Appendices 8.1 through 8.9, 8.11 through 8.14, 9.1 through 9.9, 9.11 through 9.14, 10.1 through 10.9, 10.11 through 10.14, 11.1 through 11.9,11.11 through 11.14, 13.1 through 13.9, and 13.11 through 13.14 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640 (the information specified below will include dimensioned engineering drawings):

**III.10.E.9.d.i** IQRPE Reports (specific to ancillary equipment) will include a review of design drawings, calculations, and other information as applicable, on which the certification report is based. The reports will include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendix 8.0 through 13.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports will be consistent with the information provided separately in Permit Conditions III.10.E.9.d.ii through xiii below and the IQRPE Reports specified in Permit Conditions III.10.E.9.b and III.10.E.9.c [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

**III.10.E.9.d.ii** Design drawings (Process Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control systems], etc.) specifications (including required performance warranties), and other information specific to ancillary equipment (these drawings should include all equipment such as pipe, valves, fittings, pumps, instruments, etc.) [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i), (iii), (iv)];

**III.10.E.9.d.iii** The Permittees will provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the ancillary equipment [WAC 173-303-640(3)(a), WAC 173-303-640(3)(f), WAC 173-303-806(4)(c)(i)];

**III.10.E.9.d.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil and water, including factors affecting the potential for corrosion as required under WAC 173-303-640(3)(a)(iii)(B) [WAC 173-303-806(4)(c)(v)];

**III.10.E.9.d.v** Materials selection documentation for ancillary equipment (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), WAC 173-303-806(4)(c)(i)];

**III.10.E.9.d.vi** Vendor information, consistent with information submitted under ii above, will be submitted for incorporation into the Administrative Record [WAC 173-303-640, and WAC 173-303-806(4)(c)];

**III.10.E.9.d.vii** Tank, ancillary equipment, and leak detection system instrument control logic narrative description (e.g., descriptions of fail-safe conditions, etc.);

**III.10.E.9.d.viii** System Descriptions related to ancillary equipment and system descriptions related to leak detection systems, for incorporation into the Administrative Record;

**III.10.E.9.d.ix** A detailed description of how the ancillary equipment will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), and WAC 173-303-806(4)(c)(vi)];

**III.10.E.9.d.x** For process monitoring, control, and leak detection system instrumentation for the WTP Unit Tank System as identified in Permit Tables III.10.E.E, G, H, ~~R~~ and S, a detailed description of how the process monitoring, control, and leak detection system instrumentation will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi)];

**III.10.E.9.d.xi** Mass balance for projected normal operating condition used in developing the process and instrumentation diagrams, including assumptions and formulas used to complete the mass balance, so that they can be independently verified, for incorporation into the Administrative Record;

**III.10.E.9.d.xii** Documentation that ancillary equipment is designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-340].

**III.10.E.9.d.xiii** Leak detection system documentation (e.g. vendor information, etc.) consistent with information submitted under Permit Condition III.10.E.9.c.ii and Permit Conditions III.10.E.9.d.ii, vii, viii and x above, will be submitted for incorporation into the Administrative Record.

**III.10.E.9.e** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, the following as specified below for incorporation into Operating Unit Group 10, Appendices 8.18, 9.18, 10.18, 11.18, and 13.18 of this Permit, except Permit Condition III.10.E.9.e.v, which will be incorporated into Operating Unit Group 10, Chapter 6 of this Permit. All information provided under this permit condition must be consistent with information provided pursuant to Permit Conditions III.10.E.9.b, c, d, and e, III.10.C.3.e, and III.10.C.11.b, as approved by Ecology.

**III.10.E.9.e.i** Integrity assessment program and schedule for all WTP Unit tanks will address the conducting of periodic integrity assessments on all WTP Unit tanks over the life of the tank, in accordance with III.10.E.9.b.ix and WAC 173-303-640(3)(b), and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past integrity assessments, age of the tank system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), WAC 173-303-806(4)(c)(vi)];

**III.10.E.9.e.ii** Detailed plans and descriptions, demonstrating the leak detection system is operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of dangerous and/or mixed waste, or accumulated liquid in the secondary containment system within twenty-four (24) hours [WAC 173-303-640(4)(c)(iii)]. ~~Detection of~~The WTP facility has been constructed to detect a leak of at least 0.~~21~~1 gallons per hour within a twenty-four (24) ~~hours is defined as being able to detect a leak within twenty-four (24) hours, as provided in Table 4E-1~~hour period. Any exceptions to this criteria must be approved by Ecology [WAC 173-303-640(4)(c)(iii), WAC 173-303-806(4)(c)(vii)];

A. Dangerous waste pipe penetrations that require a penetration seal in accordance with the International Building Code (IBC) and DOE-STD-1066, DOE Standard for Fire Protection Design Criteria or to meet ventilation sealing requirements identified in Table III.10.H.G and Table III.10.M.B are not required to meet ~~twenty~~the 0.1 gallons per hour within twenty-four (24) hours leak detection rate for those sections of piping that are in contact with approved silicone or equivalent low-permeability seal material or boot.

B. Piping on either side of the penetration seal must meet the ~~requirements of~~requirements of III.10.E.9.e.ii.

C. Newly identified pipe penetration seals or revisions will be submitted to Ecology for review and approval pursuant to Conditions III.10.C.2.e and III.10.C.2.f. Addition of penetration seal locations will be approved by Ecology prior to installation of the penetration seals.

**Reserved** ~~**Table III.10.E.Q – Tank System Penetration Seal Locations**~~

| ~~Facility~~ | ~~Room No~~ | ~~Orientation~~ | ~~Discipline~~ | ~~Penetration Sequence No~~ |
|---|---|---|---|---|
| ~~Reserved~~ | ~~Reserved~~ | ~~Reserved~~ | ~~Reserved~~ | ~~Reserved~~ |

**III.10.E.9.e.iii** Detailed operational plans and descriptions, demonstrating that spilled or leaked waste and accumulated liquids can be removed from the secondary containment system within twenty-four (24) hours [WAC 173-303-806(4)(c)(vii)];

**III.10.E.9.e.iv** Descriptions of operational procedures demonstrating appropriate controls and practices are in place to prevent spills and overflows from tanks or containment systems in compliance with WAC 173-303-640(5)(b)(i) through (iii) [WAC 173-303-640(5)(b), WAC 173-303-806(4)(c)(ix)];

**III.10.E.9.e.v** Description of procedures for investigation and repair of tank systems [WAC 173-303-320, WAC 173-303-640(6), WAC 173-303-640(7)(e) and (f), WAC 173-303-806(4)(a)(v), WAC 173-303-806(4)(c)(vii)];

**III.10.E.9.e.vi** Updated Chapter 4, Narrative Descriptions, Tables and Figures as identified in Permit Tables III.10.E.A, C, D and ~~D~~ R(as modified pursuant to Permit Condition III.10.E.9.e.xii) and updated to identify routinely non-accessible tank systems;

**III.10.E.9.e.vii** Description of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed waste in accordance with WAC 173-303-640(9) and (10) [WAC 173-303-806(4)(c)(x)].

**III.10.E.9.e.viii** A description of the tracking system used to track dangerous and/or mixed waste throughout the WTP Unit Tank System, pursuant to WAC 173-303-380.

**III.10.E.9.e.ix** Permit Tables III.10.E.E, G, H, ~~R~~ and S, will be completed for WTP Unit Tank System process and leak detection system monitors and instruments (to include but not limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emission) to provide the information as specified in each column heading. Process and leak detection system monitors and instruments for critical systems as specified in Operating Unit Group 10, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii will be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition.

**III.10.E.9.e.x** Supporting documentation for operating limits and expected operating range as specified in Permit Tables III.10.E.E, G, H, ~~R~~ and S, as approved pursuant to Permit Condition III.10.E.9.e.ix.

**III.10.E.9.e.xi** Documentation of process and leak detection instruments and monitors (as listed in Permit Tables III.10.E.E, G, H, ~~R~~ and S) for the WTP Unit Tank Systems are to include but not be limited to the following:

A. Procurement specifications.
B. Location used.
C. Range, precision, and accuracy.
D. Detailed descriptions of calibration/functionality test procedures (e.g., method number [ASTM]) or provide a copy of manufacturer's recommended calibration procedures.
E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.).
F. Equipment instrument control logic narrative description (e.g., descriptions of failsafe conditions, etc.), as identified in Permit Tables III.10.E.E, G, H, ~~R~~ and S, not addressed in Permit Condition III.10.E.9.d.

**III.10.E.9.e.xii** Permit Tables III.10.E.A, C, D and R amended as follows:

A. Under column 1, update and complete list of dangerous and/or mixed waste tank systems, including plant items that comprise each system (listed by item number).
B. Under column 2, update and complete system designations.
C. Under column 3, replace the 'reserved' with the Operating Unit Group 10, Appendices 8.0, 9.0, 10.0, and 11.0, subsections specific to tank systems as listed in column 1.
D. Under column 4, update and complete list of narrative description tables and figures.
E. Under column 5, update and complete maximum capacity, for each tank.

**III.10.E.9.e.xiii** Permit Tables III.10.E.I, M, O, and S amended as follows:

A. Under column 1, replace the ‘reserved’ with the updated and complete list of sump numbers and room location.

B. Under column 2, replace the ‘reserved’ with the updated and complete maximum sump capacities in gallons.

C. Under column 3, replace the ‘reserved’ with the updated and complete sump dimensions and materials of construction.

D. Under column 4, replace the ‘reserved’ with the updated and complete list of engineering descriptions (drawing numbers, specifications, etc.).

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**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| **Waste Feed Receipt Process System**<br><br>FRP-VSL-00002A (Waste Feed Receipt Vessel)<br><br>FRP-VSL-00002B (Waste Feed Receipt Vessel)<br><br>FRP-VSL-00002C (Waste Feed Receipt Vessel)<br><br>FRP-VSL-00002D (Waste Feed Receipt Vessel) | FRP | **24590-PTF**<br>-M2-FRP-P0001<br>-M2-FRP-P0002<br>-M2-FRP-P0003<br>-M2-FRP-P0004<br>-M5-V17T-00003<br>-M6-FRP-00001001<br>-M6-FRP-00001002<br>-M6-FRP-00002001<br>-M6-FRP-00002002<br>-M6-FRP-00003001<br>-M6-FRP-00003002<br>-M6-FRP-00003003<br>-M6-FRP-00003004<br>-M6-FRP-00003005<br>-M6-FRP-00005001<br>-M6-FRP-00005002<br>-M6-FRP-00005003<br>-M6-FRP-00005004<br>-M6-FRP-00005005<br>-M6-FRP-00005006<br>-M6-FRP-00005007<br>-M6-FRP-00005008<br>-M6-FRP-00006001<br>-M6-FRP-00006002 | Section 4D.2.1; Tables 4D-1 and 4D-3; and Figures 4A-1, 4A-2, and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | FRP-VSL-00002A = 472,900<br><br>FRP-VSL-00002B = 472,900<br><br>FRP-VSL-00002C = 472,900<br><br>FRP-VSL-00002D = 472,900 |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -M6-FRP-00006003<br>-M6-FRP-00006004<br>-M6-FRP-00006005<br>-M6-FRP-00006006<br>-M6-FRP-00006007<br>-M6-FRP-00006008<br>-M6-FRP-00007001<br>-M6-FRP-00007002<br>-M6-FRP-00007003<br>-M6-FRP-00007004<br>-M6-FRP-00007005<br>-M6-FRP-00007006<br>-M6-FRP-00007007<br>-M6-FRP-00007008<br>-M6-FRP-00008001<br>-M6-FRP-00008002<br>-M6-FRP-00008003<br>-M6-FRP-00008004<br>-M6-FRP-00008005<br>-M6-FRP-00008006<br>-M6-FRP-00008007<br>-M6-FRP-00009001<br>-M6-FRP-00010001<br>-M6-FRP-00020001<br>-M6-FRP-00020002 | | |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -M6-FRP-00020003<br>-M6-FRP-00020004<br>-M6-FRP-00020005<br>-M6-FRP-00020006<br>-M6-FRP-00020007<br>-MVD-FRP-00005<br>-MVD-FRP-00006<br>-MVD-FRP-00007<br>-MVD-FRP-00008<br>-N1D-FRP-00001<br>-P1-P01T-00001<br>-P1-P01T-00002<br><br>**24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | | |
| **Waste Feed Evaporation Process System**<br><br>FEP-VSL-00005 (Waste Feed Evaporator Condensate Vessel)<br><br>FEP-VSL-00017A (Waste Feed Evaporator Feed Vessel) | FEP | **24590-PTF**<br>-3PS-MEVV-T0001<br>-M5-V17T-00004001<br>-M6-FEP-00001001<br>-M6-FEP-00001002<br>-M6-FEP-00001003<br>-M6-FEP-00001004 | Section 4D.2.2; Tables 4D-1 and 4D-3; and Figures 4A-1, 4A-2, and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | FEP-VSL-00005 = 5,022<br><br>FEP-VSL-00017A = 85,496<br><br>FEP-VSL-00017B = 85,496 |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| FEP-VSL-00017B (Waste Feed Evaporator Feed Vessel) | | -M6-FEP-00003001<br>-M6-FEP-00003002<br>-M6-FEP-00006001<br>-M6-FEP-00006002<br>-M6-FEP-00006003<br>-M6-FEP-00006004<br>-M6-FEP-00006005<br>-M6-FEP-00007001<br>-M6-FEP-00007002<br>-M6-FEP-00007003<br>-M6-FEP-00007004<br>-M6-FEP-00007005<br>-M6-FEP-00008001<br>-M6-FEP-00008002<br>-MVD-FEP-P0001<br>-MVD-FEP-P0002<br>-MVD-FEP-00003<br>-MV-FEP-P0001<br>-MV-FEP-P0002<br>-N1D-FEP-00002<br>-N1D-FEP-P0003<br>-P1-P01T-00001<br>-P1-P01T-P0002<br>-P1-P01T-00003 | | |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | **24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | | |
| **Ultrafiltration Process System**<br><br>UFP-VSL-00001A (Ultrafiltration Feed Preparation Vessel)<br><br>UFP-VSL-00001B (Ultrafiltration Feed Preparation Vessel)<br><br>UFP-VSL-00002A (Ultrafiltration Feed Vessel)<br><br>UFP-VSL-00002B (Ultrafiltration Feed Vessel)<br><br>UFP-VSL-00062A (Ultrafilter Permeate Collection Vessel)<br><br>UFP-VSL-00062B (Ultrafilter Permeate Collection Vessel)<br><br>UFP-VSL-00062C (Ultrafilter Permeate Collection Vessel) | UFP | **24590-PTF**<br>-M5-V17T-00009<br>-M5-V17T-00011<br>-M6-UFP-00001001<br>-M6-UFP-00001002<br>-M6-UFP-00001003<br>-M6-UFP-00001004<br>-M6-UFP-00001005<br>-M6-UFP-00001006<br>-M6-UFP-00001007<br>-M6-UFP-00002001<br>-M6-UFP-00002002<br>-M6-UFP-00002003<br>-M6-UFP-00002004<br>-M6-UFP-00002005<br>-M6-UFP-00002006<br>-M6-UFP-00002007<br>-M6-UFP-00002008<br>-M6-UFP-00003001<br>-M6-UFP-00003002 | Section 4D.2.3; Tables 4D-1 and 4D-3; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | UFP-VSL-00001A = 75,594<br><br>UFP-VSL-00001B = 75,594<br><br>UFP-VSL-00002A = 39,629<br><br>UFP-VSL-00002B = 40,378<br><br>UFP-VSL-00062A = 34,700<br><br>UFP-VSL-00062B = 34,700<br><br>UFP-VSL-00062C = 34,700<br><br>UFP-FILT-00001A = 474<br><br>UFP-FILT-00001B = 474<br><br>UPF-FILT-00002A = 474 |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| UFP-FILT-00001A (Ultrafilter)<br>UFP-FILT-00001B (Ultrafilter)<br>UFP-FILT-00002A (Ultrafilter)<br>UFP-FILT-00002B (Ultrafilter)<br>UFP-FILT-00003A (Ultrafilter)<br>UFP-FILT-00003B (Ultrafilter)<br>UFP-FILT-00004A (Ultrafilter)<br>UFP-FILT-00004B (Ultrafilter)<br>UFP-FILT-00005A (Ultrafilter)<br>UFP-FILT-00005B (Ultrafilter) | | -M6-UFP-00003003<br>-M6-UFP-00003004<br>-M6-UFP-00003005<br>-M6-UFP-00003006<br>-M6-UFP-00003007<br>-M6-UFP-00003008<br>-M6-UFP-00004001<br>-M6-UFP-00004002<br>-M6-UFP-00004003<br>-M6-UFP-00005001<br>-M6-UFP-00005002<br>-M6-UFP-00005003<br>-M6-UFP-00005004<br>-M6-UFP-00005005<br>-M6-UFP-00005006<br>-M6-UFP-00005007<br>-M6-UFP-00006001<br>-M6-UFP-00006002<br>-M6-UFP-00006003<br>-M6-UFP-00006004<br>-M6-UFP-00006005<br>-M6-UFP-00006006<br>-M6-UFP-00006007<br>-M6-UFP-00007001<br>-M6-UFP-00007002 | | UPF-FILT-00002B = 474<br>UPF-FILT-00003A = 474<br>UPF-FILT-00003B = 474<br>UPF-FILT-00004A = 380<br>UPF-FILT-00004B = 380<br>UPF-FILT-00005A = 380<br>UPF-FILT-00005B = 380 |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -M6-UFP-00007003<br>-M6-UFP-00007004<br>-M6-UFP-00007005<br>-M6-UFP-00007006<br>-M6-UFP-00007007<br>-M6-UFP-00009001<br>-M6-UFP-00009002<br>-M6-UFP-00009003<br>-M6-UFP-00009004<br>-M6-UFP-00009005<br>-M6-UFP-00009006<br>-M6-UFP-00010001<br>-M6-UFP-00010002<br>-M6-UFP-00010003<br>-M6-UFP-00010004<br>-M6-UFP-00010005<br>-M6-UFP-00010006<br>-M6-UFP-00010007<br>-M6-UFP-00011001<br>-M6-UFP-00011002<br>-M6-UFP-00011003<br>-M6-UFP-00011004<br>-M6-UFP-00011005<br>-M6-UFP-00015001<br>-M6-UFP-00015002 | | |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -M6-UFP-00016001<br>-M6-UFP-00017001<br>-M6-UFP-00021001<br>-M6-UFP-00021002<br>-M6-UFP-00022001<br>-M6-UFP-00022002<br>-M6-UFP-00027001<br>-M6-UFP-00027002<br>-M6-UFP-00027003<br>-M6-UFP-00027004<br>-M6-UFP-00027005<br>-M6-UFP-00027006<br>-M6-UFP-00027007<br>-MLD-UFP-P0007<br>-MVD-UFP-00001<br>-MVD-UFP-00014<br>-MVD-UFP-00015<br>-MVD-UFP-00002<br>-MVD-UFP-00005<br>-MVD-UFP-00006<br>-MVD-UFP-00007<br>-MV-UFP-00001001<br>-MV-UFP-00001002<br>-MV-UFP-00001003<br>-MV-UFP-00002001 | | |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -MV-UFP-00002002<br>-MV-UFP-00002003<br>-MV-UFP-00003<br>-MV-UFP-00004<br>-MV-UFP-P0005<br>-MV-UFP-P0006<br>-MV-UFP-P0007<br>-MV-UFP-00016<br>-MV-UFP-00017<br>-MV-UFP-00018<br>-MV-UFP-00028<br>-MV-UFP-00029<br>-MV-UFP-00030<br>-MV-UFP-00031<br>-N1D-UFP-P0001<br>-N1D-UFP-P0002<br>-N1D-UFP-00003<br>-N1D-UFP-P0004<br>-N1D-UFP-P0005<br>-N1D-UFP-P0008<br>-N1D-UFP-00009<br>-P1-P01T-00001<br><br>**24590-WTP**<br>-3PS-G000-T0002 | | |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | | |
| **HLW Lag Storage and Feed Blending Process System**<br><br>HLP-VSL-00022 (HLW Feed Receipt Vessel)<br><br>HLP-VSL-00027A (HLW Lag Storage Vessel)<br><br>HLP-VSL-00027B (HLW Lag Storage Vessel)<br><br>HLP-VSL-00028 (HLW Feed Blend Vessel) | HLP | **24590-PTF**<br>-M5-V17T-00007<br>-M5-V17T-00008<br>-M6-HLP-00001001<br>-M6-HLP-00001002<br>-M6-HLP-00001003<br>-M6-HLP-00001004<br>-M6-HLP-00002001<br>-M6-HLP-00002002<br>-M6-HLP-00003001<br>-M6-HLP-00003002<br>-M6-HLP-00003003<br>-M6-HLP-00005001<br>-M6-HLP-00005002<br>-M6-HLP-00005003<br>-M6-HLP-00005004<br>-M6-HLP-00005005<br>-M6-HLP-00005006<br>-M6-HLP-00005007<br>-M6-HLP-00006001<br>-M6-HLP-00006002<br>-M6-HLP-00006003 | Section 4D.2.4; Tables 4D-1 and 4D-3; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | HLP-VSL-00022 = 268,800<br><br>HLP-VSL-00027A = 127,260<br><br>HLP-VSL-00027B = 127,260<br><br>HLP-VSL-00028 = 142,200 |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -M6-HLP-00006004<br>-M6-HLP-00006005<br>-M6-HLP-00006006<br>-M6-HLP-00006007<br>-M6-HLP-00007001<br>-M6-HLP-00007002<br>-M6-HLP-00007003<br>-M6-HLP-00007004<br>-M6-HLP-00007005<br>-M6-HLP-00007006<br>-M6-HLP-00007007<br>-M6-HLP-00009001<br>-M6-HLP-00009002<br>-M6-HLP-00009003<br>-M6-HLP-00010001<br>-M6-HLP-00010002<br>-M6-HLP-00010003<br>-M6-HLP-00027001<br>-M6-HLP-00027002<br>-M6-HLP-00027003<br>-M6-HLP-00027004<br>-M6-HLP-00027005<br>-M6-HLP-00027006<br>-M6-HLP-00028004<br>-M6-HLP-00028005 | | |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -M6-HLP-00028006<br>-MVD-HLP-00006<br>-MVD-HLP-00007<br>-MVD-HLP-00008<br>-MVD-HLP-00009<br>-MV-HLP-00003001<br>-MV-HLP-00004<br>-MV-HLP-00005<br>-MV-HLP-00006<br>-N1D-HLP-00001<br>-N1D-HLP-P0003<br>-N1D-HLP-00007<br>-N1D-HLP-00010<br>-P1-P01T-00001<br><br>**24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0003 | | |
| **Cesium Ion Exchange Process System**<br><br>CXP-VSL-00004 (Cesium Ion Exchange Feed | CXP | **24590-PTF**<br>-M5-V17T-00012001<br>-M5-V17T-00012002<br>-M5-V17T-00013<br>-M5-V17T-00025<br>-M6-CXP-00001002 | Section 4D.2.5; Tables 4D-1 and 4D-3; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | CXP-VSL-00004 = 10,633<br><br>CXP-VSL-00026A = 38,000<br><br>CXP-VSL-00026B = 38,000 |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| CXP-VSL-00026A (Cesium Ion Exchange Treated LAW Collection Vessel)<br><br>CXP-VSL-00026B (Cesium Ion Exchange Treated LAW Collection Vessel)<br><br>CXP-VSL-00026C (Cesium Ion Exchange Treated LAW Collection Vessel)<br><br>CXP-IXC-00001 (Cesium Ion Exchange Column)<br><br>CXP-IXC-00002 (Cesium Ion Exchange Column)<br><br>CXP-IXC-00003 (Cesium Ion Exchange Column)<br><br>CXP-IXC-00004 (Cesium Ion Exchange Column) | | -M6-CXP-00001003<br>-M6-CXP-00001004<br>-M6-CXP-00001006<br>-M6-CXP-00001007<br>-M6-CXP-00002001<br>-M6-CXP-00002002<br>-M6-CXP-00003001<br>-M6-CXP-00003002<br>-M6-CXP-00003003<br>-M6-CXP-00005001<br>-M6-CXP-00005002<br>-M6-CXP-00005003<br>-M6-CXP-00005004<br>-M6-CXP-00007<br>-M6-CXP-000100001<br>-M6-CXP-000100002<br>-M6-CXP-000100003<br>-M6-CXP-000100004<br>-M6-CXP-00011001<br>-M6-CXP-00011002<br>-M6-CXP-00011003<br>-M6-CXP-00011004<br>-M6-CXP-00011005<br>-M6-CXP-00011006<br>-M6-CXP-00011007 | | CXP-VSL-00026C = 38,000<br><br>CXP-IXC-00001 = 680<br><br>CXP-IXC-00002 = 680<br><br>CXP-IXC-00003 = 680<br><br>CXP-IXC-00004 = 680 |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -M6-CXP-00012001<br>-M6-CXP-00012002<br>-M6-CXP-00012003<br>-M6-CXP-00012004<br>-M6-CXP-00013<br>-MV-CXP-P0002<br>-MV-CXP-P0008<br>-MV-CXP-P0009<br>-MV-CXP-P0010<br>-MVD-CXP-P0015<br>-MVD-CXP-P0021<br>-MVD-CXP-P0022<br>-MVD-CXP-P0023<br>-N1D-CXP-P0003<br>-N1D-CXP-P0007<br>-P1-P01T-00001<br>-P1-P01T-00002<br><br>**24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | | |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| **Cesium Nitric Acid Recovery Process System**<br><br>CNP-VSL-00001 (Cesium Evaporator Eluant Lute Pot)<br><br>CNP-VSL-00003 (Eluate Contingency Storage Vessel)<br><br>CNP-VSL-00004 (Cesium Evaporator Recovered Nitric Acid Vessel) | CNP | **24590-PTF**<br>-M5-V17T-00014<br>-M6-CNP-00001001<br>-M6-CNP-00001002<br>-M6-CNP-00001003<br>-M6-CNP-00002001<br>-M6-CNP-00002002<br>-M6-CNP-00002003<br>-M6-CNP-00003001<br>-M6-CNP-00003002<br>-M6-CNP-00003003<br>-M6-CNP-00003004<br>-M6-CNP-00004<br>-M6-CNP-00005<br>-MV-CNP-P0001<br>-MV-CNP-P0002<br>-MV-CNP-P0005<br>-MVD-CNP-P0003<br>-MVD-CNP-P0007<br>-MVD-CNP-P0010<br>-N1D-CNP-P0006<br>-N1D-CNP-P0009<br>-N1D-CNP-P0011<br>-P1-P01T-00001 | Section 4D.2.6; Tables 4D-1 and 4D-3; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | CNP-VSL-00001 = 109<br><br>CNP-VSL-00003 = 21,713<br><br>CNP-VSL-00004 = 11,115 |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| **Treated LAW Concentrate Storage Process System**<br><br>TCP-VSL-00001 (Treated LAW Concentrate Storage Vessel) | TCP | **24590-PTF**<br>-M5-V17T-00006<br>-M6-TCP-00001001<br>-M6-TCP-00001002<br>-M6-TCP-00001003<br>-M6-TCP-00002001<br>-M6-TCP-00002002<br>-M6-TCP-00002003<br>-M6-TCP-00002004<br>-M6-TCP-00002005<br>-MV-TCP-P0002<br>-MVD-TCP-P0002<br>-N1D-TCP-P0001<br>-P1-P01T-00001<br><br>**24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | Section 4D.2.12; Tables 4D-1 and 4D-3; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | TCP-VSL-00001 = 146,740 |
| **Treated LAW Evaporation Process System**<br><br>TLP-VSL-00002 (Treated LAW Evaporator Condensate Vessel) | TLP | **24590-PTF**<br>-3PS-MEVV-T0001<br>-M5-V17T-00005<br>-M6-TLP-00001<br>-M6-TLP-00002001 | Section 4D.2.11; Tables 4D-1 and 4D-3; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | TLP-VSL-00002 = 2,227<br><br>TLP-VSL-00009A = 130,010<br><br>TLP-VSL-00009B = 130,010 |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| TLP-VSL-00009A (LAW SBS Condensate Receipt Vessel)<br><br>TLP-VSL-00009B (LAW SBS Condensate Receipt Vessel) | | -M6-TLP-00002002<br>-M6-TLP-00002003<br>-M6-TLP-00002004<br>-M6-TLP-00003001<br>-M6-TLP-00003002<br>-M6-TLP-00003003<br>-M6-TLP-00003004<br>-M6-TLP-00005001<br>-M6-TLP-00005002<br>-M6-TLP-00005003<br>-M6-TLP-00005004<br>-M6-TLP-00005005<br>-M6-TLP-00006001<br>-M6-TLP-00006002<br>-M6-TLP-00006003<br>-M6-TLP-00006004<br>-M6-TLP-00006005<br>-MVD-TLP-P0001<br>-MVD-TLP-P0002<br>-MVD-TLP-00004<br>-MV-TLP-P0001<br>-MV-TLP-P0002<br>-N1D-TLP-P0001<br>-N1D-TLP-P0006<br>-P1-P01T-00001 | | |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -P1-P01T-00002<br><br>**24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | | |
| **Spent Resin and Dewatering Process System**<br><br>RDP-VSL-00002A (Spent Resin Slurry Vessel)<br><br>RDP-VSL-00002B (Spent Resin Slurry Vessel)<br><br>RDP-VSL-00002C (Spent Resin Slurry Vessel)<br><br>RDP-VSL-00004 (Spent Resin Dewatering Moisture Separation Vessel) | RDP | **24590-PTF**<br>-3PS-MWD0-TP003<br>-M5-V17T-00020<br>-M6-RDP-00001001<br>-M6-RDP-00001002<br>-M6-RDP-00001003<br>-M6-RDP-00001004<br>-M6-RDP-00001005<br>-M6-RDP-00002<br>-M6-RDP-00006<br>-MVD-RDP-P0005<br>-MVD-RDP-P0006<br>-MVD-RDP-P0007<br>-MVD-RDP-P0008<br>-MV-RDP-P0001<br>-MV-RDP-P0002<br>-MV-RDP-P0003<br>-P1-P01T-00001 | Section 4D.2.13; Tables 4D-1 and 4D-3; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | RDP-VSL-00002A = 15,230<br><br>RDP-VSL-00002B = 15,230<br><br>RDP-VSL-00002C = 15,230<br><br>RDP-VSL-00004 = 101 |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | **24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | | |
| **Pretreatment Plant Radioactive Liquid Waste Disposal System**<br><br>RLD-TK-00006A (Process Condensate Tank)<br><br>RLD-TK-00006B (Process Condensate Tank)<br><br>RLD-VSL-00017A (Alkaline Effluent Vessel)<br><br>RLD-VSL-00017B (Alkaline Effluent Vessel) | RLD | **24590-PTF**<br>-M5-V17T-00022003<br>-M5-V17T-00022004<br>-M6-RLD-00001001<br>-M6-RLD-00001002<br>-M6-RLD-00001003<br>-M6-RLD-00001004<br>-M6-RLD-00002001<br>-M6-RLD-00002002<br>-M6-RLD-00002003<br>-M6-RLD-00003001<br>-M6-RLD-00003002<br>-M6-RLD-00003003<br>-M6-RLD-00004<br>-M6-RLD-00005<br>-M6-RLD-00006<br>-M6-RLD-00007001<br>-MVD-RLD-P0005<br>-MVD-RLD-P0006<br>-MV-RLD-P0001 | Section 4D.2.16; Tables 4D-1 and 4D-3; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | RLD-TK-00006A = 343,734<br><br>RLD-TK-00006B = 343,734<br><br>RLD-VSL-00017A = 34,340<br><br>RLD-VSL-00017B = 34,340 |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -MV-RLD-P0002<br>-N1D-RLD-P0002<br>-P1-P01T-00001<br><br>**24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | | |
| **Pretreatment Plant Wash and Disposal System**<br><br>PWD-VSL-00015 (Acidic/Alkaline Effluent Vessel)<br><br>PWD-VSL-00016 (Acidic/Alkaline Effluent Vessel)<br><br>PWD-VSL-00033 (Ultimate Overflow Vessel)<br><br>PWD-VSL-00043 (HLW Effluent Transfer Vessel)<br><br>PWD-VSL-00044 (Plant Wash Vessel) | PWD | **24590-PTF**<br>-M5-V17T-00022001<br>-M5-V17T-00022002<br>-M6-PWD-00001<br>-M6-PWD-00002001<br>-M6-PWD-00002002<br>-M6-PWD-00003001<br>-M6-PWD-00003002<br>-M6-PWD-00003003<br>-M6-PWD-00003004<br>-M6-PWD-00005<br>-M6-PWD-00006<br>-M6-PWD-00007<br>-M6-PWD-00008<br>-M6-PWD-00009<br>-M6-PWD-00010 | Section 4D.2.15; Tables 4D-1 and 4D-3; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | PWD-VSL-00015 = 119,150<br><br>PWD-VSL-00016 = 119,150<br><br>PWD-VSL-00033 = 41,650<br><br>PWD-VSL-00043 = 41,650<br><br>PWD-VSL-00044 = 103,024<br><br>PWD-VSL-00046 = 4,982 |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| PWD-VSL-00046 (C3 Floor Drain Collection Vessel) | | -M6-PWD-00011<br>-M6-PWD-00012<br>-M6-PWD-00014<br>-M6-PWD-P0018<br>-M6-PWD-P0019<br>-M6-PWD-00020001<br>-M6-PWD-00020002<br>-M6-PWD-00020003<br>-M6-PWD-00020004<br>-M6-PWD-00020005<br>-M6-PWD-00020006<br>-M6-PWD-00021001<br>-M6-PWD-00021002<br>-M6-PWD-00021003<br>-M6-PWD-00021004<br>-M6-PWD-00021005<br>-M6-PWD-00021006<br>-M6-PWD-00023001<br>-M6-PWD-00023002<br>-M6-PWD-00023003<br>-M6-PWD-00023004<br>-M6-PWD-00023005<br>-M6-PWD-00024001<br>-M6-PWD-00024002<br>-M6-PWD-00024003 | | |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -M6-PWD-00024004<br>-M6-PWD-00024005<br>-M6-PWD-00024006<br>-M6-PWD-00024007<br>-M6-PWD-00025001<br>-M6-PWD-00025002<br>-M6-PWD-00025003<br>-M6-PWD-00025004<br>-M6-PWD-00026<br>-M6-PWD-00029<br>-M6-PWD-00033<br>-M6-PWD-00041<br>-M6-PWD-00043<br>-M6-PWD-00044<br>-M6-PWD-00046<br>-M6-PWD-00050<br>-M6-PWD-00051<br>-M6-PWD-00057<br>-M6-PWD-00058001<br>-M6-PWD-00058002<br>-MVD-PWD-P0001<br>-MVD-PWD-00002<br>-MVD-PWD-P0003<br>-MVD-PWD-P0010<br>-MVD-PWD-P0011 | | |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -MVD-PWD-P0012<br>-MV-PWD-P0001001<br>-MV-PWD-P0001002<br>-MV-PWD-P0003001<br>-MV-PWD-P0003002<br>-MV-PWD-P0005<br>-MV-PWD-P0006<br>-MV-PWD-P0007<br>-MV-PWD-P0010<br>-N1D-PWD-P0001<br>-N1D-PWD-00002<br>-N1D-PWD-P0003<br>-N1D-PWD-P0005<br>-N1D-PWD-P0006<br>-P1-P01T-00001<br>-P1-P01T-00006 | | |
| **Pretreatment Vessel Vent Process System**<br><br>PVP-VSL-00001 (Vessel Vent HEME Drain Collection Vessel) | PVP | **24590-PTF**<br>-M5-V17T-00021001<br>-M5-V17T-00021002<br>-M5-V17T-00021004<br>-M6-PVP-00002<br>-M6-PVP-00004001<br>-M6-PVP-00004002<br>-M6-PVP-00017001<br>-M6-PVP-00017002 | Section 4D.4.2; Tables 4D-1 and 4D-3; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | PVP-VSL-00001 = 1,969 |

**Table III.10.E.A – Pretreatment Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | System Designation | Engineering Description (Drawing Nos., Specifications Nos., etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -M6-PVP-00017003<br>-M6-PVP-00018001<br>-M6-PVP-00018002<br>-MVD-PVP-P0001<br>-MV-PVP-P0002<br>-N1D-PVP-P0002<br>-P1-P01T-00001<br><br>**24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | | |
| **Pretreatment In-Cell Handling System**<br><br>PIH-TK-00001 (Decontamination Soak Tank) | PIH | **24590-PTF**<br>-M6-PIH-00001001<br>-M6-PIH-00001002<br>-P1-P01T-00001<br><br>**24590-WTP**<br>-3PS-HD00-T0001 | Section 4.D.2.14; Tables 4D-1 and 4D-3; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | PIH-TK-00001 = 1504 |

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**Table III.10.E.B - ~~LAW Vitrification Plant Tank Systems Description~~ Reserved**

| ~~Dangerous and/or Mixed Waste Tank Systems Name~~ | ~~Unit Designation~~ | ~~Engineering Description (Drawing Nos, Specification Nos, etc.)~~ | ~~Narrative Description, Tables & Figures~~ | ~~Maximum Capacity (gallons)~~ |
|---|---|---|---|---|
| ~~**LAW Concentrate Receipt Process System**~~<br><br>~~LCP-VSL-00001 (LAW Melter 1 Concentrate Receipt Vessel)~~<br><br>~~LCP-VSL-00002 (LAW Melter 2 Concentrate Receipt Vessel)~~ | ~~LCP~~ | ~~**24590-LAW**~~<br>~~-M5-V17T-00001~~<br>~~-M5-V17T-00002~~<br>~~-M6-LCP-00001002~~<br>~~-M6-LCP-00001003~~<br>~~-M6-LCP-00002003~~<br>~~-M6-LCP-00002004~~<br>~~-MV-LCP-P0001~~<br>~~-MV-LCP-P0002~~<br>~~-MVD-LCP-P0004~~<br>~~-MVD-LCP-P0005~~<br>~~-N1D-LCP-P0001~~<br>~~-P1-P01T-00002~~ | ~~Section 4E.2.1; Tables 4E-1 and 4E-3; and Figures 4A-1 and 4A-3 of Operating Unit Group 10, Chapter 4 of this Permit.~~ | ~~LCP-VSL-00001 = 18,130~~<br><br>~~LCP-VSL-00002 = 18,130~~ |
| ~~**LAW Melter Feed Process System**~~<br><br>~~LFP-VSL-00001 (Melter 1 Feed Preparation Vessel)~~<br><br>~~LFP-VSL-00002 (Melter 1 Feed Vessel)~~<br><br>~~LFP-VSL-00003 (Melter 2 Feed Preparation Vessel)~~ | ~~LFP~~ | ~~**24590-LAW**~~<br>~~-M5-V17T-00001~~<br>~~-M5-V17T-00002~~<br>~~-M6-LFP-00001001~~<br>~~-M6-LFP-00001002~~<br>~~-M6-LFP-00001003~~<br>~~-M6-LFP-00001004~~<br>~~-M6-LFP-00001005~~<br>~~-M6-LFP-00001006~~<br>~~-M6-LFP-00003001~~<br>~~-M6-LFP-00003002~~ | ~~Section 4E.2.1; Tables 4E-1 and 4E-3; and Figures 4A-1 and 4A-3 of Operating Unit Group 10, Chapter 4 of this Permit.~~ | ~~LFP-VSL-00001 = 9,123~~<br><br>~~LFP-VSL-00002 = 9,123~~<br><br>~~LFP-VSL-00003 = 9,123~~<br><br>~~LFP-VSL-00004 = 9,123~~ |

**Table III.10.E.B - ~~LAW Vitrification Plant Tank Systems Description~~ Reserved**

| ~~Dangerous and/or Mixed Waste Tank Systems Name~~ | ~~Unit Designation~~ | ~~Engineering Description (Drawing Nos, Specification Nos, etc.)~~ | ~~Narrative Description, Tables & Figures~~ | ~~Maximum Capacity (gallons)~~ |
|---|---|---|---|---|
| ~~LFP-VSL-00004 (Melter 2 Feed Vessel)~~ | | ~~M6-LFP-00003003~~<br>~~M6-LFP-00003004~~<br>~~M6-LFP-00003005~~<br>~~M6-LFP-00003006~~<br>~~MV-LFP-P0001~~<br>~~MV-LFP-P0002~~<br>~~MV-LFP-P0004~~<br>~~MV-LFP-P0005~~<br>~~MVD-LFP-P0007~~<br>~~MVD-LFP-P0008~~<br>~~MVD-LFP-P0010~~<br>~~MVD-LFP-P0011~~<br>~~P1-P01T-00002~~<br>~~N1D-LFP-00004~~<br>~~N1D-LFP-00006~~ | | |
| ~~**LAW Secondary Off-gas/Vessel Vent Process System**~~<br><br>~~LVP-TK-00001 (LAW Caustic Collection Tank)~~ | ~~LVP~~ | ~~**24590-LAW**~~<br>~~M5-V17T-00011~~<br>~~P1-P01T-00004~~<br>~~MT-LVP-00005001~~<br>~~MTD-LVP-00001~~<br>~~N1D-LVP-00002~~ | ~~Section 4E.4.2.2; Tables 4E-1 and 4E-3; and Figures 4A-1 and 4A-3 of Operating Unit Group 10, Chapter 4 of this Permit.~~ | ~~LVP-TK-00001 = 14,232~~ |
| ~~**LAW Primary Off-gas Process System**~~ | ~~LOP~~ | ~~**24590-LAW**~~<br>~~M5-V17T-P0007~~<br>~~M5-V17T-P0008~~ | ~~Section 4E.4.2.1; Tables 4E-1 and 4E-3; and Figures 4A-1 and 4A-3 of Operating Unit Group 10, Chapter 4 of this Permit.~~ | ~~LOP-VSL-00001 = 9,056~~ |

**Table III.10.E.B - ~~LAW Vitrification Plant Tank Systems Description~~ Reserved**

| ~~Dangerous and/or Mixed Waste Tank Systems Name~~ | ~~Unit Designation~~ | ~~Engineering Description (Drawing Nos, Specification Nos, etc.)~~ | ~~Narrative Description, Tables & Figures~~ | ~~Maximum Capacity (gallons)~~ |
|---|---|---|---|---|
| ~~LOP-VSL-00001 (LAW Melter 1 SBS Condensate Vessel)~~<br><br>~~LOP-VSL-00002 (LAW Melter 2 SBS Condensate Vessel)~~ | | ~~M6-LOP-00001002~~<br>~~M6-LOP-00002002~~<br>~~MV-LOP-P0001~~<br>~~MV-LOP-P0002~~<br>~~MVD-LOP-00004~~<br>~~MVD-LOP-00005~~<br>~~N1D-LOP-P0002~~<br>~~P1-P01T-00002~~ | | ~~LOP-VSL-00002 = 9,056~~ |
| ~~**LAW Vitrification Plant Radioactive Liquid Waste Disposal System**~~<br><br>~~RLD-VSL-00003 (Plant Wash Vessel)~~<br><br>~~RLD-VSL-00004 (C3/C5 Drains/Sump Collection Vessel)~~<br><br>~~RLD-VSL-00005 (SBS Condensate Collection Vessel)~~ | ~~RLD~~ | ~~**24590-LAW**~~<br>~~M5-V17T-00014~~<br>~~M6-RLD-00001001~~<br>~~M6-RLD-00001002~~<br>~~M6-RLD-00001003~~<br>~~M6-RLD-00001004~~<br>~~M6-RLD-00001005~~<br>~~M6-RLD-00001006~~<br>~~M6-RLD-00002001~~<br>~~M6-RLD-00002002~~<br>~~M6-RLD-00002003~~<br>~~M6-RLD-00002004~~<br>~~M6-RLD-00002005~~<br>~~M6-RLD-00003001~~<br>~~M6-RLD-00003002~~<br>~~M6-RLD-00003003~~ | ~~Section 4E.2.3; Tables 4E-1 and 4E-3; and Figures 4A-1 and 4A-3 of Operating Unit Group 10, Chapter 4 of this Permit.~~ | ~~RLD-VSL-00003 = 25,680~~<br><br>~~RLD-VSL-00004 = 7,675~~<br>~~RLD-VSL-00005 = 25,670~~ |

**Table III.10.E.B - ~~LAW Vitrification Plant Tank Systems Description~~ Reserved**

| ~~Dangerous and/or Mixed Waste Tank Systems Name~~ | ~~Unit Designation~~ | ~~Engineering Description (Drawing Nos, Specification Nos, etc.)~~ | ~~Narrative Description, Tables & Figures~~ | ~~Maximum Capacity (gallons)~~ |
|---|---|---|---|---|
| | | ~~MVD-RLD-00001~~<br>~~MVD-RLD-00006~~<br>~~MVD-RLD-00007~~<br>~~MV-RLD-P0001~~<br>~~MV-RLD-P0002~~<br>~~MV-RLD-P0003~~<br>~~P1-P01T-00001~~<br>~~P1-P01T-00002~~<br>~~N1D-RLD-00001~~<br>~~N1D-RLD-00002~~<br>~~N1D-RLD-00005~~ | | |

**Table III.10.E.C – HLW Vitrification Plant Tank Systems Description**

| Mixed Waste Tank Systems Name | Unit Designation | Engineering Description (Drawing Nos, Specification Nos, etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| **HLW Concentrate Receipt Process System**<br><br>The HCP System has ancillary equipment only | HCP | **24590-HLW**<br>-M5-V17T-P0001<br>-M6-HCP-00001001<br>-M6-HCP-00002001 | Section 4F.2.1; Tables 4F-4; Figures 4A-1 and 4A-4 of Operating Unit Group 10, Chapter 4 of this Permit. | |
| **HLW Melter Feed Process System**<br><br>HFP-VSL-00001 (Melter 1 Feed Preparation Vessel) | HFP | **24590-HLW**<br>-3YD-HFP-00001[a]<br>-M5-V17T-00001<br>-P1-P01T-00002<br>-M6-HFP-00001001<br>-M6-HFP-00001002<br>-M6-HFP-00001003<br>-M6-HFP-00001004<br>-M6-HFP-00007001<br><br>**24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | Section 4F.2.1; Tables 4F-4; Figures 4A-1, 4A-4 and 4A-53 of Operating Unit Group 10, Chapter 4 of this Permit. | HFP-VSL-00001 = 8,311 |
| **Melter Feed Process System cont.**<br><br>HFP-VSL-00002 (Melter 1 Feed Vessel) | HFP | **24590-HLW**<br>-3YD-HFP-00001[a]<br>-M5-V17T-P0001<br>-P1-P01T-00002<br>-M6-HFP-00002001 | Section 4F.2.1; Tables 4F-1 and 4F-3; Figures 4A-1, 4A-4 and 4A-53 of Operating Unit Group 10, Chapter 4 of this Permit. | HFP-VSL-00002 = 8,311 |

**Table III.10.E.C – HLW Vitrification Plant Tank Systems Description**

| Mixed Waste Tank Systems Name | Unit Designation | Engineering Description (Drawing Nos, Specification Nos, etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -M6-HFP-00002002<br>-M6-HFP-00002003<br>-M6-HFP-00008001<br><br>**24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | | |
| **Melter Feed Process System cont.**<br><br>HFP-VSL-00005 (Melter 2 Feed Preparation Vessel) | HFP | **24590-HLW**<br>-3YD-HFP-00001[a]<br>-M5-V17T-P0001<br>-P1-P01T-00002<br>-M6-HFP-20001001<br>-M6-HFP-20001002<br>-M6-HFP-20001003<br>-M6-HFP-20001004<br>-M6-HFP-20007001<br><br>**24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | Section 4F.2.1; Tables 4F-1 and 4F-3; Figures 4A-1, 4A-4 and 4A-53 of Operating Unit Group 10, Chapter 4 of this Permit. | HFP-VSL-00005 = 8,311 |

**Table III.10.E.C – HLW Vitrification Plant Tank Systems Description**

| Mixed Waste Tank Systems Name | Unit Designation | Engineering Description (Drawing Nos, Specification Nos, etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| **Melter Feed Process System cont.**<br><br>HFP-VSL-00006 (Melter 2 Feed Vessel) | HFP | **24590-HLW**<br>-3YD-HFP-00001[a]<br>-M5-V17T-P0001<br>-P1-P01T-00002<br>-M6-HFP-20002001<br>-M6-HFP-20002002<br>-M6-HFP-20002003<br>-M6-HFP-20008001<br><br>**24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | Section 4F.2.1; Tables 4F-1 and 4F-3; Figures 4A-1, 4A-4 and 4A-53 of Operating Unit Group 10, Chapter 4 of this Permit. | HFP-VSL-00006 = 8,311 |
| **Melter Off-gas Treatment Process System**<br>HOP-VSL-00903 (Melter 1 SBS Condensate Receiver Vessel)<br><br>HOP-VSL-00904 (Melter 2 SBS Condensate Receiver Vessel) | HOP | **24590-HLW**<br>-3YD-HOP-00001[a]<br>-M5-V17T-P0003<br>-M5-V17T-P20003<br>-M6-HOP-00004<br>-M6-HOP-00006001<br>-M6-HOP-00006002<br>-M6-HOP-20004<br>-M6-HOP-20006001<br>-M6-HOP-20006002 | Section 4F.4.2; Tables 4F-1 and 4F-3; Figures 4A-1 and 4A-4 C1-1 and C1-4 of Operating Unit Group 10, Chapter 4 of this Permit. | HOP-VSL-00903 = 9891<br><br>HOP-VSL-00904 = 9891 |

**Table III.10.E.C – HLW Vitrification Plant Tank Systems Description**

| Mixed Waste Tank Systems Name | Unit Designation | Engineering Description (Drawing Nos, Specification Nos, etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -MVD-HOP-P0001<br>-MVD-HOP-P0012<br>-MV-HOP-P0001<br>-MV-HOP-P0003<br>-N1D-HOP-P0009<br>-P1-P01T-00001<br><br>**24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | | |
| **HLW Canister Decontamination Handling System**<br><br>HDH-VSL-00001 (Canister Rinse Vessel)<br><br>HDH-VSL-00002 (Canister Decon Vessel 1)<br><br>HDH-VSL-00003 (Waste Neutralization Vessel)<br><br>HDH-VSL-00004 (Canister Decon Vessel 2) | HDH | **24590-HLW**<br>-M5-V17T-00006<br>-M6-HDH-00001001<br>-M6-HDH-00002001<br>-M6-HDH-00002002<br>-M6-HDH-00002003<br>-M6-HDH-20001001<br>-M6-HDH-20001002<br>-M0-HDH-P0012001<br>-M0-HDH-P0012002<br>-MV-HDH-00003<br>-MVD-HDH-00003 | Section 4F.2.4; Tables 4F-1 and 4F-3; Figures 4A-1 and 4A-4 of Operating Unit Group 10, Chapter 4 of this Permit. | HDH-VSL-00001 = 3314<br><br>HDH-VSL-00002 = 630<br><br>HDH-VSL-00003 = 5315<br><br>HDH-VSL-00004 = 630 |

**Table III.10.E.C – HLW Vitrification Plant Tank Systems Description**

| Mixed Waste Tank Systems Name | Unit Designation | Engineering Description (Drawing Nos, Specification Nos, etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -MVD-HDH-00006<br>-MVD-HDH-P0009<br>-N1D-HDH-00003<br>-N1D-HDH-P0005<br>-N1D-HDH-P0007<br>-P1-P01T-00001<br>-P1-P01T-00002<br>-3YD-HDH-00002[a]<br><br>**24590-WTP**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | | |
| **HLW Melter Cave Support Handling System**<br><br>HSH-TK-00001 (Decontamination Tank Melter Cave 1)<br><br>HSH-TK-00002 (Decontamination Tank Melter Cave 2) | HSH | **24590-HLW**<br>-M6-HSH-00004001<br>-M6-HSH-20004001<br>-M6-HSH-20004002<br>-M0-HSH-P0072<br>-N1D-HSH-P0001<br>-P1-P01T-00002<br><br>**24590-WTP**<br>-3PS-HD00-T0001 | Section 4F.2.4; Tables 4F-1 and 4F-4; Figures 4A-1 and 4A-4 of Operating Unit Group 10, Chapter 4 of this Permit. | HSH-TK-00001 = 4,000<br><br>HSH-TK-00002 = 4,000 |

**Table III.10.E.C – HLW Vitrification Plant Tank Systems Description**

| Mixed Waste Tank Systems Name | Unit Designation | Engineering Description (Drawing Nos, Specification Nos, etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| **HLW Vitrification Plant Radioactive Liquid Waste Disposal System**<br><br>RLD-VSL-00002 (Off-gas Drains Collection Vessel)<br><br>RLD-VSL-00007 (Acidic Waste Vessel)<br><br>RLD-VSL-00008 (Plant Wash & Drain Vessel) | RLD | **24590-HLW**<br>-3YD-RLD-00001[a]<br>-M5-V17T-P0007001<br>-M5-V17T-P0007002<br>-M6-RLD-00001001<br>-M6-RLD-00001002<br>-M6-RLD-00001003<br>-M6-RLD-00002001<br>-M6-RLD-00002002<br>-M6-RLD-00002003<br>-M6-RLD-00002004<br>-M6-RLD-00006<br>-M6-RLD-00007<br>-M6-RLD-00014<br>-MV-RLD-00002<br>-MV-RLD-P0003<br>-MV-RLD-00025001<br>-MV-RLD-00025002<br>-MV-RLD-00025003<br>-MV-RLD-00025004<br>-MVD-RLD-00005<br>-MVD-RLD-00007<br>-MVD-RLD-00008<br>-N1D-RLD-P0001<br>-N1D-RLD-P0006 | Section 4H.2.1; Tables 4-4 and 4-6; Figures C1-1 and C1-4 of Operating Unit Group 10, Chapter 4 of this Permit. | RLD-VSL-00002 = 334<br><br>RLD-VSL-00007 = 18,145<br><br>RLD-VSL-00008 = 13,774 |

**Table III.10.E.C – HLW Vitrification Plant Tank Systems Description**

| Mixed Waste Tank Systems Name | Unit Designation | Engineering Description (Drawing Nos, Specification Nos, etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -N1D-RLD-P0013<br>-P1-P01T-00001<br>-P1-P01T-00002<br><br>**<u>24590-WTP</u>**<br>-3PS-G000-T0002<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | | |

[a] System Descriptions are maintained in the Administrative Record, and are listed here for information only.

**Table III.10.E.D – Analytical Laboratory Tank Systems Description**

| Mixed Waste Tank Systems Name | Unit Designation | Engineering Description (Drawing Nos, Specification Nos, etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| **Radioactive Liquid Waste Disposal System**<br><br>RLD-VSL-00164 (Laboratory Area Sink Drain Collection Vessel)<br>• RLD-LT-6202<br>• RLD-EDUC-00002A/B/C<br>• RLD-SUMP-00041<br>• RLD-LT-6211<br>• RLD-PMP-00182A/B<br>• RLD-SUMP-00045<br>• RLD-TWDVC-00003<br>• RLD-LT-6212<br>• RLD-LDB-00005/6/7/8/11<br><br>RLD-VSL-00165 (Hotcell Drain Collection Vessel)<br>• RLD-LT-6104<br>• RLD-EDUC-00003A/B/C/D/E/F/G/H<br>• RLD-SUMP-00042<br>• RLD-LT-6115<br>• RLD-PMP-00183A<br>• RLD-SUMP-00043A<br>• RLD-TWDVC-00002A | RLD | **24590-LAB**<br>-3ZD-RLD-00001[a]<br>-M5-V17T-00029<br>-M6-RLD-00001001<br>-M6-RLD-00001002<br>-M6-RLD-00001003<br>-M6-RLD-00001004<br>-M6-RLD-00002001<br>-M6-RLD-00002003<br>-M6-RLD-00006001<br>-M6-RLD-00006002<br>-M6-RLD-00006003<br>-M6-RLD-00007001<br>-M6-RLD-00007002<br>-M6-RLD-00008001<br>-M6-RLD-00008002<br>-MVD-RLD-00164<br>-MVD-RLD-P0165<br>-N1D-RLD-P0002<br>-N1D-RLD-P0003<br>-P1-60-00007<br>-P1-60-00008<br><br>**24590-WTP**<br>-3PS-G000-T0002 | Section 4H.2.1; Table 4H-3 of Operating Unit Group 10, Chapter 4H of this Permit. | RLD-VSL-00164 = 3,200<br><br>RLD-VSL-00165 = 9,090 |

**Table III.10.E.D – Analytical Laboratory Tank Systems Description**

| Mixed Waste Tank Systems Name | Unit Designation | Engineering Description (Drawing Nos, Specification Nos, etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| • RLD-LT-6116<br>• RLD-PMP-00183B<br>• RLD-SUMP-00043B<br>• RLD-TWDVC-00002B<br>• RLD-LT-6124<br>• RLD-SUMP-00044<br>• RLD-TWDVC-00001<br>• RLD-LT-6123<br>• RLD-LDB-00002/4/9 | | -3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003<br><br>24590-CM-POA-MVA0-00010-01-02<br>24590-QL-POC-MVA0-00008-01-00001 | | |

[a] System Descriptions are maintained in the Administrative Record, and are listed here for information only.

**Table III.10.E.E – Pretreatment Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Tank System Name and Locator (including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Operating Trips (Description & Numerical Limits) | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|---|
| PWD-SUMP-00071[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00040[a] | Not Applicable | Bubbler Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00001[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00001A[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00002[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00002A[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00003[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00004[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |

**Table III.10.E.E – Pretreatment Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Tank System Name and Locator (including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Operating Trips (Description & Numerical Limits) | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|---|
| PWD-SUMP-00005[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00006[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00007[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00008[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00009[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00010[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00011[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00012[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |

**Table III.10.E.E – Pretreatment Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Tank System Name and Locator (including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Operating Trips (Description & Numerical Limits) | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|---|
| PWD-SUMP-00013[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00026[c] | Not Applicable | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00026[b] | Not Applicable | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00028[c] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00028[b] | Not Applicable | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00029[c] | Not Applicable | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00029[b] | Not Applicable | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00031[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |

**Table III.10.E.E – Pretreatment Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Tank System Name and Locator (including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Operating Trips (Description & Numerical Limits) | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|---|
| PWD-SUMP-00032[c] | Not Applicable | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00032[b] | Not Applicable | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00033[c] | Not Applicable | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00033[b] | Not Applicable | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00034[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00035[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00036[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-SUMP-00037[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |

**Table III.10.E.E – Pretreatment Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Tank System Name and Locator (including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Operating Trips (Description & Numerical Limits) | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|---|
| RLD-SUMP-00003[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PVP-BULGE-00001 | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PVP-BULGE-00002 | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| TCP-BULGE-00004 | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| DIW-BULGE-00001 | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| DIW-BULGE-00002 | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| CRP-BULGE-00001 | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| CXP-BULGE-00004 | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |

**Table III.10.E.E – Pretreatment Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Tank System Name and Locator (including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Operating Trips (Description & Numerical Limits) | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|---|
| UFP-BULGE-00001 | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| UFP-BULGE-00002 | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| UFP-BULGE-00005 | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| UFP-BULGE-00006 | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00001 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00002 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00003 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00004 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |

**Table III.10.E.E – Pretreatment Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Tank System Name and Locator (including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Operating Trips (Description & Numerical Limits) | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|---|
| PWD-LDB-00005 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00006 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00007 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00008 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00009 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00010 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00011 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00012 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |

**Table III.10.E.E – Pretreatment Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Tank System Name and Locator (including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Operating Trips (Description & Numerical Limits) | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|---|
| PWD-LDB-00013 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00014 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00015 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00016 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00017 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00018 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| PWD-LDB-00019 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| RLD-LDB-00012 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |

**Table III.10.E.E – Pretreatment Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Tank System Name and Locator (including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Operating Trips (Description & Numerical Limits) | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|---|
| RLD-LDB-00013 | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| ASX Sampler 00013 Lower Containment Drain | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| ASX Sampler 00017 Lower Containment Drain | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| ASX Sampler 00019 Lower Containment Drain | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| ASX Sampler 00020 Lower Containment Drain | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |

**Table III.10.E.E – Pretreatment Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Tank System Name and Locator (including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Operating Trips (Description & Numerical Limits) | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|---|
| ASX Sampler 00025 Lower Containment Drain | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |

[a] Locator (including P&ID designator) is located on Permit Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems Including Sumps and Floor Drains.

[b] Locator (including P&ID designator) is located on Permit Table III.10.E.I – Pretreatment Plant Tank Systems Primary Containment Systems.

[c] Leak detection instruments for secondary containment to a primary containment sump.

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**Table III.10.E.F – Reserved ~~LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters~~**

| ~~Tank System Name and Locator (including P&ID)~~ | ~~Control Parameter~~ | ~~Type of Measuring or Leak Detection Instrument~~ | ~~Location of Measuring Instrument (Tag No.)~~ | ~~Instrument Range~~ | ~~Expected Range~~ | ~~Fail States~~ | ~~Instrument Accuracy~~ | ~~Operating Trips (Description & Numerical Limits)~~ | ~~Instrument Calibration Method No. and Range~~ |
|---|---|---|---|---|---|---|---|---|---|
| ~~RLD-SUMP-00028[a]~~ | ~~Not Applicable~~ | ~~Radar Leak Detector~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~Not Applicable~~ | ~~RESERVED~~ |
| ~~RLD-SUMP-00029[a]~~ | ~~Not Applicable~~ | ~~Radar Leak Detector~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~Not Applicable~~ | ~~RESERVED~~ |
| ~~RLD-SUMP-00030[a]~~ | ~~Not Applicable~~ | ~~Radar Leak Detector~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~Not Applicable~~ | ~~RESERVED~~ |
| ~~RLD-SUMP-00031[a]~~ | ~~Not Applicable~~ | ~~Radar Leak Detector~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~Not Applicable~~ | ~~RESERVED~~ |
| ~~RLD-SUMP-00032[a]~~ | ~~Not Applicable~~ | ~~Radar Leak Detector~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~Not Applicable~~ | ~~RESERVED~~ |
| ~~RLD-SUMP-00035[a]~~ | ~~Not Applicable~~ | ~~Radar Leak Detector~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~Not Applicable~~ | ~~RESERVED~~ |
| ~~RLD-SUMP-00036[a]~~ | ~~Not Applicable~~ | ~~Radar Leak Detector~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~Not Applicable~~ | ~~RESERVED~~ |
| ~~LVP-FD-00001[a]~~ | ~~Not Applicable~~ | ~~Radar Leak Detector~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~Not Applicable~~ | ~~RESERVED~~ |

**Table III.10.E.F – Reserved ~~LAW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters~~**

| ~~Tank System Name and Locator (including P&ID)~~ | ~~Control Parameter~~ | ~~Type of Measuring or Leak Detection Instrument~~ | ~~Location of Measuring Instrument (Tag No.)~~ | ~~Instrument Range~~ | ~~Expected Range~~ | ~~Fail States~~ | ~~Instrument Accuracy~~ | ~~Operating Trips (Description & Numerical Limits)~~ | ~~Instrument Calibration Method No. and Range~~ |
|---|---|---|---|---|---|---|---|---|---|
| ~~Melter 1 Encasement Assembly Drain~~ | ~~Not Applicable~~ | ~~Conductivity Cable~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ |
| ~~Melter 2 Encasement Assembly Drain~~ | ~~Not Applicable~~ | ~~Conductivity Cable~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ |
| ~~ASX Sampler 00012 Lower Containment Drain~~ | ~~Not Applicable~~ | ~~Thermal Dispersion Level Switch~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ |
| ~~ASX Sampler 00013 Lower Containment Drain~~ | ~~Not Applicable~~ | ~~Thermal Dispersion Level Switch~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ |
| | | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ |
| | | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ |

[a] Locator (including P&ID designator) is located on Permit Table III.10.E.L – LAW Vitrification Plant Tank Systems Secondary Containment Systems Including Sumps and Floor Drains.

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**Table III.10.E.G – HLW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Tank System Name and Locator (including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Operating Trips (Description & Numerical Limits) | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|---|
| HCP-SUMP-00001[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| RLD-SUMP-00001[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| HOP-SUMP-00003[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| HOP-SUMP-00008[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| HDH-SUMP-00001[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| HDH-SUMP-00002[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| HDH-SUMP-00003[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| HFP-SUMP-00002[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| HFP-SUMP-00005[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| HSH-SUMP-00003[a] | Not Applicable | Bubbler | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| HSH-SUMP-00007[a] | Not Applicable | Bubbler | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| HSH-SUMP-00008[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |

**Table III.10.E.G – HLW Vitrification Plant Tank System Process and Leak Detection System Instruments and Parameters**

| Tank System Name and Locator (including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Operating Trips (Description & Numerical Limits) | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|---|
| HSH-SUMP-00009[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| HPH-SUMP-00001[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| HPH-SUMP-00003[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| HPH-SUMP-00005[a] | Not Applicable | Radar Leak Detector | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| ASX Sampler 00028 Lower Containment Drain | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| ASX Sampler 00029 Lower Containment Drain | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| ASX Sampler 00042 Lower Containment Drain | Not Applicable | Thermal Dispersion Level Switch | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | Not Applicable | RESERVED |
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |

[a] Locator (including P&ID designator) is located on Permit Table III.10.E.N – HLW Vitrification Plant Tank Systems Secondary Containment Systems Including Sumps, and Floor Drains.

**Table III.10.E.H – Laboratory Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument/ Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range | Expected Operating Range | Failure State | Accuracy | Numerical Set Point | Control Function | Calibration Method and Frequency |
|---|---|---|---|---|---|---|---|---|---|
| **Lab Area Sink Drain Collection Vessel (RLD-VSL-00164) in A-B003 (see 24590-LAB-M6-RLD-00002001)** | | | | | | | | | |
| RLD-LT-6202 | Radar level transmitter/ A-0160 | Liquid level in RLD-VSL-00164 | 0 to 104-inches | 35.5 to 51-inches | NA | ± 0.4-inch | NA | Transmit liquid level in RLD-VSL-00164 to Process Control System (PCJ) | Non-calibratable |
| RLD-LI-6202A | Graphic display level indicator/ Control room | Liquid level in RLD-VSL-00164 | 0 to 3,200 gallons | 1,018 to 1,578 gallons | Alarm as "bad quality", hold last good value | NA | NA | Display liquid level in control room, provides notifications | NA |
| RLD-LSHH-6202A | Level interlock/soft ware | Overfill prevention | NA | NA | Will cause protective interlocks to trip | NA | High-high liquid level = 2,248 gallons (70-inches) | Close RLD-YV-6210 and RLD-YV-6216 at Level HH set point | NA |
| **C3 Vessel Cell Sump (RLD-SUMP-00041) in A-B003 (see 24590-LAB-M6-RLD-00002001)** | | | | | | | | | |
| RLD-LT-6211 | Radar level transmitter/ A-0160 | Liquid level in RLD-SUMP-00041 | 0 to 75-inches | 1.74 to 10-inches | NA | ± 0.4-inch | NA | Transmit liquid level in RLD-SUMP-00041 to PCJ | Non-calibratable |
| RLD-LI-6211 | Graphic display level indicator/ Control room | Liquid level in RLD-SUMP-00041 | 0 to 75-inches | 1.74 to 10-inches | NA | NA | NA | Display liquid level in control room, provides notifications | NA |

**Table III.10.E.H – Laboratory Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument/ Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range | Expected Operating Range | Failure State | Accuracy | Numerical Set Point | Control Function | Calibration Method and Frequency |
|---|---|---|---|---|---|---|---|---|---|
| RLD-LKY-6211 | Graphic display leak rate indicator/ Control room | Rate of liquid level change (LKY) in RLD-SUMP-00041 | NA | NA | NA | NA | High leak rate = 2.4 gallons per day | Display control room high leak rate alarm | NA |
| **C3 Leak Detection Box (RLD-LDB-00005) in A-B003 (see 24590-LAB-M6-RLD-00007001)** | | | | | | | | | |
| RLD-LSH-6215 | Thermal level switch/ A-0160 | Liquid level in RLD-LDB-00005 | NA | NA | NA | ±0.25-inch | NA | Detect liquid in leak detection box | Non-calibratable |
| RLD-LAH-6215 | Graphic alarm display/ Control room | Presence or absence of liquid | On/off | NA | NA | NA | High liquid level = 0.5-inch | Indicate presence or absence of liquid | NA |
| **C3 Leak Detection Box (RLD-LDB-00006) in A-B003 (see 24590-LAB-M6-RLD-00007001)** | | | | | | | | | |
| RLD-LSH-6701 | Thermal level switch/ A-0160 | Liquid level in RLD-LDB-00006 | NA | NA | NA | ±0.25-inch | NA | Detect liquid in leak detection box | Non-calibratable |
| RLD-LAH-6701 | Graphic alarm display/ Control room | Presence or absence of liquid | On/off | NA | NA | NA | High liquid level = 0.5-inch | Indicate presence or absence of liquid | NA |
| **C3 Leak Detection Box (RLD-LDB-00007) in A-B003 (see 24590-LAB-M6-RLD-00007001)** | | | | | | | | | |
| RLD-LSH-6702 | Thermal level switch/ A-0160 | Liquid level in RLD-LDB-00007 | NA | NA | NA | ±0.25-inch | NA | Detect liquid in leak detection box | Non-calibratable |

**Table III.10.E.H – Laboratory Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument/ Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range | Expected Operating Range | Failure State | Accuracy | Numerical Set Point | Control Function | Calibration Method and Frequency |
|---|---|---|---|---|---|---|---|---|---|
| RLD-LAH-6702 | Graphic alarm display/ Control room | Presence or absence of liquid | On/off | NA | NA | NA | High liquid level = 0.5-inch | Indicate presence or absence of liquid | NA |
| **C3 Leak Detection Box (RLD-LDB-00008) in A-B003 (see 24590-LAB-M6-RLD-00007001)** | | | | | | | | | |
| RLD-LSH-6703 | Thermal level switch/ A-0160 | Liquid level in RLD-LDB-00008 | NA | NA | NA | ±0.25-inch | NA | Detect liquid in leak detection box | Non-calibratable |
| RLD-LAH-6703 | Graphic alarm display/ Control room | Presence or absence of liquid | On/off | NA | NA | NA | High liquid level = 0.5-inch | Indicate presence or absence of liquid | NA |
| **C3 Leak Detection Box (RLD-LDB-00011) in A-B003 (see 24590-LAB-M6-RLD-00007001)** | | | | | | | | | |
| RLD-LSH-6704 | Thermal level switch/ A-0160 | Liquid level in RLD-LDB-00011 | NA | NA | NA | ±0.25-inch | NA | Detect liquid in leak detection box | Non-calibratable |
| RLD-LAH-6704 | Graphic alarm display/ Control room | Presence or absence of liquid | On/off | NA | NA | NA | High liquid level = 0.5-inch | Indicate presence or absence of liquid | NA |
| **C3 Pump Pit Sump (RLD-SUMP-00045) in A-B002 (see 24590-LAB-M6-RLD-00002003)** | | | | | | | | | |
| RLD-LT-6212 | Radar level transmitter/ A-0160 | Liquid level in RLD-SUMP-00045 | 0 to 15-inches | 0 to 1.25-inches | NA | ± 0.4-inch | NA | Transmit liquid level in RLD-SUMP-00045 to PCJ | Non-calibratable |
| RLD-LI-6212 | Graphic display level indicator/ Control room | Liquid level in RLD-SUMP-00045 | 0 to 15-inches | 0 to 1.25-inches | NA | NA | High liquid level = 1.25-inches | Display liquid level in control room, provides notifications | NA |

**Table III.10.E.H – Laboratory Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument/ Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range | Expected Operating Range | Failure State | Accuracy | Numerical Set Point | Control Function | Calibration Method and Frequency |
|---|---|---|---|---|---|---|---|---|---|
| **Hotcell Drain Collection Vessel (RLD-VSL-00165) in A-B004 (see 24590-LAB-M6-RLD-00001001)** | | | | | | | | | |
| RLD-LT-6104 | Radar level transmitter/ A-0167 | Liquid level in RLD-VSL-00165 | 0 to 100-inches | 21 to 43-inches | NA | ± 0.4-inch | NA | Transmit liquid level in RLD-VSL-00164 to PCJ | Non-calibratable |
| RLD-LI-6104A | Graphic display level indicator/ Control room | Liquid level in RLD-VSL-00165 | 0 to 9,090 gallons | 1,258 to 3,829 gallons | Alarm as “bad quality”, hold last good value | NA | NA | Display liquid level in control room, provides notifications | NA |
| RLD-LSHH-6104A | Level interlock/software | Overfill prevention | NA | NA | Will cause protective interlocks to trip | NA | High-high liquid level = 4,609 gallons (50-inches) | Close RLD-YV-6511, RLD-YV-6802, and RLD-YV-6102 at Level HH set point | NA |
| **C5 Vessel Cell Sump (RLD-SUMP-00042) in A-B004 (see 24590-LAB-M6-RLD-00001001)** | | | | | | | | | |
| RLD-LT-6115 | Radar level transmitter/ A-0167 | Liquid level in RLD-SUMP-00042 | 0 to 66-inches | 1.74 to 10-inches | NA | ± 0.4-inch | NA | Transmit liquid level in RLD-SUMP-00041 to PCJ | Non-calibratable |
| RLD-LI-6115 | Graphic display level indicator/ Control room | Liquid level in RLD-SUMP-00042 | 0 to 66-inches | 1.74 to 10-inches | NA | NA | NA | Display liquid level in control room, provides notifications | NA |
| RLD-LKY-6115 | Graphic display leak rate indicator/ Control room | Rate of liquid level change (LKY) in RLD-SUMP-00042 | NA | NA | NA | NA | High leak rate = 2.4 gallons per day | Display control room high leak rate alarm | NA |
| **C5 Pump Pit Sump (RLD-SUMP-00043A) A-B007 (see 24590-LAB-M6-RLD-00001002)** | | | | | | | | | |

**Table III.10.E.H – Laboratory Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument/ Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range | Expected Operating Range | Failure State | Accuracy | Numerical Set Point | Control Function | Calibration Method and Frequency |
|---|---|---|---|---|---|---|---|---|---|
| RLD-LT-6116 | Radar level transmitter/ A-0167 | Liquid level in RLD-SUMP-00043A | 0 to 75-inches | 0 to 1.25-inches | NA | ± 0.4-inch | NA | Transmit liquid level in RLD-SUMP-00043A to PCJ | Non-calibratable |
| RLD-LI-6116 | Graphic display level indicator/ Control room | Liquid level in RLD-SUMP-00043A | 0 to 75-inches | 0 to 1.25-inches | NA | NA | High liquid level = 1.25-inches | Display liquid level in control room, provides notifications | NA |
| **C5 Pump Pit Sump (RLD-SUMP-00043B) in A-B005 (see 24590-LAB-M6-RLD-00001003)** | | | | | | | | | |
| RLD-LT-6124 | Radar level transmitter/ A-0167 | Liquid level in RLD-SUMP-00043B | 0 to 15-inches | 0 to 1.25-inches | NA | ± 0.4-inch | NA | Transmit liquid level in RLD-SUMP-00043B to PCJ | Non-calibratable |
| RLD-LI-6124 | Graphic display level indicator/ Control room | Liquid level in RLD-SUMP-00043B | 0 to 15-inches | 0 to 1.25-inches | NA | NA | High liquid level = 1.25-inches | Display liquid level in control room, provides notifications | NA |
| **C5 Piping Pit Sump (RLD-SUMP-00044) in A-B006 (see 24590-LAB-M6-RLD-00001004)** | | | | | | | | | |
| RLD-LT-6123 | Radar level transmitter/ A-0167 | Liquid level in RLD-SUMP-00044 | 0 to 24-inches | 0 to 1.25-inches | NA | ± 0.4-inch | NA | Transmit liquid level in RLD-SUMP-00044 to PCJ | Non-calibratable |
| RLD-LI-6123 | Graphic display level indicator/ Control room | Liquid level in RLD-SUMP-00044 | 0 to 24-inches | 0 to 1.25-inches | NA | NA | High liquid level = 1.25-inches | Display liquid level in control room, provides notifications | NA |
| **C5 Leak Detection Box (RLD-LDB-00002) in A-B004 (see 24590-LAB-M6-RLD-00008001)** | | | | | | | | | |

**Table III.10.E.H – Laboratory Tank System Process and Leak Detection System Instruments and Parameters**

| Instrument/ Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range | Expected Operating Range | Failure State | Accuracy | Numerical Set Point | Control Function | Calibration Method and Frequency |
|---|---|---|---|---|---|---|---|---|---|
| RLD-LSH-6120 | Thermal level switch/ A-0167 | Liquid level in RLD-LDB-00002 | NA | NA | NA | ±0.25-inch | NA | Detect liquid in leak detection box | Non-calibratable |
| RLD-LAH-6120 | Graphic alarm display/ Control room | Presence or absence of liquid | On/off | NA | NA | NA | High liquid level = 0.5-inch | Indicate presence or absence of liquid | NA |
| **C5 Leak Detection Box (RLD-LDB-00004) in A-B004 (see 24590-LAB-M6-RLD-00008001)** | | | | | | | | | |
| RLD-LSH-6118 | Thermal level switch/ A-0167 | Liquid level in RLD-LDB-00004 | NA | <RESERVED> | <RESERVED> | ±0.25-inch | NA | Detect liquid in leak detection box | Non-calibratable |
| RLD-LAH-6118 | Graphic alarm display/ Control room | Presence or absence of liquid | On/off | NA | NA | NA | High liquid level = 0.5-inch | Indicate presence or absence of liquid | NA |
| **C5 Leak Detection Box (RLD-LDB-00009) in A-B004 (see 24590-LAB-M6-RLD-00008001)** | | | | | | | | | |
| RLD-LSH-6801 | Thermal level switch/ A-0167 | Liquid level in RLD-LDB-00009 | NA | NA | NA | ±0.25-inch | NA | Detect liquid in leak detection box | Non-calibratable |
| RLD-LAH-6801 | Graphic alarm display/ Control room | Presence or absence of liquid | On/off | NA | NA | NA | High liquid level = 0.5-inch | Indicate presence or absence of liquid | NA |

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**Table III.10.E.I – Pretreatment Plant Tank Systems Primary[a] Containment Sump Systems**

| Sump I.D. # & Room Location | Maximum Sump Capacity (gallons) | Sump Dimensions[b] (feet) & Materials of Construction | Engineering Description (Drawing Nos., Specifications Nos., etc.) |
|---|---|---|---|
| PWD-SUMP-00026<br>P-0123 (Hotcell El. 0) | RESERVED | RESERVED | RESERVED |
| PWD-SUMP-00028<br>P-0123 (Hotcell El. 0) | RESERVED | RESERVED | RESERVED |
| PWD-SUMP-00029<br>P-0123 (Hotcell El. 0) | RESERVED | RESERVED | RESERVED |
| PWD-SUMP-00032<br>P-0123A (Maintenance Cave, El. 0) | RESERVED | RESERVED | RESERVED |
| PWD-SUMP-00033<br>P-0123A (Maintenance Cave, El. 0) | RESERVED | RESERVED | RESERVED |

[a] Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in WAC-173-303-640.

[b] Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).

**Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains**

| Sump, Bulge or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing No.'s, Specifications No.'s, etc.) |
|---|---|---|---|---|
| PWD-SUMP-00071<br>P-B005 (Pit-19, El. –19') | 60 | Dry Sump | 30"Dia x 18"Deep<br>Epoxy | **24590-PTF**<br>-M6-PWD-00041<br>-P1-P01T-00006 |
| PWD-SUMP-00040<br>P-B002 (Pit-45, El. –45') | 233.7 | Dry Sump | 60" x 30" x 30"<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00012<br>-P1-P01T-00006 |
| PWD-SUMP-00001<br>P-0108B (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00008<br>-P1-P01T-00001 |
| PWD-SUMP-00001A<br>P-0108C (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00010<br>-P1-P01T-00001 |
| PWD-SUMP-00002<br>P-0108A (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00008<br>-P1-P01T-00001 |
| PWD-SUMP-00002A<br>P-0108 (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00010<br>-P1-P01T-00001 |
| PWD-SUMP-00003<br>P-0106 (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00008<br>-P1-P01T-00001 |

**Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains**

| Sump, Bulge or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing No.'s, Specifications No.'s, etc.) |
|---|---|---|---|---|
| PWD-SUMP-00004<br>P-0104 (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00008<br>-P1-P01T-00001 |
| PWD-SUMP-00005<br>P-0102A (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00008<br>-P1-P01T-00001 |
| PWD-SUMP-00006<br>P-0102 (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00008<br>-P1-P01T-00001 |
| PWD-SUMP-00007<br>P-0109 (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00009<br>-P1-P01T-00001 |
| PWD-SUMP-00008<br>P-0111 (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00009<br>-P1-P01T-00001 |
| PWD-SUMP-00009<br>P-0112 (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00009<br>-P1-P01T-00001 |
| PWD-SUMP-00010<br>P-0113 (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00009<br>-P1-P01T-00001 |

**Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains**

| Sump, Bulge or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing No.'s, Specifications No.'s, etc.) |
|---|---|---|---|---|
| PWD-SUMP-00011<br>P-0114 (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00009<br>-P1-P01T-00001 |
| PWD-SUMP-00012<br>P-0117 (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00009<br>-P1-P01T-00001 |
| PWD-SUMP-00013<br>P-0117A (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00014<br>-P1-P01T-00001 |
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| PWD-SUMP-00031<br>P-0119 (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00010<br>-P1-P01T-00001 |
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| PWD-SUMP-00034<br>P-0121A (Spent Resin Dewatering, El. 0') | 75 | Dry Sump | 30" Dia. x 27" Deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00012 |
| PWD-SUMP-00035<br>P-0122A (Waste Packaging Area, El. 0') | 75 | Dry Sump | 30" Dia. x 27" Deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00012 |

**Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains**

| Sump, Bulge or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing No.'s, Specifications No.'s, etc.) |
|---|---|---|---|---|
| PWD-SUMP-00036<br>P-0118 (El. 0') | 75 | Dry Sump | 30" Dia. By ~27" deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-P0012<br>-P1-P01T-00001 |
| PWD-SUMP-00037<br>P-0124A | 7.5 | | 30" Dia. x 27" Deep<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00012 |
| RLD-SUMP-00003<br>P-0150 (Radioactive Liquid Waste Disposal Area, El. 0', Outdoor) | 583 | Dry Sump | 78" x 48" x 36" Deep<br>Epoxy coating | **24590-PTF**<br>-M6-RLD-00002003 |
| PVP-ZY-00037-S11B-03, P-0105 (PVP-BULGE-00001, El. 0') | | | 3"<br>Stainless Steel | **24590-PTF**<br>-M6-PVP-00017002 |
| PVP-ZY-00036-S11B-03, P-0101A (PVP-BULGE-00002, El. 0') | | | 3"<br>Stainless Steel | **24590-PTF**<br>-M6-PVP-00018002 |
| TCP-ZF-00032-S11B-03 Drain Line, P-0116 (TCP-BULGE-00004, El. 0') | N/A | N/A | 3"<br>Stainless Steel | **24590-PTF**<br>-M6-TCP-00001002 |
| DIW-ZF-01511-S11B-03 Drain Line, P-0320 (DIW-BULGE-00001, El. 56') | N/A | N/A | 3"<br>Stainless Steel | **24590-PTF**<br>-M6-DIW-00004001 |
| DIW-ZF-01510-S11B-03, P-0320 Drain Line (DIW-BULGE-00002, El. 56') | N/A | N/A | 3"<br>Stainless Steel | **24590-PTF**<br>-M6-DIW-00004001 |

**Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains**

| Sump, Bulge or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing No.'s, Specifications No.'s, etc.) |
|---|---|---|---|---|
| PWD-FD-00005<br>PWD-ZF-03000-S11B-06<br>P-0123 (Hotcell, El.0') | 939 | N/A | 6" Dia.<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00011 |
| PWD-FD-00006<br>PWD-ZF-03001-S11B-06<br>P-0123 (Hotcell, El.0') | 939 | N/A | 6" Dia.<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00011 |
| PWD-FD-00435<br>P-0105 | | NA | 3" Dia.<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00349<br>P-0105 | | NA | 6" Dia.<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00436<br>P-0105 | | NA | 3" Dia.<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00438<br>P-0105A | | NA | 6" Dia.<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00348<br>P-0105A | | NA | 6" Dia.<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00437<br>P-0105B | | NA | 3" Dia.<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-347<br>P-0105B | | NA | 6" Dia.<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-346<br>P-0105C | | NA | 4" Dia.<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00044 |

**Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains**

| Sump, Bulge or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing No.'s, Specifications No.'s, etc.) |
|---|---|---|---|---|
| PWD-FD-00293<br>P-0426 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00298<br>P-0425 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00309<br>P-0402 Drain, El. 77' | 655 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00310<br>P-0402 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00311<br>P-0402 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00312<br>P-0402 Drain, El. 77' | 655 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00376<br>P-0415 Drain, El. 77' | 655 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00377<br>P-0415 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00378<br>P-0415 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00379<br>P-0415 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00380<br>P-0415A Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |

**Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains**

| Sump, Bulge or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing No.'s, Specifications No.'s, etc.) |
|---|---|---|---|---|
| PWD-FD-00381<br>P-0415A Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00382<br>P-0415A Drain, El. 77' | 655 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00383<br>P-0415A Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00557<br>P-0430 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00559<br>P-0430 Drain, El. 77' | 665 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00561<br>P-0430 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00563<br>P-0411 Drain, El. 77' | 665 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00564<br>P-0411 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00565<br>P-0410 Drain, El. 77' | 665 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00566<br>P-0410 Drain, El. 77' | 665 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00571<br>P-0410 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |

**Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains**

| Sump, Bulge or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing No.'s, Specifications No.'s, etc.) |
|---|---|---|---|---|
| PWD-FD-00572<br>P-0410 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00573<br>P-0410 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00574<br>P-0410 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00575<br>P-0410 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00576<br>P-0410 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00583<br>P-0422A Drain, El. 77' | 655 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00584<br>P-0422A Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00589<br>P-0402 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00590<br>P-0423 Drain, El. 77' | 655 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00591<br>P-0423 Drain, El. 77' | 655 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00592<br>P-0423 Drain, El. 77' | 655 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |

**Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains**

| Sump, Bulge or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing No.'s, Specifications No.'s, etc.) |
|---|---|---|---|---|
| PWD-FD-00593<br>P-0423 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00594<br>P-0423 Drain, El. 77' | 655 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00595<br>P-0431A Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00596<br>P-0431A Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00597<br>P-0431A Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00598<br>P-0431A Drain, El. 77' | 655 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00599<br>P-0431A Drain, El. 77' | 655 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00600<br>P-0431A Drain, El. 77' | 655 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00604<br>P-0431A Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00605<br>P-0431A Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00606<br>P-0431A Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |

**Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains**

| Sump, Bulge or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing No.'s, Specifications No.'s, etc.) |
|---|---|---|---|---|
| PWD-FD-00607<br>P-0431A Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00629<br>P-0425 Drain, El. 77' | 655 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00630<br>P-0425 Drain, El. 77' | 140 | N/A | 8" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00044 |
| CRP-ZF-00002-S11B-03, P-0317 Drain Line (CRP-BULGE-00001 drain, El. 56') | N/A | N/A | 3"<br>Stainless Steel | **24590-PTF**<br>-M6-CRP-00003001 |
| CXP-ZF-00012-S11B-03 Drain Line, P-0317 (CXP-BULGE-00004, El. 56') | N/A | N/A | 3"<br>Stainless Steel | **24590-PTF**<br>-M6-CXP-00003003 |
| UFP-ZF-00043-S11B-03 Drain Line, P-0301 (UFP-BULGE-00001, El. 56') | N/A | N/A | 3"<br>Stainless Steel | **24590-PTF**<br>-M6-UFP-00016001 |
| UFP-ZF-00042-S11B-03 Drain Line, P-0301 (UFP-BULGE-00002, El. 56') | N/A | N/A | 3"<br>Stainless Steel | **24590-PTF**<br>-M6-UFP-00017001 |
| UFP-ZY-00002-S11B-03 Drain Line, P-0311 (UFP-BULGE-00005, El. 56') | N/A | N/A | 3"<br>Stainless Steel | **24590-PTF**<br>-M56-UFP-00031001 |
| UFP-ZY-00001-S11B-03 Drain Line, P-0311A (UFP-BULGE-00006, El. 56') | N/A | N/A | 3"<br>Stainless Steel | **24590-PTF**<br>-M6-UFP-00032001 |

**Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains**

| Sump, Bulge or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing No.'s, Specifications No.'s, etc.) |
|---|---|---|---|---|
| PWD-LDB-00001<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00050 |
| PWD-LDB-00002<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00050 |
| PWD-LDB-00003<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00050 |
| PWD-LDB-00004<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00050 |
| PWD-LDB-00005<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00050 |
| PWD-LDB-00006<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00050 |
| PWD-LDB-00007<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00050 |
| PWD-LDB-00008<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00050 |

**Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains**

| Sump, Bulge or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing No.'s, Specifications No.'s, etc.) |
|---|---|---|---|---|
| PWD-LDB-00009<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00050 |
| PWD-LDB-00010<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00050 |
| PWD-LDB-00011<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00050 |
| PWD-LDB-00012<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00051 |
| PWD-LDB-00013<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00051 |
| PWD-LDB-00014<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00051 |
| PWD-LDB-00015<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00051 |
| PWD-LDB-00016<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00051 |

**Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains**

| Sump, Bulge or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing No.'s, Specifications No.'s, etc.) |
|---|---|---|---|---|
| PWD-LDB-00017<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00051 |
| PWD-LDB-00018<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00051 |
| PWD-LDB-00019<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 24" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00051 |
| RLD-LDB-00012<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 34" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00058001 and 00058002 |
| RLD-LDB-00013<br>P-B001 (Inter Facility Transfer Line Tunnel, El.-45') | 6 | N/A | 8" Dia. x 34" Length<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00058001 and 00058002 |
| ASX Sampler 00017 Lower Containment Trough/Dam (P-0311B, El. 56') | N/A | N/A | 3" Dia.<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00007 |
| ASX Sampler 00019 Lower Containment Trough/Dam (P-0302, El. 56') | N/A | N/A | 3" Dia.<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00007 |
| ASX Sampler 00020 Lower Containment Trough/Dam (P-0301, El. 56') | N/A | N/A | 3" Dia.<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00007 |

**Table III.10.E.J – Pretreatment Plant Tank Systems Secondary Containment Systems, Including Sumps, Leak Detection Boxes, Bulges, Autosamplers, and Floor Drains**

| Sump, Bulge or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing No.'s, Specifications No.'s, etc.) |
|---|---|---|---|---|
| ASX Sampler 00025 Lower Containment Trough/Dam (P-0307, El. 56') | N/A | N/A | 3" Dia.<br>Stainless Steel | **24590-PTF**<br>-M6-PWD-00007 |

[a] Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).

Note #1: These are special cases due to their location in equipment berms. The capacity for these drain lines is based on a unique bounding case for liquid spillage.

**Table III.10.E.K – Reserved ~~LAW Vitrification Plant Tank Systems Primary[a] Containment Sump Systems~~**

| ~~Sump I.D. # & Room Location~~ | ~~Maximum Sump Capacity (gallons)~~ | ~~Sump Dimensions[b] (feet) & Materials of Construction~~ | ~~Engineering Description (Drawing Nos., Specifications Nos., etc.)~~ |
|---|---|---|---|
| ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ |

~~[a] Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in WAC 173-303-640.~~

~~[b] Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).~~

**Table III.10.E.M – HLW Vitrification Plant Tank Systems Primary[a] Containment Sump Systems**

| Sump I.D.# & Room Location | Maximum Sump Capacity (gallons) | Sump Dimensions[b] (feet) & Materials of Construction | Engineering Description (Drawing Nos., Specifications Nos., etc.) |
|---|---|---|---|
| RESERVED | RESERVED | RESERVED | RESERVED |

[a] Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in WAC-173-303-640.

[b] Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).

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**Table III.10.E.N – HLW Vitrification Plant Tank Systems Secondary Containment Systems, Including Sumps, Autosamplers, and Floor Drains**

| Sump or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type | Sump or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing Nos., Specifications Nos., etc.) |
|---|---|---|---|---|
| HCP-SUMP-00001<br>H-B014 (Wet Process Cell, El. –21’) | 75 | Dry Sump | 30” Dia. x 18” Deep<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00015001<br>-P1-P01T-00001 |
| RLD-SUMP-00001<br>H-B014 (Wet Process Cell, El. –21’) | 75 | Dry Sump | 30” Dia. x 18” Deep<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00015001<br>-P1-P01T-00001 |
| HOP-SUMP-00003<br>H-B021 (SBS Drain Collection Cell 1, El. –21’) | 75 | Dry Sump | 30” Dia. x 18” Deep<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00015001<br>-P1-P01T-00001 |
| HOP-SUMP-00008<br>H-B005 (SBS Drain Collection Cell 2, El. –21’) | 75 | Dry Sump | 30” Dia. x 18” Deep<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-20004001<br>-P1-P01T-00001 |
| HDH-SUMP-00001<br>H-B039B (Canister Rinse Tunnel, El. –16.5’) | 75 | Dry Sump | 30” Dia. x 18” Deep<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00016001<br>-P1-P01T-00001 |

**Table III.10.E.N – HLW Vitrification Plant Tank Systems Secondary Containment Systems, Including Sumps, Autosamplers, and Floor Drains**

| Sump or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type | Sump or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing Nos., Specifications Nos., etc.) |
|---|---|---|---|---|
| HDH-SUMP-00002<br>H-B039A (Canister Rinse Bogie Maintenance Room, El. –16') | 75 | Dry Sump | 30" Dia. x 18" Deep<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00016001<br>-P1-P01T-00001 |
| HDH-SUMP-00003<br>H-B035 (Canister Decon Cave, El. –16') | 75 | Dry Sump | 30" Dia. x 18" Deep<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00004002<br>-P1-P01T-00001 |
| HFP-SUMP-00002<br>H-0117 (Melter Cave 1, El. 5') | 50 | Dry Sump | 20.5" x 20.5" x 16"<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00008002<br>-P1-P01T-00002 |
| HFP-SUMP-00005<br>H-0106 (Melter Cave 2, El. 5') | 50 | Dry Sump | 20.5" x 20.5" x 16"<br>Stainless Steel | **24590-HLW**<br>-M6-RLD- 20005001<br>-P1-P01T-00002 |
| HSH-SUMP-00003<br>H-0117 (Melter Cave 1, El. 3') | 50 | Dry Sump | 20.5" x 20.5" x 16"<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00008002<br>-P1-P01T-00002 |
| HSH-SUMP-00007<br>H-0106 (Melter Cave 2, El. 3') | 50 | Dry Sump | 20.5" x 20.5" x 16"<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-20005001<br>-P1-P01T-00002 |
| HSH-SUMP-00008<br>H-310A (Melter 1 Equip. Decon. Pit Area, El. 0') | 50 | Dry Sump | 30" x 24" x 16"<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00003001<br>-P1-P01T-00002 |
| HSH-SUMP-00009<br>H-0304A (Melter 2 Equip. Decon. Pit Area, El. 0') | 50 | Dry Sump | 30" x 24" x 16"<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-20003001<br>-P1-P01T-00002 |

**Table III.10.E.N – HLW Vitrification Plant Tank Systems Secondary Containment Systems, Including Sumps, Autosamplers, and Floor Drains**

| Sump or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type | Sump or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing Nos., Specifications Nos., etc.) |
|---|---|---|---|---|
| HPH-SUMP-00001<br>H-0136 (Canister Handling Cave, El. -3') | 75 | Dry Sump | 30" Dia. x 18" Deep<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00016001 |
| HPH-SUMP-00005<br>H-0136 (Canister Handling Cave, El. -3') | 75 | Dry Sump | 30" Dia. x 18" Deep<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00004001 |
| HPH-SUMP-00003<br>H-B032 (Pour Tunnel 1, El. -21') | 75 | Dry Sump | 30" Dia. x 18" Deep<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00016001 |
| RLD-ZF-03330-S11B-03<br>H-B021 (SBS Drain Collection Cell 1) | N/A | N/A | Line Size Pipe Dia 3" 316L Stainless Steel | **24590-HLW**<br>-M6-RLD-00015001 |
| RLD-ZF-03447-S11B-03<br>H-B005 (SBS Drain Collection Cell 2) | N/A | N/A | Line Size Pipe Dia 3" 316L Stainless Steel | **24590-HLW**<br>-M6-RLD-20004001 |
| RLD-FD-0186<br>H-0308 (Melter 1 - Active Services Cell, El. 37') | N/A | N/A | Line Size Pipe Dia 6"<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00015001 |
| RLD-FD-0187<br>H-0302 (Melter 2 - Active Services Cell, El. 37') | N/A | N/A | Line Size Pipe Dia 6"<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-20004001 |
| ASX Sampler 00028 Lower Containment Trough/Dam (H-0305A, El. 37') | N/A | N/A | 3" Dia.<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00002002 |

**Table III.10.E.N – HLW Vitrification Plant Tank Systems Secondary Containment Systems, Including Sumps, Autosamplers, and Floor Drains**

| Sump or Drain Line I.D. # & Room Location | Maximum Sump (gallons) Capacity | Sump Type | Sump or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing Nos., Specifications Nos., etc.) |
|---|---|---|---|---|
| ASX Sampler 00029 Lower Containment Trough/Dam (H-0315, El. 37') | N/A | N/A | 3" Dia.<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00002002 |
| ASX Sampler 00042 Lower Containment Trough/Dam (H-0318, El. 37') | N/A | N/A | 3" Dia.<br>Stainless Steel | **24590-HLW**<br>-M6-RLD-00002002 |
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |

[a] Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).

**Table III.10.E.O ~~– Laboratory Tank Systems Primary[a] Containment Sump Systems~~- Reserved**

| ~~Sump I.D. # & Room Location~~ | ~~Maximum Sump Capacity (gallons)~~ | ~~Sump Dimensions[b] (feet) & Materials of Construction~~ | ~~Engineering Description (Drawing Nos., Specifications Nos., etc.)~~ |
|---|---|---|---|
| ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ | ~~RESERVED~~ |

~~[a] Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in WAC 173-303-640.~~

~~[b] Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).~~

**Table III.10.E.R – EMF Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | Unit Designation | Engineering Description (Drawing Nos, Specification Nos, etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| DEP-VSL-00001<br>ED-B001<br>Low-point drain vessel | DEP | **24590-BOF**<br>-M5-V17T-00011<br>-M6-DEP-00001001<br>-M6-DEP-00001002<br>-MVD-DEP-00002<br>-N1D-DEP-00001<br>-P1-25-00001<br>-3PS-MVSC-T0002<br>24590-CM-POA-MVSC-00005-07-00001<br>(Sheet 3 of 23, Sheet 4 of 23) | Section 4G.2.1; Table 4G-1 | 18,000 |
| DEP-VSL-00002<br>E-0105<br>Evaporator feed vessel | DEP | **24590-BOF**<br>-M5-V17T-00011<br>-M6-DEP-00002002<br>-MVD-DEP-00003<br>-N1D-DEP-00002<br>-P1-25-00001<br>-3PS-MVSC-T0002<br>24590-CM-POA-MVSC-00005-07-00002<br>(Sheet 3 of 18, Sheet 4 of 18) | Section 4G.2.2; Table 4G-1 | 42,300 |

**Table III.10.E.R – EMF Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | Unit Designation | Engineering Description (Drawing Nos, Specification Nos, etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| DEP-VSL-00003A<br>E-0105<br>Evaporator feed vessel | DEP | **24590-BOF**<br>-M5-V17T-00013<br>-M6-DEP-00005001<br>-MVD-DEP-00004<br>-N1D-DEP-00003<br>-P1-25-00001<br>-3PS-MVSC-T0002<br>24590-CM-POA-MVSC-00005-07-00003<br>(Sheet 3 of 18, Sheet 4 of 18) | Section 4G.2.3; Table 4G-1 | 14,900 |
| DEP-VSL-00003B<br>E-0105<br>Evaporator feed vessel | DEP | **24590-BOF**<br>-M5-V17T-00013<br>-M6-DEP-00005002<br>-MVD-DEP-00004<br>-N1D-DEP-00003<br>-P1-25-00001<br>-3PS-MVSC-T0002<br>24590-CM-POA-MVSC-00005-07-00004<br>(Sheet 3 of 18, Sheet 4 of 18) | Section 4G.2.3; Table 4G-1 | 14,900 |

**Table III.10.E.R – EMF Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | Unit Designation | Engineering Description (Drawing Nos, Specification Nos, etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| DEP-VSL-00003C<br>E-0105<br>Evaporator feed vessel | DEP | **24590-BOF**<br>-M5-V17T-00013<br>-M6-DEP-00005003<br>-MVD-DEP-00004<br>-N1D-DEP-00003<br>-P1-25-00001<br>-3PS-MVSC-T0002<br>24590-CM-POA-MVSC-00005-07-00005<br>(Sheet 3 of 18, Sheet 4 of 18) | Section 4G.2.3; Table 4G-1 | 14,900 |
| DEP-VSL-00004A<br>E-0106<br>Overhead sampling vessel | DEP | Reserved | Section 4G.2.4; Table 4G-1 | 40,800 |
| DEP-VSL-00004B<br>E-0106<br>Overhead sampling vessel | DEP | Reserved | Section 4G.2.4; Table 4G-1 | 40,800 |
| DEP-VSL-00005A<br>E-0106<br>Process condensate lag storage vessel | DEP | Reserved | Section 4G.2.5; Table 4G-1 | 127,260 |
| DEP-VSL-00005B<br>E-0106<br>Process condensate lag storage vessel | DEP | Reserved | Section 4G.2.5; Table 4G-1 | 127,260 |

**Table III.10.E.R – EMF Plant Tank Systems Description**

| Dangerous and/or Mixed Waste Tank Systems Name | Unit Designation | Engineering Description (Drawing Nos, Specification Nos, etc.) | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| DEP-FILT-00003<br>E-0103<br>Evaporator feed pre-filter | DEP | **24590-BOF**<br>-M5-V17T-00011<br>-M6-DEP-0002004<br>-P1-25-00001<br>-3PS-MLF0-T0002<br>24590-CM-POA-MLF0-00005-08-00001<br>24590-CM-POA-MLF0-00005-05-00004<br>(Sheet 1 of 3) | Section 4G.3.6; Table 4G-1 | NA |

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**Table III.10.E.S – EMF Plant Tank Systems Secondary Containment Systems, including Sumps, Leak Detection Boxes, Drain Lines, and Floor Drains**

| Sump/Leak Detection Box, or Floor Drain/Line I.D. # and Room # | Maximum Sump/Leak Detection Box Capacity (gallons) | Sump/Leak Detection Box Level Detection Type | Sump, Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction | Piping and Instrumentation Diagram Number |
|---|---|---|---|---|
| **Effluent Management Facility** | | | | |
| **Sumps** | | | | |
| DEP-SUMP-00001<br>ED-B001 | ~58 | Radio Frequency (RF) Capacitance | 24 in. Dia. x 30 in. Length<br>304L SS | **24590-BOF**<br>-M6-DEP-00001002 |
| DEP-SUMP-00002A<br>E-0103 | ~58 | RF Capacitance | 24 in. Dia. x 30 in. Length<br>304L SS | **24590-BOF**<br>-M6-DEP-00009001 |
| DEP-SUMP-00002B<br>E-0103 | ~58 | RF Capacitance | 24 in. Dia. x 30 in. Length<br>304L SS | **24590-BOF**<br>-M6-DEP-00009001 |
| DEP-SUMP-00003A<br>E-0102 | ~58 | RF Capacitance | 24 in. Dia. x 30 in. Length<br>304L SS | **24590-BOF**<br>-M6-DEP-00009004 |
| DEP-SUMP-00003B<br>E-0102 | ~58 | RF Capacitance | 24 in. Dia. x 30 in. Length<br>304L SS | **24590-BOF**<br>-M6-DEP-00009004 |
| DEP-SUMP-00004A<br>E-0105 | ~58 | RF Capacitance | 24 in. Dia. x 30 in. Length<br>304L SS | **24590-BOF**<br>-M6-DEP-00009002 |
| DEP-SUMP-00004B<br>E-0105 | ~58 | RF Capacitance | 24 in. Dia. x 30 in. Length<br>304L SS | **24590-BOF**<br>-M6-DEP-00009002 |
| DEP-SUMP-00005A<br>E-0106 | ~58 | RF Capacitance | 24 in. Dia. x 30 in. Length<br>304L SS | **24590-BOF**<br>-M6-DEP-00009005 |
| DEP-SUMP-00005B<br>E-0106 | ~58 | RF Capacitance | 24 in. Dia. x 30 in. Length<br>304L SS | **24590-BOF**<br>-M6-DEP-00009005 |

**Table III.10.E.S – EMF Plant Tank Systems Secondary Containment Systems, including Sumps, Leak Detection Boxes, Drain Lines, and Floor Drains**

| Sump/Leak Detection Box, or Floor Drain/Line I.D. # and Room # | Maximum Sump/Leak Detection Box Capacity (gallons) | Sump/Leak Detection Box Level Detection Type | Sump, Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction | | Piping and Instrumentation Diagram Number |
|---|---|---|---|---|---|
| **Leak Detection Boxes** | | | | | |
| DEP-LDB-00001<br>ED-B001 | ~7 | Conductivity Switch | 8 in. Dia. x 41 in. Length<br>316L SS | | **24590-BOF**<br>-M6-DEP-00011001 |
| DEP-LDB-00002<br>ED-B001 | ~7 | Conductivity Switch | 8 in. Dia. x 41 in. Length<br>316L SS | | **24590-BOF**<br>-M6-DEP-00011001 |
| DEP-LDB-00003<br>ED-B001 | ~7 | Conductivity Switch | 8 in. Dia. x 41 in. Length<br>316L SS | | **24590-BOF**<br>-M6-DEP-00011001 |
| DEP-LDB-00004<br>ED-B001 | ~7 | Conductivity Switch | 8 in. Dia. x 41 in. Length<br>316L SS | | **24590-BOF**<br>-M6-DEP-00011001 |
| DEP-LDB-00005<br>ED-B001 | ~7 | Conductivity Switch | 8 in. Dia. x 41 in. Length<br>316L SS | | **24590-BOF**<br>-M6-DEP-00011001 |
| DEP-LDB-00006<br>ED-B001 | ~7 | Conductivity Switch | 8 in. Dia. x 41 in. Length<br>316L SS | | **24590-BOF**<br>-M6-DEP-00011001 |
| **Drain Lines** | | | | | |
| BOF-DEP-ZS-20282-W11A-011/02-01<br>ED-CH01 | NA | NA | 4 in. Dia.<br>316L SS | Containment pipe | **24590-BOF**<br>-M6-DEP-00001001 |
| | | | 1 ½ in. Dia.<br>AL6XN | Process pipe | |
| BOF-DEP-ZS-20236-W31A-02-01<br>ED-CH01 | NA | NA | 4 in. Dia.<br>Carbon Steel | Containment pipe | **24590-BOF**<br>-M6-DEP-00001001 |
| | | | 2 in. Dia.<br>316L SS | Process pipe | |

**Table III.10.E.S – EMF Plant Tank Systems Secondary Containment Systems, including Sumps, Leak Detection Boxes, Drain Lines, and Floor Drains**

| Sump/Leak Detection Box, or Floor Drain/Line I.D. # and Room # | Maximum Sump/Leak Detection Box Capacity (gallons) | Sump/Leak Detection Box Level Detection Type | Sump, Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction | | Piping and Instrumentation Diagram Number |
|---|---|---|---|---|---|
| BOF-DEP-ZS-20245-W11A-04-01ED-CH01 | NA | NA | 6 in. Dia. 3166 SS | Containment pipe | **24590-BOF** -M6-DEP-00001001 |
| | | | 4 in. Dia. AL6XN | Process pipe | |
| BOF-DEP-ZS-20231-W31A-03-01 ED-CH01 | NA | NA | 6 in. Dia. Carbon Steel | Containment pipe | **24590-BOF** -M6-DEP-00001001 |
| | | | 3 in. Dia. 316L SS | Process pipe | |
| BOF-DEP-ZS-20242-W31A-10-01 ED-CH01 | NA | NA | 14 in. Dia. Carbon Steel | Containment pipe | **24590-BOF** -M6-DEP-00001001 |
| | | | 10 in. Dia. 316L SS | Process pipe | |
| BOF-DEP-ZS-20249-W31A-03-01 ED-CH01 | NA | NA | 6 in. Dia. Carbon Steel | Containment pipe | **24590-BOF** -M6-DEP-00001001 |
| | | | 3 in. Dia. 316L SS | Process pipe | |
| BOF-DEP-ZS-20225-W31A-02-01 ED-CH01 | NA | NA | 4 in. Dia. Carbon steel | Containment pipe | **24590-BOF** -M6-DEP-00001002 |
| | | | 2 in. Dia. 316L SS | Process pipe | |
| BOF-DEP-ZS-20219-W31A-02-01 | NA | NA | 4 in. Dia. Carbon steel | Containment pipe | **24590-BOF** -M6-DEP-00001002 |

**Table III.10.E.S – EMF Plant Tank Systems Secondary Containment Systems, including Sumps, Leak Detection Boxes, Drain Lines, and Floor Drains**

| Sump/Leak Detection Box, or Floor Drain/Line I.D. # and Room # | Maximum Sump/Leak Detection Box Capacity (gallons) | Sump/Leak Detection Box Level Detection Type | Sump, Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction | | Piping and Instrumentation Diagram Number |
|---|---|---|---|---|---|
| ED-CH01 | | | 2 in. Dia. 316L SS | Process pipe | |
| BOF-DEP-ZS-20222-W31A-02-01 ED-CH01 | NA | NA | 4 in. Dia. Carbon Steel | Containment pipe | **24590-BOF** -M6-DEP-00001002 |
| | | | 2 in. Dia. 316L SS | Process pipe | |
| BOF-DEP-ZS-20252-W11A-03-01 ED-CH01 | NA | NA | 6 in. Dia. 316L SS | Containment pipe | **24590-BOF** -M6-DEP-00010001 |
| | | | 3 in. Dia. AL6XN | Process pipe | |
| BOF-DEP-ZS-20265-W31A-03-01 ED-CH01 | NA | NA | 6 in. Dia. Carbon Steel | Containment pipe | **24590-BOF** -M6-DEP-00002006 |
| | | | 3 in. Dia. 316L SS | Process pipe | |
| BOF-DEP-ZY-00181-W31A-03-01 ED-CH01 | NA | NA | 6 in. Dia. Carbon Steel | Containment pipe | **24590-BOF** -M6-DEP-00001001 |
| | | | 3 in. Dia. 316L SS | Process pipe | |
| BOF-DEP-WU-00008-W31A-03-01 ED-CH01 | NA | NA | 6 in. Dia. Carbon steel | Containment pipe | **24590-BOF** -M6-DEP-00001001 |
| | | | 3 in. Dia. 316L SS | Process pipe | |

**Table III.10.E.S – EMF Plant Tank Systems Secondary Containment Systems, including Sumps, Leak Detection Boxes, Drain Lines, and Floor Drains**

| Sump/Leak Detection Box, or Floor Drain/Line I.D. # and Room # | Maximum Sump/Leak Detection Box Capacity (gallons) | Sump/Leak Detection Box Level Detection Type | Sump, Leak Detection Box or Floor Drain/Line Dimensions (approximate) and Materials of Construction | | Piping and Instrumentation Diagram Number |
|---|---|---|---|---|---|
| BOF-DVP-GV-00026-W31A-03-01<br>ED-CH01 | NA | NA | 6 in. Dia.<br>Carbon steel | Containment pipe | **24590-BOF**<br>-M6-DEP-00001001 |
| | | | 3 in. Dia.<br>316L SS | Process pipe | |

**Table III.10.E.T – EMF Plant Secondary Containment Rooms/Areas**

| Room/Area | Approximate Room/Area Dimensions (L × W, in feet) | Miscellaneous Treatment Units or Tanks in Room/Area (Largest Plant Item) | Volume of Largest Plant Item in Room/Area (US Gallons) | Minimum Secondary Containment Height (feet) |
|---|---|---|---|---|
| E-0102 east evaporator process area | 62 ft x 94 ft 6 in. | Process condensate lag storage vessel | 127,260 | 4 ft 6 in. |
| E-0103 west evaporator process area | 62 ft x 56 ft 6 in. | Evaporator feed vessel | 42,300 | 3 ft 5 in. |
| ED-B001 low-point drain vessel area | 28 ft x 33 ft | Low-point drain vessel | 18,000 | 4 ft 2 in. |
| E-0105 evaporator feed vessel area | 45 ft 6 in. x 39 ft | Evaporator feed vessel | 42,300 | 5 ft 2 in. |
| E-0106 process condensate lag storage vessel area | 45 ft 6 in. x 84 ft 4 in. | Process condensate lag storage vessel | 127,260 | 6 ft 10 in. |

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## III.10.F CONTAINMENT BUILDING UNITS

### III.10.F.1 Containment Building Units and Storage Limits

**III.10.F.1.a** Approved Waste and Storage Limits

**III.10.F.1.a.i** The Permittees may store and treat, in containment building units listed in Permit Table III.10.F.A, as modified by Permit Condition III.10.F.7.d.iv, all dangerous and mixed waste listed in the Part A Forms, Operating Unit Group 10, Chapter 1 of this Permit, except for those wastes outside the waste acceptance criteria specified in the WAP, Operating Unit Group 10, Chapter 3, as approved pursuant to Permit Condition III.10.C.3. Total dangerous and mixed waste storage at the containment building units will not exceed the sum of the capacities in column 7 of Permit Table III.10.F.A, as modified pursuant to Permit Condition III.10.F.7.d.iv.

**III.10.F.1.a.ii** The Permittees may place and store dangerous and mixed waste only in the containment building units listed in Permit Table III.10.F.A, as modified pursuant to Permit Condition III.10.F.7.d.iv, in accordance with Permit Condition III.10.F, and in accordance with Operating Unit Group 10, Chapters 1.0 and 4.0, and Operating Unit Group 10, Appendices 8.1, 8.2, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18 of this Permit, as approved pursuant to Permit Conditions III.10.F.7.c and III.10.F.7.d. The Permittees will limit the volume of dangerous and mixed waste to quantities specified for the individual areas listed in column 7 of Permit Table III.10.F.A, as modified pursuant to Permit Condition III.10.F.7.d.iv.

**III.10.F.1.b** The Permittees will manage any ignitable, reactive, or incompatible waste in these units in accordance with WAC 173-303-395(1). Any containment building units specified in Permit Table III.10.F.A in which ignitable, reactive, or incompatible waste are managed will meet the requirements specified in WAC 173-303-640(9) and (10), in accordance with WAC 173-303-680(2).

**III.10.F.1.c** The Permittees must maintain documentation in the operating record of the description and quantity of dangerous waste in each containment building unit listed in Permit Table III.10.F.A, as modified pursuant to Permit Condition III.10.F.7.d.iv, in accordance with WAC 173-303-380.

**III.10.F.1.d** The Permittees will ensure all certifications required by specialists (e.g., independent qualified registered professional engineer, etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new containment building unit or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., design engineer, etc.), for the following containment building unit components (e.g., the venting piping, etc.), as required by the Resource Conservation and Recovery Act (RCRA) regulation(s), namely, 40 CFR 264.1101(c)(2) in accordance with WAC 173-303-695).

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

### III.10.F.2 Containment Building Unit Design and Construction

**III.10.F.2.a** The Permittees will design and construct the containment building units identified in Permit Table III.10.F.A, as modified pursuant to Permit Condition III.10.F.7.d.iv, as specified in Operating Unit Group 10, Appendices 8.1, 8.2, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18 of this Permit, as approved in accordance with Permit Condition III.10.F.7.a and WAC 173-303-695.

**III.10.F.2.b** The Permittees will design and construct all applicable containment building units' secondary containment systems for each unit listed in Permit Table III.10.F.A, as specified in Operating Unit Group 10, Appendices 8.4 through 8.9, 8.15, 9.4 through 9.9, 9.18, 10.4 through 10.9, and 10.18 of this Permit, as approved in accordance with Permit Condition III.10.F.7.a and WAC 173-303-695.

**III.10.F.2.c** Modifications to approved design plans and specifications, in Operating Unit Group 10, Appendices 8.1, 8.2, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18 of this permit, for the containment building units will be allowed only in accordance with Permit Conditions III.10.C.2.e and III.10.C.2.f, or III.10.C.2.g, III.10.C.9.d, and III.10.C.9.e.

### III.10.F.3 Containment Building Unit Management Practices

**III.10.F.3.a** The Permittees will manage all dangerous and mixed waste in containment building units in accordance with procedures described in Operating Unit Group 10, Appendices 8.15, 9.18, 10.18 and Chapter 4 of this Permit, as approved pursuant to Permit Condition III.10.F.7.d.iv.

**III.10.F.3.b** The Permittees will follow the description of operating procedures described in Operating Unit Group 10, Appendices 8.15, 9.18, 10.18 and Chapter 4, of this permit, as approved pursuant to Permit Condition III.10.F.7.d.iv and Permit Condition III.10.F.3, and as specified below:

**III.10.F.3.b.i** Maintain the primary barrier to be free of significant cracks, gaps, corrosion, or other deterioration that could cause dangerous and mixed waste to be released from the primary barrier;

**III.10.F.3.b.ii** Maintain the level of stored/treated dangerous and mixed waste within the containment building unit walls so that the height of the wall is not exceeded;

**III.10.F.3.b.iii** Take measures to prevent the tracking of dangerous and mixed waste out of the unit by personnel or by equipment used in handling the waste. An area must be designated to decontaminate equipment and any rinsate must be collected and properly managed;

**III.10.F.3.b.iv** Maintain the containment building unit at all times to prevent the spread of airborne dangerous and/or mixed waste contamination into less contaminated or uncontaminated areas. All air pollution control devices for exhaust from containment building unit must be properly maintained and operational when storing or treating dangerous and mixed waste in the containment building units;

**III.10.F.3.b.v** Collect and remove liquids and waste to minimize hydraulic head on the containment system at the earliest practicable time.

**III.10.F.3.c** The Permittees will inspect the containment building units per requirements in the Operating Unit Group 10, Appendix 6A of this permit, as approved pursuant to Permit Condition III.10.C.5, 40 CFR 264.1101(c)(4), in accordance with WAC 173-303-695 and WAC 173-303-320 and record in the Facility's operating record, at least once every seven (7) days, data gathered from monitoring equipment and leak detection equipment as well as the containment building unit and area immediately surrounding the containment building unit to detect signs of releases of dangerous and mixed waste.

**III.10.F.3.d** Throughout the active life of the containment building unit, if the Permittees detects a condition that could lead to or has caused a release of dangerous and/or mixed waste, the Permittees must repair the condition promptly, in accordance with the following procedures:

**III.10.F.3.d.i** Upon detection of a condition that has led to the release of dangerous and/or mixed waste (e.g., upon detection of leakage from the primary barrier) the Permittees must:

A. Enter a record of the discovery in the facility operating record;

B. Immediately remove the portion of the containment building unit affected by the condition from service;

C. Determine what steps must be taken to repair the containment building unit, remove any leakage from the secondary collection system, and establish a schedule for accomplishing the cleanup and repairs; and

D. Within seven (7) days after the discovery of the condition, notify Ecology of the condition, and within fourteen (14) working days, provide a written notice to Ecology with a description of the steps taken to repair the containment building unit, and the schedule for accomplishing the work.

**III.10.F.3.d.ii** Ecology will review the information submitted, make a determination regarding whether the containment building unit must be removed from service completely or partially until repairs and cleanup are complete, and notify the Permittees of the determination and underlying rationale in writing.

**III.10.F.3.d.iii** Upon completing all repairs and cleanup the Permittees must notify Ecology in writing and provide verification, signed by an independent qualified registered professional engineer, that repairs have been completed according to the written notice submitted in accordance with Permit Condition III.10.F.3.d.i.D.

**III.10.F.4 Inspections [WAC 173-303-640(6)]**

**III.10.F.4.a** The Permittees will inspect the containment building units in accordance with the Inspection Plan in Operating Unit Group 10, Chapter 6 of this Permit, as modified pursuant to Permit Condition III.10.C.5.c.

**III.10.F.4.b** The inspection data for the containment building units will be recorded, and the records will be placed in the WTP Unit operating record, in accordance with Permit Condition III.10.C.4.

**III.10.F.5 Recordkeeping (WAC 173-303-380)**

For the containment building units, the Permittees will record and maintain in the WTP Unit operating record, all monitoring, calibration, recording, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4 and III.10.C.5.

### III.10.F.6 Closure

The Permittees will close the containment building units in accordance with Operating Unit Group 10, Chapter 11 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

### III.10.F.7 Compliance Schedule

**III.10.F.7.a** All information identified for submittal to Ecology in Permit Conditions III.10.F.7.b through e of this compliance schedule must be signed in accordance with requirements in WAC 173-303-810(12), as modified in accordance with Permit Condition III.10.F.1.d [WAC 173-303-806(4)].

**III.10.F.7.b** Prior to initial receipt of dangerous and/or mixed waste, the Permittees will submit to Ecology a certification by an independent qualified registered professional engineer that the containment building units design meets the requirements of Permit Conditions III.10.F.1 and III.10.F.2 in accordance with Permit Condition III.10.F.7.a. The certification will also be stored in the WTP Unit operating record. For containment buildings units in Permit Table III.10.F.A, as modified pursuant to Permit Condition III.10.F.7.d.iv, identified as allowed to manage free liquids, the certification will include an additional demonstration that the containment building meets the requirements specified in 40 CFR 264.1101(b), in accordance with WAC 173-303-695.

**III.10.F.7.c** The Permittees submit to Ecology pursuant to Permit Condition III.10.C.9.f, prior to construction of the containment building unit containment system, and as appropriate, leak detection system for each containment building unit (per level, per WTP Unit building) as identified in Permit Condition III.10.F.1, Permit Tables III.10.F.A, engineering information as specified below, for incorporation, as appropriate, into Operating Unit Group 10, Appendices 8.1, 8.2, 8.3, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18 of this Permit. At a minimum, engineering information specified below will show the following as required in accordance with WAC 173-303-695 (the information specified below will include dimensioned engineering drawings showing floors, walls, and ceilings/roof of the containment building units and other information on floor drains and sumps):

**III.10.F.7.c.i** Design drawings (General Arrangement Drawings in plan) and specifications for the foundation, containment, including liner/coating installation details and leak detection methodology, as appropriate [40 CFR 264.1101(a)(1) and (b), in accordance with WAC 173-303-695].

**III.10.F.7.c.ii** The Permittees provide the design criteria (references to codes and standards, load definitions and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the containment system. This information demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [40 CFR 264.1101(a)(2) in accordance with WAC 173-303-695, in accordance with WAC 173-303-695].

**III.10.F.7.c.iii** The Permittees provide documentation addressing how coatings will withstand the movement of personnel, waste, and equipment during the operating life of the containment building per 40 CFR 264.1101(a)(2), (a)(4), and (b) in accordance with WAC 173-303-695.

**III.10.F.7.c.iv** Containment/foundation and, as appropriate, for leak detection systems, materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials as applicable [e.g. physical and chemical tolerances]) [40 CFR 264.1101(a)(4) and (b) in accordance with WAC 173-303-695].

**III.10.F.7.c.v** A detailed description of how the containment/foundation and, as appropriate, leak detection systems, will be installed.

**III.10.F.7.c.vi** Submit Permit Tables III.10.F.B and III.10.F.C, completed to provide for all secondary containment sumps and floor drains, the information as specified in each column heading, consistent with the information to be provided in i. through viii.

**III.10.F.7.c.vii** A detailed description of how fugitive emissions will be controlled such that any openings (e.g., doors, windows, vents, cracks, etc.) exhibit no visible emissions [40 CFR 264.1101(c)(1)(iv) in accordance with WAC 173-303-695].

**III.10.F.7.c.viii** Prior to installation, the Permittees will submit coating vendor information specific to containment buildings for incorporation into the Administrative Record [40 CFR 264.1101(a)(4) and (b) in accordance with WAC 173-303-695].

**III.10.F.7.c.ix** Prior to installation, leak detection system documentation (e.g. vendor information, etc.) consistent with information submitted under i. above, will be submitted for incorporation into the Administrative Record;

**III.10.F.7.c.x** Prior to installation, the Permittees will submit leak detection system instrumentation control logic narrative description (e.g., descriptions of fail-safe conditions, etc.);

**III.10.F.7.c.xi** Prior to installation, system descriptions related to leak detection systems will be submitted for incorporation into the Administrative Record;

**III.10.F.7.c.xii** For leak detection system instrumentation for containment buildings as identified in Permit Tables III.10.F.D, a detailed description of how the leak detection system instrumentation will be installed and tested [40 CFR 264.1101(b)(3) in accordance with WAC 173-303-695] will be submitted prior to installation.

Information pertaining to leak detection systems in Permit Conditions III.10.F.7.c.ix through xii. Will be submitted pursuant to Permit Conditions III.10.E.9.d.vii, viii, x, and xiii.

**III.10.F.7.d** Prior to initial receipt of dangerous and mixed waste, in the WTP Unit, the Permittees will submit the following, as specified below, for incorporation into Operating Unit Group 10. The information specified below into Operating Unit Group 10, and incorporated pursuant to Permit Condition III.10.C.2.g will be followed:

**III.10.F.7.d.i** Independent qualified registered professional engineer certification documentation consistent with the information provided in III.10.F.7.b and III.10.F.7.c for incorporation in the Administrative Record. The certification must be maintained in the WTP Unit Operating Record [40 CFR 264.1101(c)(2)];

**III.10.F.7.d.ii** Updated Chapter 4, Sections 4D.1, 4E.1, 4F.1, 4H.1, 4I.1, and the figures for containment building units identified in Permit Table III.10.F.A (as modified pursuant to Permit Condition III.10.F.7.d.iv, consistent with Operating Unit Group 10, Appendices 8.1, 8.2, 8.4 through 8.10, 8.13, 8.15, 9.1, 9.2, 9.4 through 9.10, 9.13, 9.18, 10.1, 10.2, 10.4 through 10.10, 10.13, and 10.18, as approved pursuant Permit Conditions III.10.F.7.a through d);

**III.10.F.7.d.iii** Description of operating procedures demonstrating compliance with 40 CFR 264.1101(c) and (d) in accordance with WAC 173-303-695;

**III.10.F.7.d.iv** Permit Table III.10.F.A, amended as follows:

A. Under column 1, update and complete list of dangerous and mixed waste containment building units including room location and number.

B. Under column 2, update unit dimensions.

C. Under column 3, replace the 'Reserved' with the Operating Unit Group 10, Appendices 8.0, 9.0, and 10.0, subsections specific to containment building units as listed in column 1.

D. Under column 4, update and complete list of narrative description, tables, and figures.

E. Under column 5, replace the 'Reserved' to indicate if container storage is used in each containment building units (Yes or No) consistent with Permit Table III.10.D.A updated pursuant to Permit Condition III.10.D.10.d.

F. Under column 6, replace the 'Reserved' to indicate if tank storage is used in each containment building units (Yes or No) consistent with Permit Tables III.10.E.A-D, updated pursuant to Permit Condition III.10.E.9.e.vi.

G. Under column 7, replace the 'Reserved' with the maximum operating volume for each containment building unit, to include the container storage capacity specified in Permit Table III.10.D.A, tank capacity specified in Permit Tables III.10.E.A, C and D and update the total capacity for the containment building units.

H. Under column 8, update the status of each containment building unit.

**III.10.F.7.d.v** Permit Table III.10.F.D will be completed for Containment Building leak detection system instrumentation and parameters to provide the information as specified in each column heading. Leak detection system monitors and instruments for critical systems as specified in Operating Unit Group 10, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b will be addressed.

**III.10.F.7.e** All information provided under Permit Condition III.10.F.7.d must be consistent with information provided pursuant to Permit Conditions III.10.F.7.a through d, as approved by Ecology.

**Table III.10.F.A – Containment Building Unit Description**

| Mixed Waste Containment Building Units[a] & Systems | Dimensions (L x W x H) (in feet) | Unit Description | Narrative Description and Figures | Container Storage Areas[b] | Tank Systems[c] | Containment Building Capacity (cu ft) | Manage Free Liquids |
|---|---|---|---|---|---|---|---|
| **Pretreatment Plant** | | | | | | | |
| P-0123 Pretreatment Hotcell Containment Building | 350 x 51 x 52 | RESERVED | Section 4D.3.1; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| **Pretreatment Maintenance Containment Building** | | | | | | | |
| PM0124 Hotcell Crane Maintenance Mezzanine | 27 x 51 x 33 | RESERVED | Section 4D.3.2; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| P-0121A Spent Resin Dewatering | 28 × 18 × 28 | RESERVED | Section 4D.3.2; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| P-0122A Waste Packaging Area | 26 × 51 × 28 | RESERVED | Section 4D.3.2; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| P-0123A Remote Decontamination Maintenance Cell | 55 × 51 × 52 | RESERVED | Section 4D.3.2; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| P-0124 C3 Workshop | (24 × 24 × 16) + (34 x 24 x 15) | RESERVED | Section 4D.3.2; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |

**Table III.10.F.A – Containment Building Unit Description**

| Mixed Waste Containment Building Units[a] & Systems | Dimensions (L x W x H) (in feet) | Unit Description | Narrative Description and Figures | Container Storage Areas[b] | Tank Systems[c] | Containment Building Capacity (cu ft) | Manage Free Liquids |
|---|---|---|---|---|---|---|---|
| P-0124A C3 Workshop | (73 + 15 × 15) + (16 × 15 + 15) | RESERVED | Section 4D.3.2; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| P-0125 Cask Lidding Airlock & Equipment Chase | 24 × 20 × 28 | RESERVED | Section 4D.3.2; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| P-0125A Cask Lidding Room | 28 × 18 × 25 | RESERVED | Section 4D.3.2; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| P-0128A MSM Repair Area | 24 × 18 × 28 | RESERVED | Section 4D.3.2; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| P-0128 MSM Testing Room | 24 × 17 × 27 | RESERVED | Section 4D.3.2; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| P-0223 Spent Filter Drum Handling Area Containment Building | 54 x 18 x 26 | RESERVED | Section 4D.3.3; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| P-0335 Filter Cave Containment Building | 198 x 51 x 52 | RESERVED | Section 4D.3.4; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |

**Table III.10.F.A – Containment Building Unit Description**

| Mixed Waste Containment Building Units[a] & Systems | Dimensions (L x W x H) (in feet) | Unit Description | Narrative Description and Figures | Container Storage Areas[b] | Tank Systems[c] | Containment Building Capacity (cu ft) | Manage Free Liquids |
|---|---|---|---|---|---|---|---|
| P-0431A General Filter Rm | RESERVED | RESERVED | Section 4D.3.5; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| **LAW Vitrification Plant** | | | | | | | |
| L-0112 LAW LSM Gallery Containment Building | 150 x 62 x 24 | RESERVED | Section 4E.3.1; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | Yes |
| LAW Container Finishing Containment Building | | RESERVED | Section 4E.3.2; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| L-0109B Swabbing Area Line 2 | 21 × 15 × 24 | RESERVED | Section 4E.3.2; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| L-0109C Decontamination Area Line 2 | 18 × 15 × 24 | RESERVED | Section 4E.3.2; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| L-0109D Inert Fill Area Line 2 | 55 × 15 × 24 | RESERVED | Section 4E.3.2; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |

**Table III.10.F.A – Containment Building Unit Description**

| Mixed Waste Containment Building Units[a] & Systems | Dimensions (L x W x H) (in feet) | Unit Description | Narrative Description and Figures | Container Storage Areas[b] | Tank Systems[c] | Containment Building Capacity (cu ft) | Manage Free Liquids |
|---|---|---|---|---|---|---|---|
| L-0115B Swabbing Area Line 1 | 21 × 15 × 24 | RESERVED | Section 4E.3.2; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| L-0115C Decontamination Area Line 1 | 18 × 15 × 24 | RESERVED | Section 4E.3.2; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| L-0115D Inert Fill Area Line 1 | 55 × 15 × 24 | RESERVED | Section 4E.3.2; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| L-0109E Container/Monitoring/ Export Area | 19 × 18 × 14 | RESERVED | Section 4E.3.2; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| L-0115E Container/Monitoring/ Export Area | 19 × 18 × 14 | RESERVED | Section 4E.3.2; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| L-0119B LAW Consumable Import/Export Containment Building | 30 x 28 x 17 | RESERVED | Section 4E.3.3; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | Yes |
| L-226A LAW C3 Workshop Containment Building | 34 x 22 x 19 | RESERVED | Section 4E.3.4; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |

**Table III.10.F.A – Containment Building Unit Description**

| Mixed Waste Containment Building Units[a] & Systems | Dimensions (L x W x H) (in feet) | Unit Description | Narrative Description and Figures | Container Storage Areas[b] | Tank Systems[c] | Containment Building Capacity (cu ft) | Manage Free Liquids |
|---|---|---|---|---|---|---|---|
| LAW Pour Cave Containment Building | | RESERVED | Section 4E.3.5; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| L-B015A Melter 1 Pour Cave | 16.5 × 20 x 23 | RESERVED | Section 4E.3.5; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| L-B013C Melter 1 Pour Cave | 16.5 × 20 x 23 | RESERVED | Section 4E.3.5; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| L-B013B Melter 2 Pour Cave | 16.5 × 20 x 23 | RESERVED | Section 4E.3.5; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| L-B011C Melter 2 Pour Cave | 16.5 × 20 x 23 | RESERVED | Section 4E.3.5; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| L-B011B Future Melter 3 Pour Cave | 16.5 × 20 x 23 | RESERVED | Section 4E.3.5; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |

**Table III.10.F.A – Containment Building Unit Description**

| Mixed Waste Containment Building Units[a] & Systems | Dimensions (L x W x H) (in feet) | Unit Description | Narrative Description and Figures | Container Storage Areas[b] | Tank Systems[c] | Containment Building Capacity (cu ft) | Manage Free Liquids |
|---|---|---|---|---|---|---|---|
| L-B009B Future Melter 3 Pour Cave | 16.5 × 20 x 23 | RESERVED | Section 4E.3.5; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| LAW Buffer Container Containment Building | | RESERVED | Section 4E.3.6; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| L-B025C Container Buffer Store | 22 x 22 x 23 | RESERVED | Section 4E.3.6; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| L-B025D Container Rework | 22 x 14 x 23 | RESERVED | Section 4E.3.6; Table 4E-6; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| **HLW Vitrification Plant** | | | | | | | |
| HLW Melter Cave 1 Containment Building:<br>H-0117 Melter Cave 1<br>H-0116B Melter Cave 1 C3/C5 Airlock<br>H-0310A Melter Cave 1 Equipment Decon Pit | <br>75 x 32 x 54<br>24 x 25 x 54<br>20 x 9 x 10 | RESERVED | Section 4F.3.1; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |

**Table III.10.F.A – Containment Building Unit Description**

| Mixed Waste Containment Building Units[a] & Systems | Dimensions (L x W x H) (in feet) | Unit Description | Narrative Description and Figures | Container Storage Areas[b] | Tank Systems[c] | Containment Building Capacity (cu ft) | Manage Free Liquids |
|---|---|---|---|---|---|---|---|
| HLW Melter Cave 2 Containment Building:<br>H-0106 Melter Cave 2<br>H-0105B Melter Cave 2 C3/C5 Airlock<br>H-0304A Melter Cave 2 Equipment Decon Pit | 75 x 32 x 54<br>24 x 25 x 54<br>20 x 9 x 10 | RESERVED | Section 4F.3.1; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| H-0136 IHLW Canister Handling Cave Containment Building | 18 x 140 x 54 | RESERVED | Section 4F.3.2; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| H-0133 IHLW Canister Swab and Monitoring Cave Containment Building | 41 x 11 x 54 | RESERVED | Section 4F.3.3; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| HLW C3 Workshop Containment Building:<br>H-0311A C3 Workshop<br>H-0311B MSM Maintenance Workshop | 19 x 30 x 22<br>58 x 69 x 22 | RESERVED | Section 4F.3.4; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| H-0104 HLW Filter Cave Containment Building | 105 x 36 x 36 | RESERVED | Section 4F.3.5; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |

**Table III.10.F.A – Containment Building Unit Description**

| Mixed Waste Containment Building Units[a] & Systems | Dimensions (L x W x H) (in feet) | Unit Description | Narrative Description and Figures | Container Storage Areas[b] | Tank Systems[c] | Containment Building Capacity (cu ft) | Manage Free Liquids |
|---|---|---|---|---|---|---|---|
| H-B032 HLW Pour Tunnel 1 Containment Building | 85 x 11 x 30 | RESERVED | Section 4F.3.6; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| H-B005A HLW Pour Tunnel 2 Containment Building | 85 x 11 x 30 | RESERVED | Section 4F.3.6; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | No |
| HLW Waste Handling Area Containment Building:<br>H-0410B E&I Room<br>H-0411 Waste Handling Room | 17 x 20 x 10<br>25 x 54 x 10 | RESERVED | Section 4F.3.8; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |
| HLW Drum Swabbing and Monitoring Area:<br>H-0126A Crane Maintenance Room<br>H-0126B Swabbing and Monitoring Room<br>H-028 Cask Import/Export Room | 15 x 20 x 31<br>30 x 18 x 31<br>15 x 45 x 43 | RESERVED | Section 4F.3.7; Table 4D-5; and Fig. 4A-59 (Sheets 1-2) of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED | RESERVED | RESERVED | RESERVED |

[a] Containment Building Units include associated process systems and equipment.

[b] Requirements pertaining to the containers in the Containment Building Units are specified in Section III.10.D of this Permit.

[c] Requirements pertaining to the tanks in the Containment Building Units are specified in Section III.10.E of this Permit.

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**Table III.10.F.B – Containment Building Primary[a] Containment Sump Systems**

| Sump I.D. # & Room Location | Maximum Capacity (gallons) | Dimensions[b] (feet) & Materials of Construction | Maximum Allowable Liquid Height (inches) | Secondary Containment Volume (gallons) | Unit Description Drawings |
|---|---|---|---|---|---|
| PWD-SUMP-00026 P-0123 (El. 0') | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| PWD-SUMP-00028 P-0123 (El. 0') | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| PWD-SUMP-00029 P-0123 (El. 0') | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| PWD-SUMP-00032 P-0123A | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| PWD-SUMP-00033 P-0123A (El. 0') | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |

[a] Primary sumps are defined in Permit Section III.10.C, and must comply with dangerous waste tank system requirements for tanks as described in WAC-173-303-640.

[b] Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).

**Table III.10.F.C – Containment Building Secondary Containment Systems Including Sumps and Floor Drains**

| Sump or Drain Line I.D. # & Room Location | Maximum Sump (gallons) or Drain Line (gallons per minute) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawing Nos., Specifications No.'s, etc.) |
|---|---|---|---|---|
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |

[a] Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).

**Table III.10.F.D – Containment Building Leak Detection System Instrumentation and Parameters**

| Containment Building Locator and Name (including P&ID) | Type of Leak Detection Instrument | Location of Leak Detection Instrument (Tag No.) | Leak Detection Instrument Range | Expected Range | Fail States | Leak Detection Instrument Accuracy | Leak Detection Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |

[a] Locator (including P&ID designator) is located on Permit Table III.10.F.C – Containment Building Secondary Containment Systems Including Sumps and Floor Drains.

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## III.10.G PRETREATMENT PLANT MISCELLANEOUS UNIT SYSTEMS

Unless otherwise noted in Permit Table III.10.G.A, for purposes of Permit Section III.10.G, where reference is made to WAC 173-303-640, the following substitutions apply: substitute the terms "Pretreatment Plant Miscellaneous Unit System(s)" for "tank system(s)," "miscellaneous unit(s)" for "tank(s)," "equipment" for "ancillary equipment," and "miscellaneous unit(s) or equipment of a Pretreatment Plant Miscellaneous Unit System" for "component(s)" in accordance with WAC 173-303-680. Miscellaneous unit systems, exempt from the WAC-173-303-640 requirements in Permit Section III.10.G are noted as exempt in Permit Table III.10.G.A.

### III.10.G.1 Waste and Storage Limits

**III.10.G.1.a** The Permittees may process, in the Pretreatment Plant Miscellaneous Unit Systems listed in Permit Table III.10.G.A, as approved/modified pursuant to Permit Condition III.10.G.10, all dangerous and mixed waste listed in the Part A Forms, Operating Unit Group 10, Chapter 1 of this Permit, and in accordance with in the WAP, Operating Unit Group 10, Chapter 3 of this Permit, as approved pursuant to Permit Condition III.10.C.3. Total Pretreatment Plant Miscellaneous Unit dangerous and mixed waste storage at the Facility will not exceed the limits specified in Permit Table III.10.G.A.

**III.10.G.1.b** The Permittees may process dangerous and mixed waste only in approved Pretreatment Plant Miscellaneous Unit Systems listed in Permit Table III.10.G.A in accordance with Permit Section III.10.G and in accordance with Operating Unit Group 10, Chapters 1.0 and 4.0 of this Permit, and Operating Unit Group 10, Appendices 8.1 through 8.15 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.b through e. The Permittees will limit the total volume of wastes to quantities specified for the individual miscellaneous units listed in Permit Table III.10.G.A.

**III.10.G.1.c** The Permittees will manage ignitable and reactive, and incompatible waste in accordance with WAC 173-303-395(1). Any Pretreatment Plant Miscellaneous Unit System specified in Permit Tables III.10.G.A and III.10.G.B in which ignitable, reactive or incompatible waste are managed will meet the requirements specified in WAC 173-303-640(9) and (10), in accordance to WAC 173-303-680.

**III.10.G.1.d** The Permittees will ensure all certifications required by specialists (e.g., independent qualified registered professional engineer; independent corrosion expert; independent qualified installation inspector; etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new miscellaneous unit system or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following miscellaneous unit system components (e.g., the venting piping, etc.), as required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs (i.e., (a) through (g)) in accordance with WAC 173-303-680).

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

**III.10.G.1.e** In all future narrative permit submittals, the Permittees will include miscellaneous unit system names with the unit designation (e.g., Waste Feed Evaporator Separator Vessels are designated V11002A and V11002B, respectively).

**III.10.G.2 Miscellaneous Unit Systems Design and Construction [WAC 173-303-640, in accordance with WAC 173-303-680(2) and WAC 173-303-340].**

**III.10.G.2.a** The Permittees will construct the Pretreatment Plant Miscellaneous Unit Systems identified in Permit Table III.10.G.A, as specified in Operating Unit Group 10, Appendices 8.1 through 8.14 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.b, III.10.G.10.c, and III.10.G.10.d.

**III.10.G.2.b** The Permittees will construct secondary containment systems for the Pretreatment Plant Miscellaneous Unit Systems identified in Permit Tables III.10.G.A and III.10.G.B, as specified in Operating Unit Group 10, Appendices 8.2, 8.4 through 8.14 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.b, III.10.G.10.c, and III.10.G.10.d.

**III.10.G.2.c** Modifications to approved design, plans, and specifications in Operating Unit Group 10 of this Permit for the Pretreatment Plant Miscellaneous Unit Systems will be allowed only in accordance with Permit Conditions III.10.C.2.e and f, or III.10.C.2.g, III.10.C.9.d, e, and h.

**III.10.G.3 Miscellaneous Unit System Installation and Certification [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-340].**

**III.10.G.3.a** The Permittees must ensure that proper handling procedures are adhered to in order to prevent damage to Pretreatment Plant Miscellaneous Unit Systems during installation. Prior to covering, enclosing, or placing a new Pretreatment Plant Miscellaneous Unit System(s) or component(s) in use, an independent qualified installation inspector or an independent qualified registered professional engineer, either of whom is trained and experienced in the proper installation of similar systems or components, must inspect the system for the presence of any of the following items:

**III.10.G.3.a.i** Weld breaks;

**III.10.G.3.a.ii** Punctures;

**III.10.G.3.a.iii** Scrapes of protective coatings;

**III.10.G.3.a.iv** Cracks;

**III.10.G.3.a.v** Corrosion;

**III.10.G.3.a.vi** Other structural damage or inadequate construction/installation;

**III.10.G.3.a.vii** All discrepancies must be remedied before the Pretreatment Plant Miscellaneous Unit Systems are covered, enclosed, or placed in use [WAC 173-303-640(3)(c) in accordance with WAC 173-303-680(2) and (3)].

**III.10.G.3.b** For Pretreatment Plant Miscellaneous Unit Systems or components that are placed underground and that are back-filled, the Permittees must provide a backfill material that is a non-corrosive, porous, homogeneous substance. The backfill must be installed so that it is placed completely around the miscellaneous unit and compacted to ensure that the miscellaneous unit and piping are fully and uniformly supported [WAC 173-303-640(3)(d), in accordance with WAC 173-303-680(2) and (3)].

**III.10.G.3.c** The Permittees must test for tightness all new Pretreatment Plant Miscellaneous Units and equipment, prior to being covered, enclosed, or placed into use. If the Pretreatment Plant Miscellaneous Unit Systems are found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the Pretreatment Plant Miscellaneous Units Systems being covered, enclosed, or placed in use [WAC 173-303-640(3)(e), in accordance with WAC 173-303-680(2) and (3)].

**III.10.G.3.d** The Permittees must ensure Pretreatment Plant Miscellaneous Unit Systems equipment is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction [WAC 173-303-640(3)(f), in accordance with WAC 173-303-680(2) and (3)].

**III.10.G.3.e** The Permittees must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in Operating Unit Group 10, Appendices 8.9 and 8.11 as approved pursuant to Permit Conditions III.10.G.10.b.i, III.10.G.10.b.iv, III.10.G.10.b.v, III.10.G.10.c.i, III.10.G.10.c.iv, III.10.G.10.c.v, and III.10.G.10.d.i, III.10.G.10.d.iv, III.10.G.10.d.v, or other corrosion protection if Ecology believes other corrosion protection is necessary to ensure the integrity of the Pretreatment Plant Miscellaneous Unit Systems during use of the Pretreatment Plant Miscellaneous Unit Systems. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation [WAC 173-303-640(3)(g), in accordance with WAC 173-303-680(2) and (3)].

**III.10.G.3.f** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will obtain, and keep on file in the WTP Unit operating record, written statements by those persons required to certify the design of the Pretreatment Plant Miscellaneous Unit Systems and supervise the installation of the Pretreatment Plant Miscellaneous Unit Systems, as specified in WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), in accordance with WAC 173-303-680, attesting that each Pretreatment Plant Miscellaneous Unit System and corresponding containment system listed in Permit Tables III.10.G.A and III.10.G.B, as approved/modified pursuant to Permit Condition III.10.G.10, were properly designed and installed, and that repairs, in accordance with WAC 173-303-640(3)(c) and (e), were performed [WAC 173-303-640(3)(a), WAC 173-303-640(3)(h), in accordance with WAC 173-303-680(3)].

**III.10.G.3.g** The independent Pretreatment Plant Miscellaneous Unit System installation inspection and subsequent written statements will be certified in accordance with WAC 173-303-810(13)(a) as modified pursuant to Permit Condition III.10.G.1.d, comply with all requirements of WAC 173-303-640(3)(h), in accordance with WAC 173-303-680, and will consider, but not be limited to, the following miscellaneous unit system installation documentation:

**III.10.G.3.g.i** Field installation report with date of installation;

**III.10.G.3.g.ii** Approved welding procedures;

**III.10.G.3.g.iii** Welder qualifications and certification;

**III.10.G.3.g.iv** Hydro-test reports, as applicable, in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 1, American Petroleum Institute (API) Standard 620, or Standard 650 as applicable;

**III.10.G.3.g.v** Tester credentials;

**III.10.G.3.g.vi** Field inspector credentials;

**III.10.G.3.g.vii** Field inspector reports;

**III.10.G.3.g.viii** Field waiver reports; and

**III.10.G.3.g.ix** Non-compliance reports and corrective action (including field waiver reports) and repair reports.

**III.10.G.4 Integrity Assessments [WAC 173-303-340 and WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3)].**

**III.10.G.4.a** The Permittees will ensure periodic integrity assessments are conducted on the Pretreatment Plant Miscellaneous Unit Systems listed in Permit Table III.10.G.A, as approved/modified pursuant to Permit Condition III.10.G.10, over the term of this Permit in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Operating Unit Group 10, Addendum E of this Permit, as approved pursuant to Permit Conditions III.10.G.10.e.i and III.10.C.5.c. Results of the integrity assessments will be included in the WTP Unit operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

**III.10.G.4.b** The Permittees will address problems detected during Pretreatment Plant Miscellaneous Unit Systems integrity assessments specified in Permit Condition III.10.G.4.a following the integrity assessment program in Operating Unit Group 10, Addendum E of this Permit, as approved pursuant to Permit Conditions III.10.G.10.e.i and III.10.C.5.c.

**III.10.G.4.c** The Permittees must immediately and safely remove from service any Pretreatment Plant Miscellaneous Unit System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Condition III.10.G.5.j.i through iv, and vi. The affected Pretreatment Plant Miscellaneous Unit or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.G.5.j.v [WAC 173-303-640(7)(e) and (f) and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

**III.10.G.5 Miscellaneous Unit Management Practices**

**III.10.G.5.a** No dangerous and/or mixed waste will be managed in the Pretreatment Plant Miscellaneous Unit Systems unless the operating conditions, specified under Permit Condition III.10.G.5, are complied with.

**III.10.G.5.b** The Permittees will install and test all process and leak detection system monitoring/instrumentation, as specified in Permit Table III.10.G.C, as approved/modified pursuant to Permit Condition III.10.G.10, in accordance with Operating Unit Group 10, Appendices 8.1, 8.2, and 8.14 of this Permit, as approved pursuant to Permit Condition III.10.G.10.d.x.

**III.10.G.5.c** The Permittees will not place dangerous and/or mixed waste, treatment reagents, or other materials in the Pretreatment Plant Miscellaneous Unit Systems if these substances could cause the systems to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)].

**III.10.G.5.d** The Permittees will operate the Pretreatment Plant Miscellaneous Unit Systems to prevent spills and overflows using the description of controls and practices, as required under WAC 173-303-640(5)(b), described in Permit Condition III.10.C.5, and Operating Unit Group 10, Appendix 8.18 of this Permit, as approved pursuant to Permit Condition III.10.G.10.e.iv [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-806(4)(c)(ix)].

**III.10.G.5.e** For routinely non-accessible Pretreatment Plant Miscellaneous Unit Systems, as specified in Operating Unit Group 10, Chapter 4 of this Permit, as updated pursuant to Permit Condition III.10.G.10.e.vi, the Permittees will mark all routinely non-accessible Pretreatment Plant Miscellaneous Unit System access points with labels or signs to identify the waste contained in the units. The label, or sign, must be legible at a distance of at least fifty (50) feet and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the miscellaneous unit system(s). For the purposes of this Permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

**III.10.G.5.f** For all Pretreatment Plant Miscellaneous Unit Systems not addressed in Permit Condition III.10.G.5.e, the Permittees will mark all these miscellaneous unit systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the unit. The labels, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the miscellaneous unit system(s) [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

**III.10.G.5.g** The Permittees will ensure that the secondary containment systems for Pretreatment Plant Miscellaneous Unit Systems listed in Permit Tables III.10.G.A and III.10.G.B, as approved/modified pursuant to Permit Condition III.10.G.10, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, ground water, or surface water at any time waste is in the Pretreatment Plant Miscellaneous Units System. Any indication that a crack or gap may exist in the containment systems will be investigated and repaired in accordance with Operating Unit Group 10, Appendix 8.18 of this Permit, as approved pursuant to Permit Condition III.10.G.10.e.v [WAC 173-303–640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), and WAC 173-303-640(6) in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

**III.10.G.5.i** An impermeable coating, as specified in Operating Unit Group 10, Appendices 8.4, 8.5,8.7, 8.9, 8.11, and 8.12 of this Permit, as approved pursuant to Permit Condition III.10.G.10.b.v of this Permit, will be maintained for all concrete containment systems and concrete portions of containment systems for each Pretreatment Plant Miscellaneous Unit System listed in Permit Tables III.10.G.A and III.10.G.B, as approved/modified pursuant to Permit Condition III.10.G.10 [concrete containment systems that do not have a liner pursuant to WAC-173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, will meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2)]. The coating will prevent migration of any dangerous and mixed waste into the concrete. All coatings will meet the following performance standards:

**III.10.G.5.i.i** The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

**III.10.G.5.i.ii** The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and mixed waste could migrate from the system; and

**III.10.G.5.i.iii** The coating must be compatible with the dangerous and mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-806(4)(i)(i)(A)].

**III.10.G.5.j** The Permittees will inspect all secondary containment systems for the Pretreatment Plant Miscellaneous Unit Systems listed in Permit Tables III.10.G.A and III.10.G.B, as approved/modified pursuant to Permit Condition III.10.G.10, in accordance with the Inspection Plan specified in Operating Unit Group 10, Chapter 6 of this Permit, as approved pursuant to Permit Conditions III.10.G.10.e.i and III.10.C.5.c, and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)]:

**III.10.G.5.j.i** Immediately and safely stop the flow of dangerous and/or mixed waste into the miscellaneous unit system or secondary containment system;

**III.10.G.5.j.ii** Determine the source of the dangerous and/or mixed waste;

**III.10.G.5.j.iii** Remove the waste from the containment area in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed waste removed from containment areas of miscellaneous unit systems will be, as a minimum, managed as dangerous and/or mixed waste;

**III.10.G.5.j.iv** If the cause of the release was a spill that has not damaged the integrity of the miscellaneous unit system, the Permittees may return the miscellaneous unit system to service in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(e)(ii). In such a case, the Permittees will take action to ensure the incident that caused liquid to enter the containment system will not reoccur [WAC 173-303-320(3)];

**III.10.G.5.j.v** If the source of the dangerous and/or mixed waste is determined to be a leak from the primary Pretreatment Plant Miscellaneous Unit System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees must comply with the requirements of WAC 173-303-640(7), and take the following actions:

A Close the miscellaneous unit following procedures in WAC 173-303-640(7)(e)(i) and in accordance with WAC 173-303-680, and Operating Unit Group 10, Chapter 11 of this Permit, as approved pursuant to Permit Condition III.10.C.8; or

B. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.G.1.d) the Pretreatment Plant Miscellaneous Unit System in accordance with Operating Unit Group 10, Appendix 8.18 of this Permit, as approved pursuant to Permit Condition III.10.G.10.e.v before the Pretreatment Plant Miscellaneous Unit System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

**III.10.G.5.j.vi** The Permittees will document, in the operating record, actions/procedures taken to comply with i. through v. above, as specified in WAC 173-303-640(6)(d) and in accordance with WAC 173-303-680(2) and (3).

**III.10.G.5.j.vii** In accordance with WAC 173-303-680(2) and (3), the Permittees will notify and report releases to the environment to Ecology as specified in WAC 173-303-640(7)(d).

**III.10.G.5.k** If liquids (e.g., Dangerous and/or mixed waste leaks and spills, precipitation, fire water, liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification will provide the information in A., B., and C. listed below. The Permittees will provide Ecology with a written demonstration, within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

A. Reasons for delayed removal.

B. Measures implemented to ensure continued protection of human health and the environment.

C. Current actions being taken to remove liquids from secondary containment.

**III.10.G.5.l** The Permittees will operate the Pretreatment Plant Miscellaneous Unit Systems in accordance with Operating Unit Group 10, Chapter 4 as updated pursuant to Permit Condition III.10.G.10.e.vi and Appendix 8.18 of this Permit, as approved pursuant to Permit Condition III.10.G.10.e, and the following:

**III.10.G.5.l.i** The Permittees will operate the Pretreatment Plant Miscellaneous Unit Systems in order to maintain the systems and process parameters listed in Permit Table III.10.G.C as approved/modified pursuant to Permit Condition III.10.G.10, within the operating trips and operating ranges specified in Permit Table III.10.G.C, and consistent with assumptions and basis which are reflected in Operating Unit Group 10, Appendix 6.3, as approved pursuant to Permit Condition III.10.C.11.b [WAC 173-303-815(2)(b)(ii) and WAC 173-303-680(2) and (3)]. For the purposes of this Permit Condition, Operating Unit Group 10, Appendix 6.3. will be superseded by Appendix 6.4. upon its approval pursuant to either Permit Conditions III.10.C.11.c or III.10.C.11.d.

**III.10.G.5.l.ii** The Permittees will calibrate/function test the instruments listed in Permit Table III.10.G.C, in accordance with Operating Unit Group 10, Appendix 8.18, as approved pursuant to Permit Condition III.10.G.10.e.xii.

**III.10.G.5.m** For any portion of the Pretreatment Plant Miscellaneous Unit Systems which have the potential for formation and accumulation of hydrogen gases, the Permittees will operate the portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

**III.10.G.5.n** For each miscellaneous unit holding dangerous waste which are acutely or chronically toxic by inhalation, the Permittees will operate the system to prevent escape of vapors, fumes, or other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-303-680].

**III.10.G.6 Air Emissions**

**III.10.G.6.a** Treatment effectiveness, feed-rates, and operating rates for dangerous and mixed waste systems and sub-systems contained in the Pretreatment Plant (as specified in Permit Tables III.10.E.A, III.10.F.A, and III.10.G.A, as approved/modified pursuant to Permit Conditions III.10.E.9, III.10.F.5, III.10.G.10, respectively) will be as specified in Permit Sections III.10.E, III.10.F, and III.10.G, and consistent with the assumptions and basis reflected in Operating Unit Group 10, Appendix 6.3 of this Permit, as approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit condition, Operating Unit Group 10, Appendix 6.3 will be superseded by Appendix 6.4, upon its approval,

pursuant to either Permit Condition III.10.C.11.c or III.10.C.11.d [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

**III.10.G.6.b** Compliance with Permit Condition III.10.G.6.a of this Permit will be regarded as operating within the emission limits specified in Permit Table III.10.G.D, as approved pursuant to Permit Conditions III.10.C.11.b, III.10.C.11.c, or III.10.C.11.d of this Permit.

**III.10.G.6.c** All air pollution control devices and capture systems in the Pretreatment Plant Miscellaneous Unit Systems will be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring that the above equipment is properly operated and maintained so as to minimize the emission of air contaminants and process upsets will be established.

**III.10.G.6.d** The Permittees will ensure that for all dangerous and/or mixed waste areas, systems, and units contained in the Pretreatment Plant (as specified in Permit Tables III.10.E.A, III.10.F.A, and III.10.G.A, as approved pursuant to Permit Conditions III.10.E.9.e.xii, III.10.F.7.d.iv, and III.10.G.10.e.ix, respectively), the Pretreatment Vessel Vent Process System specified in Permit Table III.10.G.A.i will be in operation prior to waste being introduced into these dangerous and/or mixed waste areas, systems, and units contained in the Pretreatment Building. At any time the Pretreatment Vessel Vent Process System ceases to operate or produces insufficient vacuum to recover emissions from the areas, systems, or units, the Permittees will not commence new treatment activities within the dangerous and mixed waste areas, systems, or units contained in the Pretreatment Building, and take measures to minimize evolution of emissions from on-going treatment, and will not receive new dangerous and/or mixed waste shipments into the Pretreatment Building. The Permittees will not re-commence new treatment activities until the Pretreatment Vessel Vent Process System is operational and producing sufficient vacuum to recover emissions.

### III.10.G.7 Inspections [WAC 173-303-680(3)]

**III.10.G.7.a** The Permittees will inspect the Pretreatment Plant Miscellaneous Unit Systems in accordance with the Inspection Plan in Operating Unit Group 10, Chapter 6A of this Permit, as modified in accordance with Permit Condition III.10.C.5.c.

**III.10.G.7.b** The inspection data for Pretreatment Plant Miscellaneous Unit Systems will be recorded, and the records will be placed in the WTP Unit operating record for the Pretreatment Plant Miscellaneous Unit Systems, in accordance with Permit Condition III.10.C.4.

### III.10.G.8 Recordkeeping

The Permittees will record and maintain in the WTP Unit operating record for the Pretreatment Plant Miscellaneous Unit Systems, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4 and III.10.C.5.

### III.10.G.9 Closure

The Permittees will close the Pretreatment Plant Miscellaneous Unit Systems in accordance with Operating Unit Group 10, Chapter 11, as approved pursuant to Permit Condition III.10.C.8.

### III.10.G.10 Compliance Schedule

**III.10.G.10.a** All information identified for submittal to Ecology in a. through e. of this compliance schedule must be signed and certified in accordance with requirements in WAC 173-303-810(12), as modified in accordance with Permit Condition III.10.G.1.d [WAC 173-303-806(4)].

**III.10.G.10.b** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to construction of each secondary containment and leak detection system for the Pretreatment Plant Miscellaneous Unit Systems (per level) as identified in Permit Tables III.10.G.A and III.10.G.B, engineering information as specified below, for incorporation into Operating Unit Group 10, Appendices 8.2, 8.4, 8.5, 8.7, 8.8, 8.9, 8.11, and 8.12 of this Permit. At a minimum, engineering information specified below will show the following as described in WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings and information on sumps and floor drains):

**III.10.G.10.b.i** IQRPE Reports (specific to foundation, secondary containment, and leak detection system) will include review of design drawings, calculations, and other information on which the certification report is based and will include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendix 8.0 of this Permit may be included in the report by reference and should include drawing and document numbers. IQRPE Reports will be consistent with the information separately provided in ii. through ix. below [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

**III.10.G.10.b.ii** Design drawings (General Arrangement Drawings, in plan) and specifications for the foundation, secondary containment, including, liner installation details, and leak detection methodology [Note: leak detection systems for areas where daily, direct, or remote visual inspection is not feasible, will be continuous in accordance with WAC 173-303-640(4)(e)(iii)(C)]. These items should show the dimensions, volume calculations, and location of the secondary containment system, and should include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC 173-303-640(4)(b) through (f) and WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

**III.10.G.10.b.iii** The Permittees will provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the secondary containment system. This information will demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

**III.10.G.10.b.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.G.10.b.v** Secondary containment/foundation and leak detection systems materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials), as applicable [WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.G.10.b.vi** Detailed description of how the secondary containment for each miscellaneous unit system will be installed in compliance with WAC 173-303-640(3)(c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B);

**III.10.G.10.b.vii** Submit Permit Table III.10.G.B completed to provide for all secondary containment sumps and floor drains, the information as specified in each column heading, consistent with information to be provided in i through vi above;

**III.10.G.10.b.viii** Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

**III.10.G.10.b.ix** A detailed description of how miscellaneous unit design provides access for conducting future miscellaneous unit integrity assessments [WAC 173-303-640(3)(b) and WAC 173-303-806(4)(i)(i)(B)].

**III.10.G.10.c** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to installation of each Pretreatment Plant Miscellaneous Unit System as identified in Permit Tables III.10.G.A and III.10.G.B, engineering information as specified below, for incorporation into Operating Unit Group 10, Appendix 8.1 through 8.18 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640 and in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

**III.10.G.10.c.i** IQRPE Reports (specific to miscellaneous unit) will include review of design drawings, calculations, and other information on which the certification report is based and will include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendix 8.0 of this Permit may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports will be consistent with the information separately provided in ii. through xi. below and the IQRPE Report specified in Permit Condition III.10.G.10.b.i [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

**III.10.G.10.c.ii** Design drawings (General Arrangement Drawings in plan, Process Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control systems], and Mechanical Drawings) and specifications, and other information specific to miscellaneous units (to show location and physical attributes of each miscellaneous unit), [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

**III.10.G.10.c.iii** Miscellaneous unit design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the miscellaneous unit(s). Structural support calculations specific to off-specification, non-standard, and field fabricated miscellaneous units will be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

**III.10.G.10.c.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.G.10.c.v** Miscellaneous unit materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

**III.10.G.10.c.vi** Miscellaneous unit vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, will be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

**III.10.G.10.c.vii** System Description related to miscellaneous units will be submitted for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)].

**III.10.G.10.c.viii** Mass and energy balance for normal projected operating conditions used in developing the Piping and Instrumentation Diagrams and the Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

**III.10.G.10.c.ix** A detailed description of how the miscellaneous unit will be installed in compliance with WAC 173-303-640(3)(c), (d), and (e), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

**III.10.G.10.c.x** Documentation that miscellaneous units are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

**III.10.G.10.c.xi** Documentation that miscellaneous units are designed to prevent escape of vapors and emissions of acutely or chronically toxic (upon inhalation) Extremely Hazardous Waste, for incorporation into the Administrative Record [WAC 173-303-640(5)(e), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

**III.10.G.10.d** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to installation of equipment as identified in Permit Tables III.10.G.A and III.10.G.B, not addressed in Permit Condition III.10.G.10.c, engineering information as specified below for incorporation into Operating Unit Group 10, Appendices 8.1through 8.14 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

**III.10.G.10.d.i** IQRPE Reports (specific to equipment) will include a review of design drawings, calculations, and other information as applicable, on which the certification report is based. The reports will include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendix 8.0 of this Permit may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports will be consistent with the information provided separately in ii through xiii

below and the IQRPE Reports specified in Permit Conditions III.10.G.10.b and III.10.G.10.c, [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.G.10.d.ii** Design drawings (Process Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control systems]) specifications and other information specific to equipment (these drawings should include all equipment such as pipe, valves, fittings, pumps, instruments, etc.) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.G.10.d.iii** The Permittees will provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the equipment [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(f), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

**III.10.G.10.d.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil and water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

**III.10.G.10.d.v** Materials selection documentation for equipment (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

**III.10.G.10.d.vi** Vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, for equipment will be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(iv)];

**III.10.G.10.d.vii** Miscellaneous unit, equipment, and leak detection system instrument control logic narrative description (e.g., descriptions of fail-safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)].

**III.10.G.10.d.viii** System Descriptions related to equipment and system descriptions related to leak detection systems, for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

**III.10.G.10.d.ix** A detailed description of how the equipment will be installed and tested [WAC 173-303-640(3)(c) through (e) and WAC 173-303-640(4)(b) and (c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

**III.10.G.10.d.x** For process monitoring, control, and leak detection system instrumentation for the WTP Unit Miscellaneous Unit Systems as identified in Permit Table III.10.G.C, a detailed description of how the process monitoring, control, and leak detection system instrumentation will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi), and WAC 173-303-806(4)(i)(i)(B)];

**III.10.G.10.d.xi** Mass and energy balance for projected normal operating conditions, used in developing the Piping and Instrumentation Diagrams and Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified, for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

**III.10.G.10.d.xii** Documentation that miscellaneous units are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)].

**III.10.G.10.d.xiii** Leak detection system documentation (e.g. vendor information, etc.) consistent with information submitted under Permit Condition III.10.G.10.c.ii and Permit Conditions III.10.G.10.d.ii, vii, viii, and x above, will be submitted for incorporation into the Administrative Record.

**III.10.G.10.e** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, the following as specified below for incorporation into Operating Unit Group 10, Appendix 8.18, except Permit Condition III.10.G.10.e.i, which will be incorporated into Operating Unit Group 10, Chapter 6, of this Permit. All information provided under this permit condition must be consistent with information provided pursuant to Permit Conditions III.10.G.10.b, c, d, and e, III.10.C.3.e, and III.10.C.11.b, as approved by Ecology.

**III.10.G.10.e.i** Integrity assessment program and schedule for the Pretreatment Plant Miscellaneous Unit Systems will address the conducting of periodic integrity assessments on the Pretreatment Plant Miscellaneous Unit Systems over the life of the systems, as specified in Permit Condition III.10.G.10.b.ix and WAC 173-303-640(3)(b), in accordance with WAC 173-303-680, and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past integrity assessments, age of the system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

**III.10.G.10.e.ii** Detailed plans and descriptions, demonstrating the leak detection system is operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of dangerous and/or mixed waste or accumulated liquid in the secondary containment system within twenty-four (24) hours WAC 173-303-640(4)(c)(iii~~). Detection of a leak of at least 0.1 gallons per hour within twenty-four (24) hours is defined as being able to detect a leak within twenty-four (24) hours.~~) Any exceptions to this criteria must be approved by Ecology in accordance with WAC 173-303-680, WAC 173-303-640(4)(c)(iii), and WAC 173-303-806(4)(i)(i)(B)];

**III.10.G.10.e.iii** Detailed operational plans and descriptions, demonstrating that spilled or leaked waste and accumulated liquids can be removed from the secondary containment system within twenty-four (24) hours [WAC 173-303-806(4)(i)(i)(B)];

**III.10.G.10.e.iv** Descriptions of operational procedures demonstrating appropriate controls and practices are in place to prevent spills and overflows from the Pretreatment Plant Miscellaneous Unit Systems, or containment systems, in compliance with WAC 173-303-640(5)(b)(i) through (iii), in accordance with WAC 173-303-680 [WAC 173-303-806(4)(i)(i)(B)];

**III.10.G.10.e.v** Description of procedures for investigation and repair of the Pretreatment Plant Miscellaneous Unit Systems [WAC 173-303–640(6) and WAC 173-303-640(7)(e) and (f), in accordance with WAC 173-303-680, WAC 173-303-320, WAC 173-303-806(4)(a)(v), and WAC 173-303-806(4)(i)(i)(B)];

**III.10.G.10.e.vi** Updated Chapter 4, Narrative Descriptions, Tables and Figures as identified in Permit Tables III.10.G.A and III.10.G.B, as modified pursuant to Permit Condition III.10.G.10.e.ix, and updated to identify routinely non-accessible Pretreatment Plant Miscellaneous Unit Systems [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.G.10.e.vii** Descriptions of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed waste, in accordance with WAC 173-303-640(9) and (10), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B).

**III.10.G.10.e.viii** A description of the tracking system used to track dangerous and/or mixed waste generated throughout the Pretreatment Plant Miscellaneous Unit Systems, pursuant to WAC 173-303-380.

**III.10.G.10.e.ix** Permit Table III.10.G.A, amended as follows [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)]:

A. Under column 1, update and complete list of dangerous and mixed waste Pretreatment Plant Miscellaneous Unit Systems, including plant items which comprise each system (listed by item number).

B. Under column 2, update and complete system designations.

C. Under column 3, replace the 'Reserved' with the Operating Unit Group 10, Appendix 8.0 subsections specific to miscellaneous unit systems as listed in column 1.

D. Under column 4, update and complete list of narrative description tables and figures.

E. Under column 5, update and complete maximum operating volume for each miscellaneous unit, as applicable.

F. Permit Table III.10.G.A.i, amended as follows:

1. Under column 1, update and complete list of plant items that comprise the Pretreatment Plant Vessel Vent System (listed by item number).
2. Under column 2, update and complete designations.
3. Under column 3, replace the 'Reserved' with the Operating Unit Group 10, Appendix 8.0, subsections (e.g., 9.1, 9.2, etc.) specific to systems as listed in column 1.
4. Under column 4, update and complete list of narrative description tables and figures.

**III.10.G.10.e.x** Permit Table III.10.G.C will be completed for Pretreatment Plant Miscellaneous Unit System process and leak detection system monitors and instruments (to include, but not be limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emissions) to provide the information as specified in each column heading. Process and leak detection system monitors and instruments for critical systems as specified in Operating Unit Group 10, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii will be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

**III.10.G.10.e.xi** Supporting documentation for operating trips and expected operating range as specified in Permit Table III.10.G.C, as approved pursuant to Permit Condition III.10.G.10.e.x [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(B), WAC 173-303-806(4)(i)(iv), and WAC 173-303-806(4)(i)(v)];

**III.10.G.10.e.xii** Documentation of process and leak detection instruments and monitors (as listed in Permit Table III.10.G.C) for the Pretreatment Plant Miscellaneous Unit Systems to include, but not be limited to, the following [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)]:

A. Procurement Specifications.

B. Location used.

C. Range, precision, and accuracy.

D. Detailed descriptions of calibration/functionality test procedures (e.g., method number [ASTM]) or provide a copy of manufacturer's recommended calibration procedures.

E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.).

F. Equipment instrument control logic narrative description (e.g., descriptions of fail-safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)].

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**Table III.10.G.A – Pretreatment Plant Miscellaneous Unit Systems**

| Miscellaneous Unit System Description[a] | Miscellaneous Unit System Designation | Description Drawings | Narrative Description, Tables, & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| **Waste Feed Evaporation Process System**<br><br>FEP-SEP-00001A<br>(Waste Feed Evaporator Separator Vessel)<br><br>FEP-SEP-00001B<br>(Waste Feed Evaporator Separator Vessel) | FEP | **24590-PTF**<br>-3PS-MEVV-T0001<br>-M5-V17T-00004001<br>-M5-V17T-00004002<br>-M6-FEP-00001001<br>-M6-FEP-00001002<br>-M6-FEP-00001003<br>-M6-FEP-00002001<br>-M6-FEP-00002002<br>-M6-FEP-00002003<br>-M6-FEP-00003001<br>-M6-FEP-00003002<br>-M6-FEP-00004001<br>-M6-FEP-00004002<br>-M6-FEP-00004003<br>-M6-FEP-00005001<br>-MVD-FEP-P0001<br>-MVD-FEP-P0002<br>-MVD-FEP-00003<br>-MVD-FEP-00006<br>-MVD-FEP-00007<br>-MV-FEP-P0001<br>-MV-FEP-P0002<br>-N1D-FEP-00002<br>-N1D-FEP-P0003<br>-P1-P01T-00001 | Section 4D.2.2.; Table 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | FEP-SEP-00001A = 14,512<br><br>FEP-SEP-00001B = 14,512 |

**Table III.10.G.A – Pretreatment Plant Miscellaneous Unit Systems**

| Miscellaneous Unit System Description[a] | Miscellaneous Unit System Designation | Description Drawings | Narrative Description, Tables, & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -P1-P01T-00002 | | |
| **Waste Feed Evaporation Process System (Cont.)**<br><br>FEP-COND-00001A (Waste Evaporator Primary Condenser)<br><br>FEP-COND-00001B (Waste Evaporator Primary Condenser)<br><br>FEP-COND-00002A (Waste Evaporator Intercondenser)<br><br>FEP-COND-00002B (Waste Evaporator Intercondenser)<br><br>FEP-COND-00003A (Waste Evaporator Aftercondenser)<br><br>FEP-COND-00003B (Waste Evaporator Aftercondenser) | FEP | **24590-PTF**<br>-3PS-MEVV-T0001<br>-M5-V17T-00004001<br>-M5-V17T-00004002<br>-M6-FEP-00003002<br>-M6-FEP-00005001<br>-MED-FEP-P0003<br>-MED-FEP-P0004<br>-MED-FEP-P0005<br>-MED-FEP-P0006<br>-MED-FEP-P0007<br>-MED-FEP-P0008<br>-N1D-FEP-P0008<br>-N1D-FEP-00009<br>-N1D-FEP-00010<br>-P1-P01T-00001<br>-P1-P01T-00002 | Section 4D.2.2.; Table 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | N/A |

**Table III.10.G.A – Pretreatment Plant Miscellaneous Unit Systems**

| Miscellaneous Unit System Description[a] | Miscellaneous Unit System Designation | Description Drawings | Narrative Description, Tables, & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| **Waste Feed Evaporation Process System (Cont.)**<br><br>FEP-RBLR-00001A (Waste Feed Evaporator Reboiler)<br><br>FEP-RBLR-00001B (Waste Feed Evaporator Reboiler) | FEP | **24590-PTF**<br>-3PS-MEVV-T0001<br>-M5-V17T-00004001<br>-M5-V17T-00004002<br>-MED-FEP-00010<br>-N1D-FEP-P0008<br>-P1-P01T-00001<br>-P1-P01T-00002 | Section 4D.2.2.; Table 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | N/A |
| **Cesium Nitric Acid Recovery Process System**<br><br>CNP-EVAP-00001 (Cesium Evaporator Separator Vessel) | CNP | **24590-PTF**<br>-3PS-MEVV-T0002<br>-M5-V17T-00014<br>-M6-CNP-00001001<br>-M6-CNP-00001002<br>-M6-CNP-00001003<br>-M6-CNP-00002001<br>-M6-CNP-00002002<br>-M6-CNP-00002003<br>-M6-CNP-00008001<br>-M6-CNP-00008002<br>-M6-CNP-00010001<br>-M6-CNP-00010002<br>-MV-CNP-P0001<br>-MV-CNP-P0002<br>-MV-CNP-P0005<br>-MVD-CNP-P0003 | Section 4D.2.6.; Table 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | CNP-EVAP-00001 = RESERVED |

**Table III.10.G.A – Pretreatment Plant Miscellaneous Unit Systems**

| Miscellaneous Unit System Description[a] | Miscellaneous Unit System Designation | Description Drawings | Narrative Description, Tables, & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -MVD-CNP-P0010<br>-MVD-CNP-00006<br>-N1D-CNP-P0005<br>-N1D-CNP-P0006<br>-N1D-CNP-P0009<br>-N1D-CNP-P0011<br>-P1-P01T-00001<br>-P1-P01T-00002<br>-P1-P01T-00003<br>-P1-P01T-00004 | | |
| **Cesium Nitric Acid Recovery Process System (Cont.)**<br><br>CNP-HX-00001<br>(Cesium Evaporator Concentrate Reboiler | CNP | **24590-PTF**<br>-3PS-MEVV-T0002<br>-M5-V17T-P0014<br>-M6-CNP-00001001<br>-M6-CNP-00001002<br>-M6-CNP-00001003<br>-M6-CNP-00002001<br>-M6-CNP-00002002<br>-M6-CNP-00002003<br>-M6-CNP-00008<br>-MED-CNP-00003<br>-MED-CNP-00004<br>-MED-CNP-00010<br>-P1-P01T-00001<br>-P1-P01T-00002<br>-P1-P01T-00003 | Section 4D.2.6.; Table 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | N/A |

**Table III.10.G.A – Pretreatment Plant Miscellaneous Unit Systems**

| Miscellaneous Unit System Description[a] | Miscellaneous Unit System Designation | Description Drawings | Narrative Description, Tables, & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -P1-P01T-00004 | | |
| **Cesium Nitric Acid Recovery Process System (Cont.)**<br><br>CNP-DISTC-00001<br>(Cesium Evaporator Nitric Acid Rectifier Column) | CNP | **24590-PTF**<br>-M5-V17T-00014<br>-M6-CNP-00010001<br>-N1D-CNP-00001<br>-P1-P01T-00003<br>-3PS-MEVV-T0002 | Section 4D.2.6.; Table 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | RESERVED |
| **Cesium Nitric Acid Recovery Process System (Cont.)**<br><br>CNP-HX-00002<br>(Cesium Evaporator Primary Condenser)<br><br>CNP-HX-00003<br>(Cesium Evaporator Inter-Condenser)<br><br>CNP-HX-00004<br>(Cesium Evaporator After-Condenser) | CNP | **24590-PTF**<br>-M5-V17T-00014<br>-M6-CNP-00001001<br>-M6-CNP-00001002<br>-M6-CNP-00001003<br>-M6-CNP-00002001<br>-M6-CNP-00002002<br>-M6-CNP-00002003<br>-M6-CNP-00008001<br>-M6-CNP-00010001<br>-MED-CNP-00003<br>-MED-CNP-00004<br>-MED-CNP-00005<br>-MED-CNP-00010<br>-N1D-CNP-P0002<br>-N1D-CNP-P0003<br>-N1D-CNP-P0012<br>-P1-P01T-00001<br>-P1-P01T-00002 | Section 4D.2.6; Table 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | N/A<br><br>N/A<br><br>N/A |

**Table III.10.G.A – Pretreatment Plant Miscellaneous Unit Systems**

| Miscellaneous Unit System Description[a] | Miscellaneous Unit System Designation | Description Drawings | Narrative Description, Tables, & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -P1-P01T-00003<br>-P1-P01T-00004<br>-3PS-MEVV-T0002 | | |
| **Treated LAW Evaporation Process System**<br><br>TLP-SEP-00001<br>(Treated LAW Evaporator Separator Vessel) | TLP | **24590-PTF**<br>-3PS-MEVV-T0001<br>-M5-V17T-00005<br>-M6-TLP-00001<br>-M6-TLP-00002001<br>-M6-TLP-00002002<br>-M6-TLP-00002003<br>-M6-TLP-00002004<br>-M6-TLP-00003001<br>-M6-TLP-00003002<br>-M6-TLP-00003003<br>-M6-TLP-00003004<br>-M6-TLP-00005001<br>-M6-TLP-00005002<br>-M6-TLP-00005003<br>-M6-TLP-00005004<br>-M6-TLP-00005005<br>-M6-TLP-00006001<br>-M6-TLP-00006002<br>-M6-TLP-00006003<br>-M6-TLP-00006004<br>-M6-TLP-00006005<br>-MVD-TLP-P0001 | Section 4D.2.11; Table 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | TLP-SEP-00001 = 13,359 |

**Table III.10.G.A – Pretreatment Plant Miscellaneous Unit Systems**

| Miscellaneous Unit System Description[a] | Miscellaneous Unit System Designation | Description Drawings | Narrative Description, Tables, & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -MVD-TLP-P0002<br>-MVD-TLP-00004<br>-MVD-TLP-00005<br>-MV-TLP-P0001<br>-MV-TLP-P0002<br>-N1D-TLP-P0001<br>-N1D-TLP-P0005<br>-N1D-TLP-P0006<br>-P1-P01T-00001<br>-P1-P01T-00002<br>-P1-P01T-00003 | | |
| **Treated LAW Evaporation Process System (Cont.)**<br><br>TLP-COND-00001 (Treated LAW Primary Condenser)<br><br>TLP-COND-00002 (Treated LAW Inter-condenser)<br><br>TLP-COND-00003 (Treated LAW After-condenser) | TLP | **24590-PTF**<br>-3PS-MEVV-T0001<br>-M5-V17T-00005<br>-M6-TLP-00002001<br>-M6-TLP-00002002<br>-M6-TLP-00002003<br>-M6-TLP-00002004<br>-M6-TLP-00003001<br>-M6-TLP-00003002<br>-M6-TLP-00003003<br>-M6-TLP-00003004<br>-M6-TLP-00005001<br>-M6-TLP-00005002<br>-M6-TLP-00005003<br>-M6-TLP-00005004 | Section 4D.2.11; Table 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | N/A |

**Table III.10.G.A – Pretreatment Plant Miscellaneous Unit Systems**

| Miscellaneous Unit System Description[a] | Miscellaneous Unit System Designation | Description Drawings | Narrative Description, Tables, & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| | | -M6-TLP-00005005<br>-M6-TLP-00006001<br>-M6-TLP-00006002<br>-M6-TLP-00006003<br>-M6-TLP-00006004<br>-M6-TLP-00006005<br>-MED-TLP-P0001<br>-MED-TLP-00002<br>-MED-TLP-00003<br>-MV-TLP-P0001<br>-MV-TLP-P0002<br>-N1D-TLP-P0002<br>-N1D-TLP-P0003<br>-P1-P01T-00001<br>-P1-P01T-00002<br>-P1-P01T-00003 | | |
| **Treated LAW Evaporation Process System (Cont.)**<br><br>TLP-RBLR-00001<br>(Treated LAW Evaporator Reboiler) | TLP | **24590-PTF**<br>-3PS-MEVV-T0001<br>-M5-V17T-00005<br>-MV-TLP-P0001<br>-MV-TLP-P0002<br>-N1D-TLP-P0011<br>-P1-P01T-00001<br>-P1-P01T-00002<br>-P1-P01T-00003 | Section 4D.2.11; Table 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. | N/A |

**Table III.10.G.A – Pretreatment Plant Miscellaneous Unit Systems**

| Miscellaneous Unit System Description[a] | Miscellaneous Unit System Designation | Description Drawings | Narrative Description, Tables, & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| **Spray Decontamination and Sizing System**<br><br>PIH-TTBL-00001 (Spray Decontamination Turntable)<br><br>PIH-TTBL-00002 (Remote Repair Turntable<br><br>PIH-BENCH-00003 (Size Reduction Table)<br><br>This miscellaneous unit is exempt from the requirements of WAC-173-303-640. | PIH | RESERVED | Section 4D.3.2.1; Table 4D-2; and Figure 4A-128 of Operating Unit 10, Chapter 4 of this Permit. | N/A |
| **Hotcell Waste Management Unit**<br><br>Hotcell Floor<br><br>This miscellaneous unit is exempt from the requirements of WAC-173-303-640. | NA | RESERVED | Section 4D.3.1; Table 4D-2; and Figure 4A-128 of Operating Unit 10, Chapter 4 of this Permit. | RESERVED |

[a] The Pretreatment Vessel Vent Process (PVP), Process Vessel Vent Systems (PVV), Pulse Jet Mixer Exhaust System (PJV), and Pretreatment Treated LAW Evaporator Separator Vessel System (TLP) specified in Permit Table III.10.G.A.i is shared between the Pretreatment Plant Miscellaneous Unit Systems. Any references in this Permit to the individual Pretreatment Plant Miscellaneous Unit Systems are also a reference to the Pretreatment Vessel Vent Process (PVP), Process Vessel Vent Systems (PVV), Pulse Jet Mixer Exhaust System (PJV), and Pretreatment Treated LAW Evaporator Separator Vessel System (TLP) Systems. Any reference in this Permit to Permit Table III.10.G.A is also a reference to Permit Table III.10.G.A.i.

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**Table III.10.G.A.i – Pretreatment Plant Vessel Vent Systems Associated with Pretreatment Plant Miscellaneous Unit Systems**

| Description | Designation | Description Drawings | Narrative Description, Tables & Figures |
|---|---|---|---|
| **Pretreatment Vessel Vent Process System**<br><br>PVP-SCB-00002 (Vessel Vent Caustic Scrubber) | PVP | **24590-PTF**<br>-M5-V17T-00021001<br>-M5-V17T-00021004<br>-M6-PVP-00002<br>-M6-PVP-00017001<br>-M6-PVP-00017002<br>-M6-PVP-00017003<br>-M6-PWD-00044<br>-MKD-PVP-00002<br>-MVD-PVP-P0001<br>-MV-PVP-P0002<br>-N1D-PVP-P0001<br>-P1-P01T-00003<br>-P1-P01T-00004 | Section 4D.4.2; Table 4F-2, 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. |
| **Pretreatment Vessel Vent Process System (Cont.)**<br><br>PVP-HEME-00001A (Vessel Vent HEME, Mist eliminator)<br><br>PVP-HEME-00001B (Vessel Vent HEME, Mist Eliminator)<br><br>PVP-HEME-00001C (Vessel Vent HEME, Mist Eliminator) | PVP | **24590-PTF**<br>-M5-V17T-00021001<br>-M5-V17T-00021004<br>-P1-P01T-00001<br>-P1-P01T-00002<br>-P1-P01T-00003<br>-P1-P01T-00004 | Section 4D.4.2; Table 4F-2, 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.G.A.i – Pretreatment Plant Vessel Vent Systems Associated with Pretreatment Plant Miscellaneous Unit Systems**

| Description | Designation | Description Drawings | Narrative Description, Tables & Figures |
|---|---|---|---|
| **Pretreatment Vessel Vent Process System (Cont.)**<br><br>PVP-HX-00002 (Vessel Vent Scrubbing Liquid Cooler) | PVP | **24590-PTF**<br>-M5-V17T-00021001<br>-M6-PVP-00017001<br>-M6-PVP-00017002<br>-M6-PVP-00017003<br>-P1-P01T-00002<br>-P1-P01T-00003<br>-P1-P01T-00004 | Section 4D.4.2; Table 4F-2, 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. |
| **Pretreatment Vessel Vent Process System (Cont.)**<br><br>PVP-OXID-00001 (Vessel Vent VOC Oxidizer Unit) | PVP | **24590-PTF**<br>-M5-V17T-00021001<br>-M5-V17T-00021004<br>-M6-PVP-00017001<br>-M6-PVP-00017002<br>-M6-PVP-00017003<br>-M6-PVP-000018001<br>-M6-PVP-000018002<br>-N1D-PVP-P0002<br>-P1-P01T-00001<br>-P1-P01T-00002<br>-P1-P01T-00003<br>-P1-P01T-00004 | Section 4D.4.2; Table 4F-2, 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. |
| **Pretreatment Vessel Vent Process System (Cont.)**<br><br>PVP-CLR-00001 (Vessel Vent Aftercooler) | PVP | **24590-PTF**<br>-M5-V17T-00021001<br>-M5-V17T-00021004<br>-P1-P01T-00001<br>-P1-P01T-00002 | Section 4D.4.2; Table 4F-2, 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.G.A.i – Pretreatment Plant Vessel Vent Systems Associated with Pretreatment Plant Miscellaneous Unit Systems**

| Description | Designation | Description Drawings | Narrative Description, Tables & Figures |
|---|---|---|---|
| | | -P1-P01T-00003<br>-P1-P01T-00004 | |
| **Pretreatment Vessel Vent Process System (Cont.)**<br><br>PVP-ADBR-00001A (Vessel Vent Carbon Bed Absorber)<br><br>PVP-ADBR-00001B (Vessel Vent Carbon Bed Absorber) | PVP | **24590-PTF**<br>-M5-V17T-00021001<br>-M5-V17T-00021004<br>-P1-P01T-00001<br>-P1-P01T-00002<br>-P1-P01T-00003<br>-P1-P01T-00004 | Section 4D.4.2; Table 4F-2, 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. |
| **Pretreatment Vessel Vent Process System (Cont.)**<br><br>PVP-FILT-00001 (Vessel Vent Adsorber Outlet Filter) | PVP | **24590-PTF**<br>-M5-V17T-00021001<br>-M5-V17T-00021004<br>-P1-P01T-00002<br>-P1-P01T-00003-P1-P01T-00004 | Section 4D.4.2; Table 4F-2, 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. |
| **Process Vessel Vent System**<br><br>PVV-HEPA-00001A (Vessel Vent Primary HEPA Filter)<br><br>PVV-HEPA-00001B (Vessel Vent Primary HEPA Filter)<br><br>PVV-HEPA-00002A (Vessel Vent Secondary HEPA Filter) | PVV | **24590-PTF**<br>-M5-V17T-00021001<br>-P1-P01T-00002 | Section 4D.4.2; Table 4F-2, 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.G.A.i – Pretreatment Plant Vessel Vent Systems Associated with Pretreatment Plant Miscellaneous Unit Systems**

| Description | Designation | Description Drawings | Narrative Description, Tables & Figures |
|---|---|---|---|
| PVV-HEPA-00002B (Vessel Vent Secondary HEPA Filter) | | | |
| **Process Vessel Vent System (Cont.)**<br><br>PVV-FAN-00001A (Vessel Vent Exhaust Fan)<br><br>PVV-FAN-00001B (Vessel Vent Exhaust Fan) | PVV | **24590-PTF**<br>-M5-V17T-00021001<br>-M5-V17T-00021004<br>-P1-P01T-00002<br>-P1-P01T-00003<br>-P1-P01T-00004 | Section 4D.4.2; Table 4F-2, 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. |
| **Pretreatment Pulse Jet Mixer Exhaust Vent System**<br><br>PJV-HEPA-00001A (PJV Primary Exhaust HEPA Filter)<br><br>PJV-HEPA-00001B (PJV Primary Exhaust HEPA Filter)<br><br>PJV-HEPA-00001C (PJV Primary Exhaust HEPA Filter)<br><br>PJV-HEPA-00001D (PJV Primary Exhaust HEPA Filter)<br><br>PJV-HEPA-00001E (PJV Primary Exhaust HEPA Filter) | PJV | **24590-PTF**<br>-M5-V17T-00021002<br>-M6-PJV-00001<br>-M6-PJV-00002<br>-M6-PJV-00004001<br>-N1D-PJV-P0001<br>-P1-P01T-00001 | Section 4D.4.3; Table 4F-2, 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.G.A.i – Pretreatment Plant Vessel Vent Systems Associated with Pretreatment Plant Miscellaneous Unit Systems**

| Description | Designation | Description Drawings | Narrative Description, Tables & Figures |
|---|---|---|---|
| PJV-HEPA-00001F (PJV Primary Exhaust HEPA Filter)<br><br>PJV-HEPA-00001G (PJV Primary Exhaust HEPA Filter)<br><br>PJV-HEPA-00002A (PJV Secondary Exhaust HEPA Filter)<br><br>PJV-HEPA-00002B (PJV Secondary Exhaust HEPA Filter)<br><br>PJV-HEPA-00002C (PJV Secondary Exhaust HEPA Filter)<br><br>PJV-HEPA-00002D (PJV Secondary Exhaust HEPA Filter)<br><br>PJV-HEPA-00002E (PJV Secondary Exhaust HEPA Filter)<br><br>PJV-HEPA-00002F (PJV Secondary Exhaust HEPA Filter) | | | |

**Table III.10.G.A.i – Pretreatment Plant Vessel Vent Systems Associated with Pretreatment Plant Miscellaneous Unit Systems**

| Description | Designation | Description Drawings | Narrative Description, Tables & Figures |
|---|---|---|---|
| **Pretreatment Pulse Jet Mixer Exhaust Vent System (Cont.)**<br><br>PJV-FAN-00001A (PJV Exhaust Fan)<br><br>PJV-FAN-00001B (PJV Exhaust Fan)<br><br>PJV-FAN-00001C (PJV Exhaust Fan) | PJV | **24590-PTF**<br>-M5-V17T-00021002<br>-M6-PJV-00001<br>-M6-PJV-00002<br>-M6-PJV-00004001<br>-N1D-PJV-P0001<br>-P1-P01T-00001 | Section 4D.4.3; Table 4F-2, 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. |
| **Pretreatment Pulse Jet Mixer Exhaust Vent System (Cont.)**<br><br>PJV-DMST-00002A (PJV Demister)<br><br>PJV-DMST-00002B (PJV Demister)<br><br>PJV-DMST-00002C (PJV Demisters) | PJV | **24590-PTF**<br>-M5-V17T-00021002<br>-M6-PJV-00001<br>-M6-PJV-00002<br>-M6-PJV-00004001<br>-N1D-PJV-P0001<br>-P1-P01T-00003 | Section 4D.4.3; Table 4F-2, 4D-2; and Figures 4A-1, 4A-2 and 4A-2A of Operating Unit Group 10, Chapter 4 of this Permit. |

[a] The Pretreatment Vessel Vent Process (PVP), Process Vessel Vent Systems (PVV), and Pulse Jet Mixer Exhaust System (PJV) specified in Permit Table III.10.G.A.i are shared between the Pretreatment Plant Miscellaneous Unit Systems. Any references in this Permit to the individual Pretreatment Plant Miscellaneous Unit Systems are also a reference to the PVP, PVV, and PJV Systems. Any reference in this Permit to Permit Table III.10.G.A is also a reference to Permit Table III.10.G.A.i.

**Table III.10.G.B – Pretreatment Plant Miscellaneous Unit Secondary Containment Systems Including Sumps, Bulges, and Floor Drains**

| Sump, Bulge or Floor Drain I.D. # & Room Location | Maximum Sump/Bulge (gallons), or Drain Line (gallons per minute) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawings No.'s, Specification No.'s etc.) |
|---|---|---|---|---|
| PVP-ZY-00037-S11B-03, P-0105 (PVP-BULGE-00001, El. 0') | | | 3"<br>Stainless Steel | **24590-PTF**<br>-M6-PVP-00017002 |
| PVP-ZY-00036-S11B-03, P-0101A (PVP-BULGE-00002, El. 0') | | | 3"<br>Stainless Steel | **24590-PTF**<br>-M6-PVP-00018002 |
| PVP-ZY-00056-S11B-03, P-0302 (PVP-BULGE-00014, El. 56') | | | 3"<br>Stainless Steel | **24590-PTF**<br>-M6-PVP-00017003 |
| PWD-FD-00323P-0304 Drain, El. 56' | 140 | N/A | 6" Dia<br>316L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00324<br>P-0304 Drain, El. 56' | 140 | N/A | 6" Dia<br>316L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00325<br>P-0304 Drain, El. 56' | 140 | N/A | 6" Dia<br>316L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00326<br>P-0304 Drain, El. 56' | 140 | N/A | 6" Dia<br>316L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00327<br>P-0304 Drain, El. 56' | 140 | N/A | 6" Dia<br>316L | **24590-PTF**<br>-M6-PWD-00044 |
| PWD-FD-00512<br>P-0320 Drain, El. 56' | 140 | N/A | 6" Dia<br>316L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00513<br>P-0320 Drain, El. 56' | 140 | N/A | 6" Dia<br>316L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00514<br>P-0320 Drain, El. 56' | 140 | N/A | 6" Dia<br>316L | **24590-PTF**<br>-M6-PWD-00043 |

**Table III.10.G.B – Pretreatment Plant Miscellaneous Unit Secondary Containment Systems Including Sumps, Bulges, and Floor Drains**

| Sump, Bulge or Floor Drain I.D. # & Room Location | Maximum Sump/Bulge (gallons), or Drain Line (gallons per minute) Capacity | Sump Type/Nominal Operating Volume (gallons) | Sump, Bulge or Drain Line Dimensions[a] (inches) & Materials of Construction | Engineering Description (Drawings No.'s, Specification No.'s etc.) |
|---|---|---|---|---|
| PWD-FD-00515<br>P-0325 Drain, El. 56' | 140 | N/A | 6" Dia<br>316L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00516<br>P-0325 Drain, El. 56' | 140 | N/A | 6" Dia<br>316L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00517<br>P-0325 Drain, El. 56' | 655 | N/A | 8" Dia<br>316L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00557<br>P-0430 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| PWD-FD-00561<br>P-0430 Drain, El. 77' | 140 | N/A | 6" Dia<br>304L | **24590-PTF**<br>-M6-PWD-00043 |
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |

[a] Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).

**Table III.10.G.C. – Pretreatment Plant Miscellaneous Unit System Process and Leak Detection Instruments and Parameters**

| Miscellaneous Unit System Locator and Name (including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Failure State | Expected Range | Instrument Accuracy | Operating Trips (Description & Numerical Limits) | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|---|
| PVP-BULGE-00001[a] | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| PVP-BULGE-00014[a] | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |

[a] Sump locator (including P&ID designator) is located on Permit Table III.10.G.B – Pretreatment Plant Miscellaneous Unit Secondary Containment Systems Including Sumps, Bulges, and Floor Drains.

**Table III.10.G.D. – Pretreatment Plant Miscellaneous Unit Systems Estimated Emission Rates**

| Chemicals | CAS Number | Emission Rates (grams/second) |
|---|---|---|
| RESERVED | RESERVED | RESERVED |

## III.10.H LAW VITRIFICATION SYSTEM – SHORT TERM MISCELLANEOUS THERMAL TREATMENT UNIT-SHAKEDOWN, DEMONSTRATION TEST, AND POST DEMONSTRATION TEST

For purposes of Permit Section III.10.H, where reference is made to WAC 173-303-640, the following substitutions apply: substituting the terms "LAW Vitrification System" for "tank system(s)," "sub-system(s)" for "tank(s)," "sub-system equipment" for "ancillary equipment," and "sub-system(s) or sub-system equipment of a LAW Vitrification System" for "component(s)" in accordance with WAC 173-303-680.

### III.10.H.1 General Conditions During Shakedown, Demonstration Test, and Post-Demonstration Test for LAW Vitrification System

**III.10.H.1.a** Construction and Maintenance [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-340].

**III.10.H.1.a.i** The Permittees will construct the LAW Vitrification System (listed in Permit Tables III.10.H.A and B, as approved/modified pursuant to Permit Condition III.10.H.5) as specified in Permit Condition III.10.H.1 and Operating Unit Group 10, Chapter 4 of this Permit, and Operating Unit Group 10, Appendices 9.1 through 9.15 and 9.17 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.a through d, and III.10.H.5.f.

**III.10.H.1.a.ii** The Permittees will construct all containment systems for the LAW Vitrification System as specified in Operating Unit Group 10, Chapter 4 of this Permit, and Operating Unit Group 10, Appendices 9.2 and 9.4 through 9.14 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.a through d.

**III.10.H.1.a.iii** The Permittees will ensure all certifications required by specialists (e.g., independent qualified registered professional engineer, independent corrosion expert, independent qualified installation inspector, etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new LAW Vitrification System or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following LAW Vitrification System components (e.g., the venting piping, etc.), as required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs (i.e., (a) through (g)) in accordance with WAC 173-303-680).

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

**III.10.H.1.a.iv** The Permittees must ensure that proper handling procedures are adhered to in order to prevent damage to the LAW Vitrification System during installation. Prior to covering, enclosing, or placing the new LAW Vitrification System or component in use, an independent qualified installation inspector or an independent qualified registered professional engineer, either of whom is trained and experienced in the proper installation of similar systems or components, must inspect the system for the presence of any of the following items:

A. Weld breaks.
B. Punctures.
C. Scrapes of protective coatings.
D. Cracks.
E. Corrosion.
F. Other structural damage or inadequate construction/installation.

All discrepancies must be remedied before the LAW Vitrification System is covered, enclosed, or placed in use [WAC 173-303-640(3)(c), in accordance with WAC 173-303-680(2) and (3)].

**III.10.H.1.a.v** For the LAW Vitrification System or components that are placed underground and that are back-filled, the Permittees must provide a backfill material that is a non-corrosive, porous, homogeneous substance. The backfill must be installed so that it is placed completely around the LAW Vitrification System and compacted to ensure that the LAW Vitrification System is fully and uniformly supported [WAC 173-303-640(3)(d), in accordance with WAC 173-303-680(2) and (3)].

**III.10.H.1.a.vi** The Permittees must test for tightness the LAW Vitrification System or components, prior to being covered, enclosed, or placed into use. If the LAW Vitrification System or components are found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the LAW Vitrification System being covered, enclosed, or placed in use [WAC 173-303-640(3)(e), in accordance with WAC 173-303-680(2) and (3)].

**III.10.H.1.a.vii** The Permittees must ensure the LAW Vitrification System equipment is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction [WAC 173-303-640(3)(f), in accordance with WAC 173-303-680(2) and (3)].

**III.10.H.1.a.viii** The Permittees must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in Operating Unit Group 10, Appendices 9.9 and 9.11 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.b.i, III.10.H.5.b.iv, III.10.H.5.b.v, III.10.H.5.c.i, III.10.H.5.c.iv, III.10.H.5.c.v, III.10.H.5.d.i, III.10.H.5.d.iv, and III.10.H.5.d.v, or other corrosion protection if Ecology believes other corrosion protection is necessary to ensure the integrity of the LAW Vitrification System during use of the LAW Vitrification System. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation [WAC 173-303-640(3)(g), in accordance with WAC 173-303-680(2) and (3)].

**III.10.H.1.a.ix** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will obtain and keep on file in the WTP Unit operating record, written statements by those persons required to certify the design of the LAW Vitrification System and supervise the installation of the LAW Vitrification System, as specified in WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), in accordance with WAC 173-303-680, attesting that the LAW Vitrification System and corresponding containment system listed in Permit Tables III.10.H.A and III.10.H.B, as approved/modified pursuant to Permit Condition III.10.H.5, were properly designed and installed, and that repairs, in accordance with WAC 173-303-640(3)(c) and (e) were performed [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(h), in accordance with WAC 173-303-680(3)].

**III.10.H.1.a.x** The independent LAW Vitrification System installation inspection and subsequent written statements will be certified in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.H.1.a.iii, comply with all requirements of WAC 173-303-640(3)(h) in accordance with WAC 173-303-680, and will consider, but not be limited to, the following LAW Vitrification System installation documentation:

A. Field installation report with date of installation.
B. Approved welding procedures.
C. Welder qualification and certifications.
D. Hydro-test reports, as applicable, in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 1; American Petroleum Institute (API) Standard 620, or Standard 650, as applicable.
E. Tester credentials.
F. Field inspector credentials.
G. Field inspector reports.
H. Field waiver reports.
I. Non-compliance reports and corrective action (including field waiver reports) and repair reports.

**III.10.H.1.a.xi** The Permittees will ensure periodic integrity assessments are conducted on the LAW Vitrification System, listed in Permit Table III.10.H.A, as approved/modified pursuant to Permit Condition III.10.H.5, over the term of this Permit in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Operating Unit Group 10, Chapter 6 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i and III.10.C.5.c. Results of the integrity assessments will be included in the WTP Unit operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

**III.10.H.1.a.xii** The Permittees will address problems detected during the LAW Vitrification System integrity assessments specified in Permit Condition III.10.H.1.a.xi following the integrity assessment program in Operating Unit Group 10, Chapter 6 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i and III.10.C.5.c.

**III.10.H.1.a.xiii** All process monitors/instruments, as specified in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5, will be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified, or failure of an instrument in Permit Table III.10.H.F. Dangerous or mixed waste treatment is permitted provided the permittees take immediate, continuous and compensatory action to affect the repair or replacement of the failed instrument.

**III.10.H.1.a.xiv** The Permittees will install and test all process and leak detection system monitors/instrumentation as specified in Permit Tables III.10.H.C and III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5, in accordance with Operating Unit Group 10, Appendices 9.1, 9.2, and 9.14 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.d.x and III.10.H.5.f.xvi.

**III.10.H.1.a.xv** Except during periods of LAW Vitrification System startup, shutdown and malfunction, no dangerous and/or mixed waste will be treated in the LAW

Vitrification System unless the operating conditions, specified under Permit Condition III.10.H.1.c are complied with.

**III.10.H.1.a.xvi** The Permittees will not place dangerous and/or mixed waste, treatment reagents, or other materials in the LAW Vitrification System if these substances could cause the subsystem, subsystem equipment, or the containment system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)]. This condition is not applicable to corrosion of LAW Vitrification System sub-system or sub-system equipment that are expected to be replaced as part of normal operations (e.g., melters).

**III.10.H.1.a.xvii** The Permittees will operate the LAW Vitrification System to prevent spills and overflows using controls and practices as required under WAC 173-303-640(5)(b) described in Permit Condition III.10.C.5 and Operating Unit Group 10, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(c)(ix)].

**III.10.H.1.a.xviii** For routinely non-accessible LAW Vitrification System sub-systems, as specified in Operating Unit Group 10, Chapter 4 of this Permit, as updated pursuant to Permit Condition III.10.H.5.e.vi, the Permittees will mark all routinely non-accessible LAW Vitrification System sub-systems access points with labels, or signs, to identify the waste contained in each LAW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the LAW Vitrification System sub-systems. For the purposes of this permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

**III.10.H.1.a.xix** For all LAW Vitrification System sub-systems not addressed in Permit Condition III.10.H.1.a.xviii, the Permittees will mark all these LAW Vitrification System sub-systems holding dangerous and/or mixed waste with labels, or signs, to identify the waste contained in the LAW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the LAW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

**III.10.H.1.a.xx** The Permittees will ensure that the secondary containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.H.A and III.10.H.B, as approved/modified pursuant to Permit Condition III.10.H.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during use of the LAW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems will be investigated and repaired in accordance with Operating Unit Group 10, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e.v [WAC 173-303–640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

**III.10.H.1.a.xxi** The Permittees must immediately, and safely, remove from service any LAW Vitrification System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Conditions III.10.H.1.a.xxiii, A through D, and F. The affected LAW Vitrification System or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.H.1.a.xxiii.E [WAC 173-303-640(7)(e) and (f), WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

**III.10.H.1.a.xxii** An impermeable coating, as specified in Operating Unit Group 10, Appendices 9.4, 9.5, 9.7, 9.9, 9.11, and 9.12 of this Permit, as approved pursuant to Permit Condition III.10.H.5.b.v will be maintained for all concrete containment systems and concrete portions of containment systems for each LAW Vitrification System sub-systems listed in Permit Tables III.10.H.A and III.10.H.B, as approved/modified pursuant to Permit Condition III.10.H.5 (concrete containment systems that do not have a liner, pursuant to WAC 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, will meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2). The coating will prevent migration of any dangerous and mixed waste into the concrete. All coatings will meet the following performance standards:

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and mixed waste could migrate from the system; and

C. The coating must be compatible with the dangerous and mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(i)(i)(A)].

**III.10.H.1.a.xxiii** The Permittees will inspect all secondary containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.H.A and III.10.H.B, as approved/modified pursuant to Permit Condition III.10.H.5, in accordance with the Inspection Plan specified in Operating Unit Group 10, Chapter 6A of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i and III.10.C.5.c, and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)]:

A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the LAW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed waste.

C. Remove the dangerous and/or mixed waste from the containment area in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed waste removed from containment areas of the LAW Vitrification System sub-systems will be, as a minimum, managed as mixed waste.

D. If the cause of the release was a spill that has not damaged the integrity of the LAW Vitrification System sub-system, the Permittees may return the LAW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees will take action to insure the incident that caused the dangerous and/or mixed waste to enter the containment system will not reoccur [WAC 173-303-320(3)].

E. If the source of the dangerous and/or mixed waste is determined to be a leak from the primary LAW Vitrification System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees will comply with the requirements of WAC 173-303-640(7) and take the following actions:

1. Close the LAW Vitrification System sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and Operating Unit Group 10, Chapter 11 of this Permit, as approved pursuant to Permit Condition III.10.C.8, or

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.H.1.a.iii) the LAW Vitrification System, in accordance with Operating Unit Group 10, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e.v, before the LAW Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

F. The Permittees will document in the operating record actions/procedures taken to comply with A. through E. above as specified in WAC 173-303-640(6)(d), in accordance with WAC 173-303-680(2) and (3).

G. In accordance with WAC 173-303-680(2) and WAC 173-303-680 (3), the Permittees will notify and report releases to the environment to Ecology as specified in WAC 173-303-640(7)(d).

**III.10.H.1.a.xxiv** If liquids (e.g., dangerous and/or mixed waste leaks and spills, precipitation, fire water, liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification will provide the information in A, B, and C, listed below. The Permittees will provide Ecology with a written demonstration within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

A. Reasons for delayed removal.

B. Measures implemented to ensure continued protection of human health and the environment.

C. Current actions being taken to remove liquids from secondary containment.

**III.10.H.1.a.xxv** All air pollution control devices and capture systems in the LAW Vitrification System will be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring that the air pollution control devices and capture systems in the LAW Vitrification System are properly operated and maintained so as to minimize the emission of air contaminants and process upsets will be established.

**III.10.H.1.a.xxvi** In all future narrative permit submittals, the Permittees will include LAW Vitrification sub-system names with the sub-system designation.

**III.10.H.1.a.xxvii** Modifications to approved design, plans, and specifications in Operating Unit Group 10 of this Permit for the LAW Vitrification System will be allowed only in accordance with Permit Conditions III.10.C.2.e and f, or III.10.C.2.g, III.10.C.9.d, III.10.C.9.e, and III.10.C.9.h.

**III.10.H.1.a.xxviii** For any portion of the LAW Vitrification System which has the potential for formation and accumulation of hydrogen gases, the Permittees will operate the portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

**III.10.H.1.a.xxix** For each LAW Vitrification System sub-system holding dangerous waste which are acutely or chronically toxic by inhalation, the Permittees will operate the system to prevent escape of vapors, fumes or other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-303-680].

**III.10.H.1.b** Performance Standards

**III.10.H.1.b.i** The LAW Vitrification System must achieve a one-time demonstration for DRE of 99.99% for the PODCs listed below, further details are provided in III.10.H.2.b.iii.

PODC: Naphthalene and Chlorobenzene

DRE in this permit condition will be calculated in accordance with the formula given below:

$DRE=[1-(W_{out}/W_{in})] \times 100\%$

Where:

$W_{in}$=mass feed-rate of one PODC in a waste feed stream; and

$W_{out}$=mass emission rate of the same PODC present in exhaust emissions prior to release to the atmosphere.

**III.10.H.1.b.ii** Particulate matter emissions from the LAW Vitrification System will not exceed 34 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-303-680(2)].

**III.10.H.1.b.iii** Hydrochloric acid and chlorine gas emissions from the LAW Vitrification System will not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC 173-303-680(2)].

**III.10.H.1.b.iv** Dioxin and Furan TEQ emissions from the LAW Vitrification System will not exceed 0.2 nanograms (ng)/dscm [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-680(2)].

**III.10.H.1.b.v** Mercury emissions from the LAW Vitrification System will not exceed 45 µg/dscm [40 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)].

**III.10.H.1.b.vi** Lead and cadmium emissions from the LAW Vitrification System will not exceed 120 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)].

**III.10.H.1.b.vii** Arsenic, beryllium, and chromium emissions from the LAW Vitrification System will not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)].

**III.10.H.1.b.viii** Carbon monoxide (CO) emission from the LAW Vitrification System will not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the CMS), dry basis [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2)].

**III.10.H.1.b.ix** Hydrocarbon emission from the LAW Vitrification System will not exceed 10 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by a temporary continuous emissions monitoring system during demonstration testing required by this Permit), dry basis, and reported as propane [40 CFR §63.1203(b)(5)(ii), in accordance with WAC 173-303-680(2)].

**III.10.H.1.b.x** If the emissions from the LAW Vitrification System exceed the emission rates listed in Permit Table III.10.H.E, as approved pursuant to Permit Condition III.10.C.11.b, the Permittees will notify Ecology in accordance with Permit Condition III.10.H.3.d.vii [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

The emission limits specified in Permit Conditions III.10.H.1.b.i through III.10.H.1.b.ix above, will be met for the LAW Vitrification System by limiting feed-rates as specified in Permit Tables III.10.H.D and III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5, compliance with operating conditions specified in Permit Condition III.10.H.1.c (except as specified in Permit Condition III.10.H.1.b.xii), and compliance with Permit Condition III.10.H.1.b.xi.

**III.10.H.1.b.xi** Treatment effectiveness, feed-rates and operating rates for dangerous and mixed waste management units contained in the LAW Building, but not included in Permit Table III.10.H.A, as approved/modified pursuant to Permit Condition III.10.H.5, will be as specified in Permit Sections III.10.D, III.10.E, III.10.F and consistent with assumptions and basis which are reflected in Operating Unit Group 10, Appendix 6.3 of this Permit, as approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit condition, Operating Unit Group 10, Appendix 6.3 will be superseded by Appendix 6.4 upon its approval pursuant to either Permit Conditions III.10.C.11.c or III.10.C.11.d [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

**III.10.H.1.b.xii** Except during periods of LAW Vitrification System startup, shutdown and malfunction, compliance with the operating conditions specified in Permit Condition III.10.H.1.c,will be regarded as compliance with the required performance standards identified in Permit Conditions III.10.H.1.b.i through x. However, if it is determined that during the effective period of this Permit that compliance with the operating conditions in Permit Condition III.10.H.1.c is not sufficient to ensure compliance with the performance standards specified in Permit Conditions III.10.H.1.b.i through x, the Permit may be modified, revoked, or reissued pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, or III.10.C.2.g.

**III.10.H.1.c** Operating Conditions [WAC 173-303-670(6), in accordance with WAC 173-303-680(2) and (3)].

The Permittees will operate the LAW Vitrification System in accordance with Operating Unit Group 10, Chapter 4 of this Permit, as updated pursuant to Permit Condition III.10.H.5.e.vi, Operating Unit Group 10, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e, and Operating Unit Group 10, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f, except as modified

pursuant to Permit Conditions III.10.H.1.b.xii, III.10.H.2, III.10.H.3, III.10.H.4, and in accordance with the following:

**III.10.H.1.c.i** Unless operating under an approved environmental performance demonstration test plan, the Permittees will operate the LAW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.H.C and III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5, within the set-points specified in Permit Table III.10.H.F.

**III.10.H.1.c.ii** The Permittees will operate the AWFCO instrument loops, specified in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5, to automatically cut-off and/or lock-out the dangerous and mixed waste feed to the LAW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.H.F, except during calibration or maintenance of the instrument.

**III.10.H.1.c.iii** The Permittees will operate the AWFCO instrument loops, specified in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5, to automatically cut-off and/or lock-out the dangerous and mixed waste feed to the LAW Vitrification System when both the primary and any associated back-up instruments specified on Permit Table III.10.H.F fail.

**III.10.H.1.c.iv** The Permittees will operate the AWFCO instrument loops, specified in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5, to automatically cut-off and/or lock out the dangerous and/or mixed waste feed to the LAW Vitrification System when any portion of the LAW Melter Secondary Offgas/Vessel Vent Process System is bypassed. The terms "bypassed" and "bypass event" as used in Permit Sections III.10.H and III.10.I will mean if any portion of the LAW Melter Secondary Offgas/Vessel Vent Process System is bypassed so that gases are not treated as during the Demonstration Test.

**III.10.H.1.c.v** In the event of a malfunction of an AWFCO instrument loop ~~to automatically cut-off feed,~~ listed in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5, fails to automatically cut-off feed, the Permittees will immediately, manually cut-off the dangerous and mixed waste feed to the LAW Vitrification System. The Permittees will not restart the dangerous and/or mixed waste feed until the problem causing the malfunction has been identified and corrected.

**III.10.H.1.c.vi** The Permittees will manually cut-off the dangerous and mixed waste feed to the LAW Vitrification System when the operating conditions deviate from the ~~conditions~~parameters specified in Permit Condition III.10.H.1.c.i, unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.H.1.c.ii, III.10.H.1.c.iii, and/or III.10.H.1.c.iv.

**III.10.H.1.c.vii** If greater than thirty (30) dangerous and mixed waste feed cut-~~off~~offs, combined, to the LAW Vitrification System occur due to AWFCOs on Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5, within a sixty (60) day period, the Permittees will submit a written report to Ecology within five (5) calendar days of the thirty-first waste feed cut-off including the information specified below. These dangerous and mixed waste feed cut-offs to the LAW Vitrification System, whether automatically or manually activated, are counted if they occur while

dangerous waste and / or, mixed wastecontinue to be fed to the LAW Vitrification System. A cascade event is counted as one (1) waste feed cut-off.

A. The parameter(s) that triggered the waste feed cut-off.
B. The magnitude, dates, and duration of the waste feed cut-off.
C. Results of the investigation of the cause of the waste feed cut-off.
D. Corrective measures taken to minimize future occurrences of the waste feed cut-off.

**III.10.H.1.c.viii** If any portion of the LAW Melter Secondary Offgas/Vessel Vent Process System is bypassed while treating dangerous and/or mixed waste it will be regarded as non-compliance with the operating conditions specified in Permit Condition III.10.H.1.c and the performance standards specified in Permit Condition III.10.H.1.b. After such a bypass event, the Permittees will perform the following actions:

A. Investigate the cause of the bypass event.
B. Take appropriate corrective measures to minimize future bypasses.
C. Record the investigation findings and corrective measures in the operating record.
D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

**III.10.H.1.c.ix** The Permittees will control fugitive emissions from the LAW Vitrification System by maintaining the melters under negative pressure.

**III.10.H.1.c.x** Except during periods of vitrification system startup, shutdown and malfunction, compliance with the operating conditions specified in Permit Condition III.10.H.1.c will be regarded as compliance with the required performance standards identified in Permit Condition III.10.H.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, will justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e and III.10.C.2.f, or III.10.C.2.g.

**III.10.H.1.d** Inspection Requirements [WAC 173-303-680(3)]

**III.10.H.1.d.i** The Permittees will inspect the LAW Vitrification System in accordance with the Inspection Plan in Operating Unit Group 10, Chapter 6A of this Permit, as modified in accordance with Permit Condition III.10.C.5.c.

**III.10.H.1.d.ii** The inspection data for LAW Vitrification System will be recorded, and the records will be placed in the WTP Unit operating record for the LAW Vitrification System, in accordance with Permit Condition III.10.C.4.

**III.10.H.1.e** Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7) and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]

**III.10.H.1.e.i** Upon receipt of a written request from Ecology, the Permittees will perform sampling and analysis of the dangerous and mixed waste and exhaust emissions to verify that the operating requirements established in the Permit achieve the performance standards delineated in this Permit.

**III.10.H.1.e.ii** The Permittees will comply with the monitoring requirements specified in Operating Unit Group 10, Appendices 9.2, 9.3, 9.7, 9.13, 9.15 and 9.18 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.c, III.10.H.5.d, III.10.H.5.e, and

III.10.H.5.f, as modified by Permit Conditions III.10.H.1.b.xii, III.10.H.2, III.10.H.3, and III.10.H.4.

**III.10.H.1.e.iii** The Permittees will operate, calibrate, and maintain the carbon monoxide CEMS as specified in this Permit in accordance with Performance Specifications found in 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Operating Unit Group 10 Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f, and as modified by Permit Conditions III.10.H.1.b.xii, III.10.H.2, III.10.H.3, and III.10.H.4.

**III.10.H.1.e.iv** The Permittees will operate, calibrate, and maintain the instruments specified on Permit Tables III.10.H.C, and F, as approved/modified pursuant to Permit Condition III.10.H.5, in accordance with Operating Unit Group 10, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f, and as modified by Permit Conditions III.10.H.1.b.xii, III.10.H.2, III.10.H.3, and III.10.H.4.

**III.10.H.1.f** Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

**III.10.H.1.f.i** The Permittees will record and maintain in the WTP Unit operating record for the LAW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4 and III.10.C.5, as modified by Permit Conditions III.10.H.1.b.xii, III.10.H.2, III.10.H.3, and III.10.H.4.

**III.10.H.1.f.ii** The Permittees will record in the WTP Unit operating record the date, time, and duration of all automatic waste feed cutoffs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees will also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure. In addition, if the AWFCO is engaged due to a pressure exceedance, the pressure value must be recorded.

**III.10.H.1.f.iii** The Permittees will submit to Ecology a report semi-annually the first calendar year, and annually thereafter each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and mixed waste feed processing time for the LAW Vitrification System;

B. Date/Time of all LAW Vitrification System startups and shutdowns;

C. Date/Time/Duration/Cause/Corrective Action taken for all LAW Vitrification System shutdowns caused by malfunction of either process or control equipment; and

D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous and/or mixed waste feed cut-off due to deviations from Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5.

**III.10.H.1.f.iv** The Permittees will submit an annual report to Ecology each calendar year within ninety (90) days following the end of the year of all quarterly CEMS Calibration Error and Annual CEMS Performance Specification Tests conducted in accordance with Permit Condition III.10.H.1.e.iii.

**III.10.H.1.g** Closure

The Permittees will close the LAW Vitrification System in accordance with Operating Unit Group 10, Chapter 11 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

**III.10.H.2 Shakedown Period [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].**

**III.10.H.2.a** The shakedown period for the LAW Vitrification System will be conducted in accordance with Permit Condition III.10.H.1, Operating Unit Group 10, Appendix 9.15.

**III.10.H.2.b** Duration of the Shakedown Period

**III.10.H.2.b.i** The shakedown period for the LAW Vitrification System will begin with the introduction of PODCs in the LAW Vitrification System and will end with the start of the demonstration test, pursuant to Permit Condition III.10.C.2.l.

**III.10.H.2.b.ii** Each shakedown phase will not exceed the following limits, as defined by hours, when the LAW Vitrification System is processing dangerous waste. The Permittees may petition Ecology for one extension of each shakedown phase for seven hundred and twenty (720) additional operating hours in accordance with Permit modification procedures specified in Permit Conditions III.10.C.2.e and III.10.C.2.f.

Shakedown Phase 1: 720 hours

Shakedown Phase 2: 720 hours

**III.10.H.2.b.iii** Emissions testing will be performed during Shakedown Phase 1 to confirm DRE for both PODCs, naphthalene and chlorobenzene. If pre-testing indicates potential failure of one of the PODCs, then testing with a single PODC may be reconsidered following approval from Ecology.

**III.10.H.2.b.iv** Shakedown Phase 1 will be completed when documentation has been submitted to Ecology and the Permittees have received concurrence verifying that the LAW Vitrification System has operated at a minimum of 75% of the feed-rate limit found in Permit Table III.10.H.D for two (2) separate eight (8) consecutive hour periods with no AWFCOs.

**III.10.H.2.b.v** A full scale emissions test will be performed during Shakedown Phase 2 to determine system capability before starting the Demonstration Test. The Permittee will submit the preliminary results of DRE and a complete emissions data-set to Ecology within 30 days of receiving the results.

**III.10.H.2.b.vi** Shakedown Phase 2 will be completed when documentation has been submitted to Ecology and the Permittee has received concurrence verifying that the LAW Vitrification System has operated at a minimum of 75% feed-rate limit found in Permit Table III.10.H.D for a minimum of consecutive 8-hour periods on two (2) consecutive days with no AWFCOs.

**III.10.H.2.c** Allowable Waste Feed during the Shakedown Period

**III.10.H.2.c.i** The Permittees may feed the dangerous waste specified for the LAW Vitrification System on the Part A Forms (Operating Unit Group 10, Chapter 1 of this Permit), except for those wastes outside the waste acceptance criteria specified in the WAP, Attachment 1, Chapter 3 of this Permit, as approved pursuant to Permit Condition III.10.C.3, except Permit Conditions III.10.H.2.c.ii through iv also apply.

**III.10.H.2.c.ii** The Permittees will not feed mixed waste to the LAW Vitrification System during the Shakedown period.

**III.10.H.2.c.iii** The feed-rates to the LAW Vitrification System shall not exceed the limits in Permit Table III.10.H.D, in accordance with the automatic waste feed cut offs specified in Table III.10.H.F.

**III.10.H.2.c.iv** The Permittees will conduct sufficient analysis of the dangerous waste treated in the LAW Vitrification System to verify that the waste feed is within the physical and chemical composition limits specified in this Permit.

**III.10.H.3 Demonstration Test Period [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]**

**III.10.H.3.a** Demonstration Test Period

**III.10.H.3.a.i** The Permittees will operate, monitor, and maintain the LAW Vitrification System as specified in Permit Condition III.10.H.1, and Operating Unit Group 10, Appendix 9.15 of this Permit.

**III.10.H.3.a.ii** The Demonstration Test Plan, located in Operating Unit Group 10, Appendix 9.15 of this Permit, will be resubmitted to Ecology for approval by the Permittees as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f at least one hundred and eighty (180) days prior to the start date of the demonstration test. The revised Demonstration Test Plan will include applicable EPA promulgated test methods and procedures in effect at the time of the re-submittal and projected commencement and completion dates for the Demonstration Test.

**III.10.H.3.a.iii** The Demonstration Test period will begin once the Permittees have received concurrence from Ecology that Shakedown Phase 2 has been completed.

**III.10.H.3.a.iv** Upon completion of the Demonstration Test, PODC and metals spiking shall be discontinued and purged from the LAW Vitrification System.

**III.10.H.3.a.v** During the purge of the LAW Vitrification System, the feed-rates to the LAW Vitrification System will not exceed the limits in Permit Table III.10.H.D in accordance with the waste feed cut offs in Table III.10.H.F.

**III.10.H.3.a.vi** Once 7,200 gallons of non-dangerous feed material is processed through each melter, the PODC listed codes are no longer applicable to the LAW Vitrification System or waste generated thereafter.

**III.10.H.3.b** Performance Standards

The Permittees will demonstrate compliance with the performance standards specified in Permit Condition III.10.H.1.b during the Demonstration Test Period.

**III.10.H.3.c** Allowable Waste Feed during the Demonstration Test Period

**III.10.H.3.c.i** The Permittees may feed the dangerous waste specified for the LAW Vitrification System in Part A Forms (Operating Unit Group 10, Chapter 1 of this Permit), except for those waste outside the waste acceptance criteria specified in the WAP, Operating Unit Group 10, Chapter 3 of this Permit, as approved pursuant to Permit Condition III.10.C.3, except Permit Conditions III.10.H.3.c.ii through iv also apply.

**III.10.H.3.c.ii** The Permittees will not feed mixed waste to the LAW Vitrification System.

**III.10.H.3.c.iii** The dangerous waste feed-rates to the LAW Vitrification System will not exceed the limits in Permit Tables III.10.H.D in accordance with the waste feed cut offs in Permit Table III.10.H.F.

**III.10.H.3.c.iv** The Permittees will conduct sufficient analysis of the dangerous waste treated in the LAW Vitrification System to verify that the dangerous waste is within the physical and chemical composition limits specified in this Permit.

**III.10.H.3.d** Demonstration Data Submissions and Certifications

**III.10.H.3.d.i** The Permittees will submit to Ecology a complete demonstration test report within one-hundred eighty (180) calendar days of completion of the Demonstration Test including all data collected during the Demonstration Test and updated Permit Tables III.10.I.D, III.10.I.E and III.10.I.F.

**III.10.H.3.d.ii** The Permittees must submit the following information to Ecology within sixty (60) calendar days of completion of the Demonstration Test:

A. A summary of data collected as required by the Demonstration Test Plan.

B. A certification that the Demonstration Test has been carried out in accordance with the approved Demonstration Test Plan and approved modifications within sixty (60) days of the completion of the Demonstration Test [WAC 173-303-807(8)].

C. Calculations and analytical data showing compliance with the performance standards specified in Permit Conditions III.10.H.1.b.i, III.10.H.1.b.iv, III.10.H.1.b.v, III.10.H.1.b.vi, and III.10.H.1.b.vii

D. Laboratory data QA/QC summary for the information provided in III.10.H.3.d.ii.C.

**III.10.H.3.d.iii** The Permittees shall submit a permit modification request proposing the changes to the post Demonstration Test period AWFCO settings (Permit Table III.10.H.F) and waste feed rates (Permit Table III.10.H.D), within ninety (90) calendar days following completion of the Demonstration Test.

**III.10.H.3.d.iv** RESERVED

**III.10.H.3.d.v** After successful completion of the Demonstration Test, Permittees submittal of the following to Ecology and the Permittees receipt of approval of the following in writing, the Permittees will be authorized to feed mixed waste to the LAW Vitrification System pursuant to Permit Section III.10.I.

A. A complete Demonstration Test Report for the LAW Vitrification System and updated Permit Tables III.10.I.D, III.10.I.E, and III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.C.11.c or III.10.C.11.d. The test report will be certified in accordance with WAC 173-303-807(8) and WAC 173-303-680(2) and (3).

B. A Final Risk Assessment Report completed pursuant to Permit Conditions III.10.C.11.c or III.10.C.11.d.

**III.10.H.3.d.vi** If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.H.1.b, with the exception of Permit

Condition III.10.H.1.b.x, for the LAW Vitrification System were not met during the Demonstration Test, the Permittees will perform the following actions:

A. Immediately stop dangerous and mixed waste feed to the LAW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

B. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s) as specified in Permit Condition I.E.21.

C. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

D. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s), documentation supporting a mode of operation where all performance standards listed in Permit Condition III.10.H.1.b, with the exception of Permit Condition III.10.H.1.b.x, for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

E. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.H.3.d.vi.A through D above, and any additional information, Ecology may provide in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of a compliance schedule and/or revised Demonstration Test Plan pursuant to Permit Conditions III.10.H.3.d.vi.F and G.

F. If the performance standard listed in Permit Condition III.10.H.1.b.i was not met during the Demonstration Test, the Permittees will submit within one hundred and twenty (120) days of discovery of not meeting the performance standard, a revised Demonstration Test Plan (if appropriate), and a compliance schedule for Ecology approval to address this deficiency. If a revised Demonstration Test Plan is submitted, it will be accompanied by a request for approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f. The revised Demonstration Test Plan (if submitted) must include substantive changes to prevent failure from reoccurring.

G. If any of the performance standards listed in Permit Condition III.10.H.1.b, with the exception of Permit Conditions III.10.H.1.b.i or III.10.H.1.b.x, were not met during the Demonstration Test the Permittees will submit to Ecology within one hundred twenty (120) days of discovery of not meeting the performance standard(s), a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

**III.10.H.3.d.vii** If any calculations or testing results show that any emission rate for any constituent listed in Permit Table III.10.H.E, as approved pursuant to Permit Condition III.10.C.11.b, is exceeded for LAW Vitrification System during the Demonstration Test, the Permittees will perform the following actions:

A. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21.

B. Submit to Ecology additional risk information to indicate that the increased emissions impact is offset by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of exceeding the emission rate(s); and

C. Based on the notification and any additional information, Ecology may provide, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

**III.10.H.4 Post Demonstration Test Period [WAC 173-303-670(5), WAC 173-303-670(6), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].**

**III.10.H.4.a** The Permittees will operate, monitor, and inspect the LAW Vitrification System as specified in Permit Condition III.10.H.1.

**III.10.H.4.b** After successful completion of the Demonstration Test, the Permittees will submit to Ecology a request to enter the Post Demonstration Test Period. Ecology has seven (7) calendar days from the receipt of the request to approve or deny the Permittees' request to enter the Post Demonstration Test Period. If the Permittees have not received a notification from Ecology to approve or deny the request, the Permittees may operate during the Post Demonstration Test Period at risk.

**III.10.H.4.c** After receipt of approval of Permit Conditions III.10.H.3.d.ii and III.10.H.3.d.iii the Permittees will be authorized to feed mixed waste feed to the LAW Vitrification System.

**III.10.H.4.d** Allowable Waste Feed during the Post-Demonstration Test Period

**III.10.H.4.d.i** The Permittees may feed the dangerous and/or mixed waste specified for the LAW Vitrification System on the Part A Forms (Operating Unit Group 10, Chapter 1 of this Permit), except for those wastes outside the waste acceptance criteria specified in the WAP, Operating Unit Group 10, Chapter 3 of this Permit, as approved pursuant to Permit Condition III.10.C.3, and except Permit Conditions III.10.H.4.d.ii and III.10.H.4.d.iv also apply.

**III.10.H.4.d.ii** The dangerous waste and mixed waste feed-rates to the LAW Vitrification System will not exceed the limits in Permit Table III.10.H.D.

**III.10.H.4.d.iii** During the Post Demonstration Test Period the Permittees may accept and treat up to 3 million gallons of Hanford tank waste feed in the LAW Vitrification System.

**III.10.H.4.d.iv** The Permittees will conduct sufficient analysis of the dangerous waste and mixed waste treated in the LAW Vitrification System to verify that the waste feed is within the physical and chemical composition limits specified in this Permit.

**III.10.H.5 Compliance Schedules**

**III.10.H.5.a** All information identified for submittal to Ecology in III.10.H.5.a. through III.10.H.5.f of this compliance schedule must be signed and certified in accordance with requirements in WAC 173-303-810(12), as modified in accordance with Permit Condition III.10.H.1.a.iii [WAC 173-303-806(4)].

**III.10.H.5.b** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to construction of each secondary containment and leak detection system for the LAW Vitrification System (per level) as identified in Permit Tables III.10.H.A and III.10.H.B, engineering information as specified below, for incorporation into Operating Unit Group 10, Appendices 9.2 , 9.4, 9.5, 9.7, 9.8, 9.9, 9.11, and 9.12 of this Permit. At a minimum, engineering information specified below will show the following as described in WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings and information on sumps and floor drains):

**III.10.H.5.b.i** IQRPE Reports (specific to foundation, secondary containment, and leak detection system) will include review of design drawings, calculations, and other information on which the certification report is based and will include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendix 9.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. IQRPE Reports will be consistent with the information separately provided in ii through ix below [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

**III.10.H.5.b.ii** Design drawings (General Arrangement Drawings, in plan) and specifications for the foundation, secondary containment including liner installation details, and leak detection methodology. These items should show the dimensions, volume calculations, and location of the secondary containment system, and should include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC 173-303-640(4)(b) through (f) and WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

**III.10.H.5.b.iii** The Permittees will provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the secondary containment system. This information will demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

**III.10.H.5.b.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.H.5.b.v** Secondary containment/foundation, and leak detection system, materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials) as applicable [WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.H.5.b.vi** Detailed description of how the secondary containment for the LAW Vitrification System will be installed in compliance with WAC 173-303-640(3)(c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B);

**III.10.H.5.b.vii** Submit Permit Tables III.10.H.B and III.10.I.B completed to provide for all secondary containment sumps and floor drains the information as specified in each column heading consistent with information to be provided in i. through vi., above;

**III.10.H.5.b.viii** Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

**III.10.H.5.b.ix** A detailed description of how LAW Vitrification System design provides access for conducting future LAW Vitrification System integrity assessments [WAC 173-303-640(3)(b) and WAC 173-303-806(4)(i)(i)(B)].

**III.10.H.5.c** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to installation of each sub-system as identified in Permit Table III.10.H.A, engineering information as specified below, for incorporation into Operating Unit Group 10, Appendices 9.1 through 9.14, and 9.17 of this Permit. At a minimum, engineering information specified below will show the following, as required pursuant to WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

**III.10.H.5.c.i** IQRPE Reports (specific to sub-system) will include review of design drawings, calculations, and other information on which the certification report is based and will include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendix 9.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports will be consistent with the information separately provided in ii. through xii. below, and the IQRPE Report specified in Permit Condition III.10.H.5.b [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

**III.10.H.5.c.ii** Design drawings [General Arrangement Drawings in plan and, Process Flow Diagrams, Piping and Instrumentation Diagrams (including pressure control systems), Mechanical Drawings, and specifications, and other information specific to subsystems (to show location and physical attributes of each subsystem)] [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

**III.10.H.5.c.iii** Sub-system design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details to support the subsystems. Structural support calculations specific to off-specification, non-standard and field fabricated subsystems will be submitted for incorporation into the Administrative Record. Documentation will include but not limited to, supporting specifications, test data, treatment effectiveness report, etc. supporting projected operational capability (e.g., WESP projected removal efficiency for individual metals, halogens, particulates, etc.) and compliance with performance standards specified in Permit Condition III.10.H.1.b [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

**III.10.H.5.c.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.H.5.c.v** Sub-system materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

**III.10.H.5.c.vi** Sub-system vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, will be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

**III.10.H.5.c.vii** System descriptions related to sub-system units will be submitted for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

**III.10.H.5.c.viii** Mass and energy balance for normal projected operating conditions used in developing the Piping and Instrumentation Diagrams and Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

**III.10.H.5.c.ix** Detailed description of all potential LAW Vitrification System bypass events including:

A. A report which includes an analysis of credible potential bypass events and recommendations for prevention/minimization of the potential, impact, and frequency of the bypass event to include at a minimum:
   1. Operating procedures
   2. Maintenance procedures
   3. Redundant equipment
   4. Redundant instrumentation
   5. Alternate equipment
   6. Alternate materials of construction

**III.10.H.5.c.x** A detailed description of how the sub-systems will be installed in compliance with WAC 173-303-640(3)(c), (d), and (e), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

**III.10.H.5.c.xi** Sub-system design to prevent escape of vapors and emissions of acutely or chronically toxic (upon inhalation) EHW, for incorporation into the Administrative Record [WAC 173-303-640(5)(e), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

**III.10.H.5.c.xii** Documentation that sub-systems are designed to prevent the accumulation of hydrogen gases levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)].

**III.10.H.5.d** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to installation of equipment for each sub-system as identified in Permit Tables III.10.H.A and III.10.H.B, not addressed in Permit Conditions III.10.H.5.b or III.10.H.5.c, engineering information as specified below, for incorporation into Operating Unit Group 10, Appendices 9.1 through 9.14 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

**III.10.H.5.d.i** IQRPE Reports (specific to sub-system equipment) will include a review of design drawings, calculations, and other information as applicable on which the certification report is based. The reports will include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendix 9.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports will be consistent with the information provided separately in ii through xiii below and the IQRPE Reports specified in Permit Conditions III.10.H.5.b and III.10.H.5.c [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.H.5.d.ii** Design drawings [Process Flow Diagrams, Piping and Instrumentation Diagrams (including pressure control systems), specifications and other information specific to equipment (these drawings should include all equipment such as pipes, valves, fittings, pumps, instruments, etc.)] [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.H.5.d.iii** Sub-system equipment design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the sub-system equipment [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(f), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

**III.10.H.5.d.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil and water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

**III.10.H.5.d.v** Materials selection documentation for equipment for each sub-system (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

**III.10.H.5.d.vi** Vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, for sub-system equipment will be submitted for incorporation into the Administrative Record. [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(iv)];

**III.10.H.5.d.vii** Sub-system, sub-system equipment, and leak detection system instrument control logic narrative description (e.g., descriptions of fail-safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)].

**III.10.H.5.d.viii** System description related to sub-system equipment, and system descriptions related to leak detection systems, for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

**III.10.H.5.d.ix** A detailed description of how the sub-system equipment will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

**III.10.H.5.d.x** For process monitoring, control, and leak detection system instrumentation for the LAW Vitrification System as identified in Permit Tables III.10.H.C and III.10.H. F, a detailed description of how the process monitoring, control, and leak detection

system instrumentation, will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi), and WAC 173-303-806(4)(i)(i)(B)];

**III.10.H.5.d.xi** Mass and energy balance for projected normal operating conditions used in developing the Piping and Instrumentation Diagrams and Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified, for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

**III.10.H.5.d.xii** Documentation that sub-systems equipment are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

**III.10.H.5.d.xiii** Leak detection system documentation (e.g. vendor information, etc.) consistent with information submitted under Permit Condition III.10.H.5.c.ii and Permit Conditions III.10.H.5.d.ii, vii, viii, and x above, will be submitted for incorporation into the Administrative Record.

**III.10.H.5.e** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, the following as specified below for incorporation into Operating Unit Group 10, Appendix 9.18 of this Permit, except Permit Condition III.10.H.5.e.i, which will be incorporated into Operating Unit Group 10, Chapter 6 of this Permit. All information provided under this permit condition must be consistent with information provided pursuant to Permit Conditions III.10.H.5.b, c, d, e, and f, III.10.C.3.e and III.10.C.11.b, as approved by Ecology:

**III.10.H.5.e.i** Integrity assessment program and schedule for the LAW Vitrification System will address the conducting of periodic integrity assessments on the LAW Vitrification System over the life of the system, as specified in Permit Condition III.10.H.5.b.ix and WAC 173-303-640(3)(b), in accordance with WAC 173-303-680, and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past integrity assessments, age of the system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)].

**III.10.H.5.e.ii** Detailed plans and descriptions, demonstrating the leak detection system is operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of dangerous and/or mixed waste or accumulated liquid in the secondary containment system within twenty-four (24) hours [WAC 173-303-640(4)(c)(iii~~)]. Detection of a leak of at least 0.1 gallons per hour within twenty-four (24) hours is defined as being able to detect a leak within twenty-four (24) hours.~~)] as provided in Table 4E-1.. Any exceptions to this criteria must be approved by Ecology in accordance with WAC 173-303-680, WAC 173-303-640(4)(c)(iii), and WAC 173-303-806(4)(i)(i)(b).

A. Dangerous waste pipe penetrations that require a penetration seal in accordance with the IBC and DOE-STD-1066, DOE Standard for Fire Protection Design Criteria, or meet ventilation sealing requirements identified in Permit Table III.10.H.G, are not required to meet the 0.1 gallons

per hour within twenty-four (24) hours leak detection rate for those sections of piping that are in contact with approved silicone or equivalent low-permeability seal material.

B. Piping on either side of the penetration seal must meet the requirements of III.10.H.5.e.ii.

C. Revisions (including additions or deletions) to Permit Table III.10.H.G will be submitted to Ecology for review and approval pursuant to Conditions III.10.C.2.e and III.10.C.2.f. Addition of penetration seal locations to Permit Table III.10.H.G will be approved by Ecology prior to installation of the penetration seal.

**Table III.10.H.G – LAW Plant Penetration Seal Location**

| Row Number | Room Number | Orientation | Discipline | Sequence Number |
|---|---|---|---|---|
| **1.** | L-0112 | E | PD | 02097 |
| **2.** | L-0123 | E | PD | 01823 |
| **3.** | L-0123 | E | PD | 01834 |
| **4.** | L-0123 | E | PD | 01828 |
| **5.** | L-0123 | E | PD | 01837 |
| **6.** | L-0123 | E | PD | 01822 |
| **7.** | L-0123 | E | PD | 01824 |
| **8.** | L-0123 | E | PD | 01826 |
| **9.** | L-0123 | E | PD | 01821 |
| **10.** | L-0123 | E | PD | 01825 |
| **11.** | L-0123 | E | PD | 01827 |
| **12.** | L-0123 | E | PD | 01836 |
| **13.** | L-0123 | E | PD | 01820 |
| **14.** | L-0123 | E | PD | 01832 |
| **15.** | L-0123 | S | PD | 01797 |
| **16.** | L-0124 | E | PD | 01843 |
| **17.** | L-0124 | E | PD | 01844 |
| **18.** | L-0124 | E | PD | 01845 |
| **19.** | L-0124 | E | PD | 01842 |
| **20.** | L-0124 | E | PD | 01847 |
| **21.** | L-0124 | E | PD | 01841 |
| **22.** | L-0124 | E | PD | 01846 |
| **23.** | L-0124 | E | PD | 01850 |
| **24.** | L-0124 | E | PD | 01848 |
| **25.** | L-0124 | E | PD | 01852 |
| **26.** | L-0124 | E | PD | 01840 |
| **27.** | L-0124 | E | PD | 01839 |

**Table III.10.H.G – LAW Plant Penetration Seal Location**

| Row Number | Room Number | Orientation | Discipline | Sequence Number |
|---|---|---|---|---|
| **28.** | L-0124 | E | PD | 01849 |
| **29.** | L-0124 | S | PD | 01801 |
| **30.** | L-0125 | E | PD | 01858 |
| **31.** | L-0125 | E | PD | 01859 |
| **32.** | L-0125 | E | PD | 01860 |
| **33.** | L-0125 | E | PD | 01857 |
| **34.** | L-0125 | E | PD | 01862 |
| **35.** | L-0125 | E | PD | 01856 |
| **36.** | L-0125 | E | PD | 01861 |
| **37.** | L-0125 | E | PD | 01865 |
| **38.** | L-0125 | E | PD | 01863 |
| **39.** | L-0125 | E | PD | 01867 |
| **40.** | L-0125 | E | PD | 01855 |
| **41.** | L-0125 | E | PD | 01854 |
| **42.** | L-0125 | E | PD | 01864 |
| **43.** | L-0126 | S | PD | 01807 |
| **44.** | L-0201 | F | PD | 02405 |
| **45.** | L-0201 | S | PD | 02406 |
| **46.** | L-0202 | F | PD | 02495 |
| **47.** | L-0216 | W | PD | 02674 |
| **48.** | L-0220 | E | PD | 02709 |
| **49.** | L-0301 | F | PD | 03319 |
| **50.** | L-0301 | S | PD | 03437 |
| **51.** | L-0301 | S | PD | 04149 |
| **52.** | L-0301 | S | PD | 04141 |
| **53.** | L-0101A | F | PD | 01291 |
| **54.** | L-0101A | F | PD | 01292 |
| **55.** | L-0101A | W | PD | 01971 |
| **56.** | L-0226B | F | PD | 02445 |
| **57.** | L-0226B | F | PD | 02444 |
| **58.** | L-0304F | F | PD | 03278 |
| **59.** | L-0304F | F | PD | 03277 |
| **60.** | L-B001B | E | EQ | 80908 |
| **61.** | L-B001B | S | PD | 00196 |
| **62.** | L-B001B | S | PD | 00201 |
| **63.** | L-C0201 | F | PD | 02430 |

**Table III.10.H.G – LAW Plant Penetration Seal Location**

| Row Number | Room Number | Orientation | Discipline | Sequence Number |
|---|---|---|---|---|
| **64.** | L-0124 | W | PD | 01410 |
| **65.** | L-0125 | W | PD | 01428 |
| **66.** | L-0126 | W | PD | 01454 |

**III.10.H.5.e.iii** Detailed operational plans and descriptions, demonstrating that spilled or leaked waste and accumulated liquids can be removed from the secondary containment system within twenty-four (24) hours [WAC 173-303-806(4)(i)(i)(B)].

**III.10.H.5.e.iv** Descriptions of operational procedures demonstrating appropriate controls and practices are in place to prevent spills and overflows from the LAW Vitrification System or containment systems in compliance with WAC 173-303-640(5)(b)(i) through (iii), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

**III.10.H.5.e.v** Description of procedures for investigation and repair of the LAW Vitrification System [WAC 173-303–640(6) and WAC 173-303-640(7)(e) and (f), in accordance with WAC 173-303-680, WAC 173-303-320, WAC 173-303-806(4)(a)(v), and WAC 173-303-806(4)(a)(ii)(B)].

**III.10.H.5.e.vi** Updated Chapter 4, Narrative Description, Tables and Figures as identified in Permit Tables III.10.H.A and III.10.H.B, as modified pursuant to Permit Condition III.10.H.5.e.x and updated to identify routinely non-accessible LAW Vitrification sub-systems.

**III.10.H.5.e.vii** Description of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed waste as specified in WAC 173-303-640(9) and (10), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B).

**III.10.H.5.e.viii** A description of the tracking system used to track dangerous and/or mixed waste generated throughout the LAW Vitrification system, pursuant to WAC 173-303-380.

**III.10.H.5.e.ix** Permit Tables III.10.H.C and III.10.I.C will be completed for LAW Vitrification System process and leak detection system monitors and instruments (to include, but not be limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emissions) to provide the information as specified in each column heading. Process and leak detection system monitors and instruments for critical systems as specified in Operating Unit Group 10, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b, and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii will be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

**III.10.H.5.e.x** Permit Tables III.10.H.A and III.10.I.A amended as follows [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)]:

A. Under column 1, update and complete list of dangerous and mixed waste LAW Vitrification System sub-systems, including plant items that comprise each system (listed by item number).

B. Under column 2, update and complete system designations.

C. Under column 3, replace the 'Reserved' with Operating Unit Group 10, Appendix 9.0 subsections (e.g., 9.1, 9.2, etc.) designated in Permit Conditions III.10.H.5.b, c, and d specific to LAW Vitrification System sub-system as listed in column 1.

D. Under column 4, update and complete list of narrative description, tables, and figures.

**III.10.H.5.e.xi** The permittees will incorporate operational parameters/controls required for the underground transfer line LCP-PB-03368-S32B-03 in the operating permit prior to the transfer of waste from the Effluent Management Facility evaporator system to the LAW Facility (LCP-VSL-00001/2). The operational controls will meet the mitigating requirements provided in the Design Guide Case-Specific Exception (DGCE) (number 24590-BOF-DGCE-MS-16-00022) dated 28 February 2017.

**III.10.H.5.f** One hundred and eighty (180) days prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will submit for review and receive approval for incorporation into Operating Unit Group 10, Appendix 9.15 of this Permit, a Demonstration Test Plan for the LAW Vitrification System to demonstrate that the LAW Vitrification Systems meets the performance standards specified in Permit Condition III.10.H.1.b. In order to incorporate the Demonstration Test Plan for the LAW Vitrification System into Operating Unit Group 10, Appendix 9.15, Permit Condition III.10.C.2.g process will be followed. The Demonstration Test Plan will include, but not be limited to, the following information. The Demonstration Test Plan will also be consistent with the information provided pursuant to Permit Conditions III.10.H.5.b, c, d, and e, III.10.C.3.e, and III.10.C.11.b, as approved by Ecology and consistent with the schedule described in Operating Unit Group 10, Appendix 1.0 of this Permit. The documentation required pursuant to Permit Condition III.10.H.5.f.x, in addition to being incorporated into Operating Unit Group 10, Appendix 9.15, will be incorporated by reference in Operating Unit Group 10, Chapter 6 of this Permit.

Notes: (1) The following should be consulted to prepare this Demonstration Test Plan: *"Guidance on Setting Permit Conditions and Reporting Trial Burn Results Volume II of the Hazardous Waste Incineration Guidance Series,"* (EPA/625/6-89/019) and *"Risk Burn Guidance For Hazardous Waste Combustion Facilities," (EPA-R-01-001,* July 2001), WAC 173-303-807(2), WAC 173-303-670(5), WAC-173-303-670(6), 40 CFR §63.1207(f)(2), 40 CFR §63.1209, and Appendix to 40 CFR Part 63 EEE.

(2) Cross-referencing to the information provided pursuant to permit Conditions III.H.5.b, c, d, e, and III.10.C.3.e.v, as approved by Ecology, that are redundant to elements of the Demonstration Test Plan for the LAW Vitrification System is acceptable.

**III.10.H.5.f.i** Analysis of each feed-stream to be fed during the demonstration test, including dangerous waste, glass formers and reductants, process streams that includes:

A. Levels of ash, metals, total chlorine (organic and inorganic), other halogens and radionuclide surrogates.

B. Description of the physical form of the feed-streams.

C. An identification and quantification of organics that are present in the feed-stream, including constituents proposed for DRE demonstration.

A comparison of the proposed demonstration test feed streams to the mixed waste feed envelopes to be processed in the melters must be provided that documents that

the proposed demonstration test feed streams will serve as worst case surrogates for organic destruction, formation of products of incomplete oxidation, and metals, total chlorine (organic and inorganic), other halogens, particulate formation, and radionuclides.

**III.10.H.5.f.ii** Specification of trial PODCs for which destruction and removal efficiencies are proposed to be calculated during the demonstration test and for inclusion in Permit Conditions III.10.H.1.b.i and III.10.I.1.b.i. These trial PODCs will be specified based on destructibility, concentration or mass in the waste and the dangerous waste constituents or constituents in WAC 173-303-9905;

**III.10.H.5.f.iii** A description of the blending procedures, prior to introducing the feed-streams into the melter, including analysis of the materials prior to blending, and blending ratios;

**III.10.H.5.f.iv** A description of how the surrogate feeds are to be introduced for the demonstration. This description should clearly identify the differences and justify how any of differences would impact the surrogate feed introduction as representative of how mixed waste feeds will be introduced;

**III.10.H.5.f.v** A detailed engineering description of the LAW Vitrification System, including:

A. Manufacturer's name and model number for each sub-system.

B. Design capacity of each sub-system including documentation (engineering calculations, manufacturer/vendor specifications, operating data, etc.) supporting projected operational efficiencies (e.g., WESP projected removal efficiency for individual metals, halogens, particulates, etc.) and compliance with performance standards specified in Permit Condition III.10.H.1.b.

C. Detailed scaled engineering drawings, including Process Flow Diagrams, Piping and Instrumentation Diagrams, Vessel Drawings (plan, and elevation with cross sections) and General Arrangement Drawings.

D. Process Engineering Descriptions.

E. Mass and energy balance for each projected operating condition and each demonstration test condition, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified for incorporation into the Administrative Record.

F. Engineering Specifications/data sheets (materials of construction, physical and chemical tolerances of equipment, and fan curves).

G. Detailed Description of Automatic Waste Feed Cutoff System addressing critical operating parameters for all performance standards specified in Permit Condition III.10.H.1.b.

H. Documentation to support compliance with performance standards specified in Permit Condition III.10.H.1.b, including engineering calculations, test data, and manufacturer/vendor's warranties, etc.

I. Detailed description of the design, operation, and maintenance practices for air pollution control system.

J. Detailed description of the design, operation, and maintenance practices of any stack gas monitoring and pollution control monitoring system.

**III.10.H.5.f.vi** Detailed description of sampling and monitoring procedures including sampling and monitoring locations in the system, the equipment to be used, sampling and

monitoring frequency, and planned analytical procedures for sample analysis including, but not limited to:

A. A short summary narrative description of each stack sample method should be included within the main body of the demonstration test plan, which references an appendix to the plan that would include for each sampling train: (1) detailed sample method procedures, (2) sampling train configuration schematic, (3) sampling recovery flow sheet, (4) detailed analytical method procedures, and (5) sampling preparation and analysis flow sheet. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, enhancements to train to accommodate high moisture content in stack gas, etc.) and what is being proposed along with the basis for the decision.

B. A short summary narrative description of the feed and residue sampling methods should be included within the main body of the demonstration test plan, which references an appendix that would include for each sample type: (1) detailed sample method procedures, (2) sampling recovery/compositing procedures, and (3) detailed analytical method procedures. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, etc.) and what is being proposed along with the basis for the decision.

**III.10.H.5.f.vii** A detailed test schedule for each condition for which the demonstration test is planned, including projected date(s), duration, quantity of dangerous waste to be fed, and other relevant factors.

**III.10.H.5.f.viii** A detailed test protocol including, for each test condition, the ranges of feed-rate for each feed system, and all other relevant parameters that may affect the ability of the LAW Vitrification System to meet performance standards specified in Permit Condition III.10.H.1.b.

**III.10.H.5.f.ix** A detailed description of planned operating conditions for each demonstration test condition, including operating conditions for shakedown, demonstration test, post-demonstration test and normal operations. This information will also include submittal of Permit Tables III.10.H.D, III.10.H.F, III.10.I.D, and III.10.I.F completed with the information as specified in each column heading for each LAW Vitrification System waste feed cutoff parameter and submittal of supporting documentation for Permit Tables III.10.H.D, III.10.H.F, III.10.I.D, and III.10.I.F set-point values.

**III.10.H.5.f.x** The test conditions proposed must demonstrate meeting the performance standards specified in Permit Condition III.10.H.1.b with the simultaneous operation of both melters at capacity and input from the LAW Vitrification Vessel Ventilation System at capacity to simulate maximum loading to the LAW Vitrification System off-gas treatment system and to establish the corresponding operating parameter ranges. To the extent that operation of one (1) melter or two (2) melters cannot be sustained within the operating parameter range established at this maximum load, additional demonstration test conditions must be included in the plan and performed to establish

operating parameter ranges for each proposed operating mode while demonstrating meeting the performance standards specified in Permit Condition III.10.H.1.b.

**III.10.H.5.f.xi** Detailed description of procedures for start-up and shutdown of waste feed and controlling emissions in the event of an equipment malfunction, including off-normal and emergency shutdown procedures.

**III.10.H.5.f.xii** A calculation of waste residence time.

**III.10.H.5.f.xiii** Any request to extrapolate metal feed-rate limits from Demonstration Test levels must include:

A. A description of the extrapolation methodology and rationale for how the approach ensures compliance with the performance standards as specified in Permit Condition III.10.H.1.b.

B. Documentation of the historical range of normal metal feed-rates for each feed stream.

C. Documentation that the level of spiking recommended during the demonstration test will mask sampling and analysis imprecision and inaccuracy to the extent that extrapolation of feed-rates and emission rates from the Demonstration Test data will be as accurate and precise as if full spiking were used.

**III.10.H.5.f.xiv** Documentation of the expected levels of constituents in LAW Vitrification System input streams including, but not limited to, waste feed, glass former and reactants, control air, process air, steam, sparge bubbler air, air in-Leakage from melter cave, gases from LAW Vitrification Vessel Ventilation System, and process water.

**III.10.H.5.f.xv** Documentation justifying the duration of the conditioning required to ensure the LAW Vitrification System had achieved steady-state operations under Demonstration Test operating conditions.

**III.10.H.5.f.xvi** Documentation of LAW Vitrification System process and leak detection system instruments and monitors as listed on Permit Tables III.10.H.C, III.10.H.F, III.10.I.C, and III.10.I.F to include:

A. Procurement specifications.

B. Location used.

C. Range, precision, and accuracy.

D. Detailed descriptions of calibration/functionality test procedures (either method number ASTM) or provide a copy of manufacturer's recommended calibration procedures.

E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.).

F. Equipment instrument control logic narrative description (e.g., descriptions of failsafe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)].

**III.10.H.5.f.xvii** Outline of demonstration test report.

**Table III.10.H.A – LAW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables and Figures |
|---|---|---|---|
| **LAW Melter Process System**<br>LMP-MLTR-00001 (LAW Melter 1)<br>LMP-MLTR-00002 (LAW Melter 2) | LMP | **24590-LAW**<br>-CM-HC4-HXYG-00240-02-00014<br>-M0D-LMP-00001<br>-M0D-LMP-00002<br>-M6-LMP-00001001<br>-M6-LMP-00002001<br>-M6-LMP-00002002<br>-M6-LMP-00031001<br>-M6-LMP-00032001<br>-M6-LMP-00032002<br>-MF-LMP-00001<br>-MF-LMP-00002<br>-MF-LMP-00003<br>-MF-LMP-00004<br>-3PS-AE00-T0001<br>-3PN-LMP-00002<br>-N1D-LMP-00001<br>-P1-P01T-00002 | Section 4E.2.2, Table 4E-3, and Figures 4A-1, 4A-3 and 4A-21 in Operating Unit Group 10, Chapter 4 of this Permit. |
| **LAW Primary Offgas Process System**<br>LOP-FCLR-00001 (Melter 1 Primary Film Cooler)<br>LOP-FCLR-00002 (Melter 1 Standby Film Cooler ~~No. 2~~)<br>LOP-FCLR-00003 (Melter 2 Primary Film Cooler) | LOP | **24590-LAW**<br>-P1-P01T-00002<br>-M6-LOP-00004001<br>-M6-LOP-00004002<br>-M6-LOP-00005001<br>-M6-LOP-00005002 | Section 4E.4.2.1, Table 4E-3, and Figures 4A-1, 4A-3 and 4A-21 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.H.A – LAW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables and Figures |
|---|---|---|---|
| LOP-FCLR-00004 (Melter 2 Standby Film Cooler) | | | |
| **LAW Primary Offgas Process System (Cont.)**<br>LOP-SCB-00001 (Melter 1 Submerged Bed Scrubber)<br>LOP-SCB-00002 (Melter 2 Submergered Bed Scrubber) | LOP | **24590-LAW**<br>-M5-V17T-P0007<br>-M5-V17T-P0008<br>-M6-LOP-00001001<br>-M6-LOP-00002001<br>-MK-LOP-P0001001<br>-MK-LOP-P0001002<br>-MK-LOP-P0001003<br>-MKD-LOP-00008<br>-NID-LOP-P0001<br>-P1-P01T-00002 | Section 4E.4.2.1, Table 4E-3, and Figures 4A-1 and 4A-3 in Operating Unit Group 10, Chapter 4 of this Permit. |
| **LAW Primary Offgas Process System (Cont.)**<br>LOP-WESP-00001 (Melter 1 Wet Electrostatic Precipitator – WESP)<br>LOP-WESP-00002 (Melter 2 Wet Electrostatic Precipitator – WESP) | LOP | **24590-LAW**<br>-M5-V17T-P0007<br>-M5-V17T-P0008<br>-M6-LOP-00001004<br>-M6-LOP-00002004<br>-NID-LOP-00003<br>-P1-P01T-00002<br><br>**24590-WTP**<br>-3PS-MKE0-T0001<br><br>24590-QL-POA-MKE0-00001-06-32 | Section 4E.4.2.1, Table 4E-3, and Figures 4A-1 and 4A-3 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.H.A – LAW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables and Figures |
|---|---|---|---|
| **LAW Secondary Offgas/Vessel Vent Process System**<br>LVP-HEPA-00001A (Melter Offgas HEPA Filter)<br>LVP-HEPA-00001B (Melter Offgas HEPA Filter)<br>LVP-HEPA-00002A (Melter Offgas HEPA Filter)<br>LVP-HEPA-00002B (Melter Offgas HEPA Filter)<br>LVP-HEPA-00003A (Melter Offgas HEPA Filter) | LVP | **24590-LAW**<br>-M5-V17T-00010<br>-M6-LVP-00001003<br>-P1-P01T-00005<br><br>24590-QL-POA-MKH0-00001-04-00148 | Section 4E.4.2.2, Table 4E-3, Figures 4A-1 and 4A-3 in Operating Unit Group 10, Chapter 4 of this Permit. |
| **LAW Secondary Offgas/Vessel Vent Process System (Cont.)**<br>LVP-SCO-00001 (Thermal Catalytic Oxidizer – located on LVP-SKID-00002) | LVP | **24590-LAW**<br>-M6-LVP-00005002<br><br>24590-CD-POC-MBT0-00007-01-00353 | Section 4E.4.2.2, Table 4E-3, Figures 4A-1 and 4A-3 in Operating Unit Group 10, Chapter 4 of this Permit. |
| **LAW Secondary Offgas/Vessel Vent Process System (Cont.)**<br>LVP-SCR-00001 (NOx Selective Catalytic Reduction Unit – located on LVP-SKID-00002)<br>LVP-HX-00001 (Catalytic Oxidizer Heat Exchanger – located on LVP-SKID-00002)<br>LVP-HTR-00002 (Catalytic Oxidizer Electric Heater – located on LVP-SKID-00002) | LVP | **24590-LAW**<br>-M6-LVP-00005002<br><br>24590-CD-POC-MBT0-00007-01-00353 | Section 4E.4.2.2, Table 4E-3, and Figures 4A-1 and 4A-3 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.H.A – LAW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables and Figures |
|---|---|---|---|
| **LAW Secondary Offgas/Vessel Vent Process System (Cont.)**<br>LVP-ADBR-00001A (Offgas Mercury Adsorber – located on LVP-SKID-00001)<br>LVP-ADBR-00001B (Offgas Mercury Adsorber – located on LVP-SKID-00001) | LVP | **24590-LAW**<br>-M5-V17T-00011<br>-M6-LVP-00004001<br>-M6-LVP-00004002<br>-M6-LVP-00004003<br>-P1-P01T-00005<br><br>24590-QL-POA-MWK0-00001-05-00198 | Section 4E.4.2.2, Table 4E-3, and Figures 4A-1 and 4A-3 in Operating Unit Group 10, Chapter 4 of this Permit. |
| **LAW Secondary Offgas/Vessel Vent Process System (Cont.)**<br>LVP-SCB-00001 (Melter Offgas Caustic Scrubber) | LVP | **24590-LAW**<br>-P1-P01T-00005<br>-M6-LVP-00002001<br>-M6-LVP-00002002<br><br>**24590-QL-POA-MKAS**<br>-00003-04-00050<br>-00003-04-00051<br>-00003-04-00052 | Section 4E.4.2.2, Table 4E-3, and Figures 4A-1 and 4A-3 in Operating Unit Group 10, Chapter 4 of this Permit. |
| **LAW Secondary Offgas/Vessel Vent Process System (Cont.)**<br>LVP-HTR-00001A (Melter Offgas HEPA Preheater)<br>LVP-HTR-00003A (Melter Offgas HEPA Preheater) | LVP | **24590-LAW**<br>-M5-V17T-00010<br>-M6-LVP-00001002<br>-P1-P01T-00005<br><br>24590-CD-POA-MEE0-00003-03-00005 | Section 4E.4.2.2, Table 4E-3, and Figures 4A-1 and 4A-3 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.H.A – LAW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables and Figures |
|---|---|---|---|
| **LAW Secondary Offgas/Vessel Vent Process System (Cont.)**<br>LVP-EXHR-00001A (Melter Offgas Exhauster)<br>LVP-EXHR-00001B (Melter Offgas Exhauster)<br>LVP-EXHR-00001C (Melter Offgas Exhauster) | LVP | **24590-LAW**<br>-M5-V17T-00010<br>-M6-LVP-00001004<br>-M6-LVP-00001005<br>-M6-LVP-00001006<br>-M6-LVP-00002006<br>-P1-P01T-00005<br><br>24590-QL-POA-MACS-00007-06-00009 | Section 4E.4.2.2, Table 4E-3, and Figures 4A-1 and 4A-3 in Operating Unit Group 10, Chapter 4 of this Permit. |

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**Table III.10.H.B – LAW Vitrification Miscellaneous Unit System Secondary Containment Sumps and Floor Drains**

| Sump/Floor Drain I.D. # & Room Location | Maximum Sump Capacity (gallons) | Sump Dimensions[a] (feet) & Materials of Construction | Engineering Description (Drawing Nos., Specification Nos., etc.) |
|---|---|---|---|
| RLD-SUMP-00029<br>L-0123 (Process Cell, El. +3') | 37 | 30" Dia. x 12"<br>deep<br>Stainless Steel<br>(6% Mo) | **24590-LAW**<br>-M6-RLD-00003002<br>-P1-P01T-00002 |
| RLD-SUMP-00030<br>L-0123 (Process Cell, El. +3') | 37 | 30" Dia. x 12"<br>deep<br>Stainless Steel<br>(6% Mo) | **24590-LAW**<br>-M6-RLD-00003002<br>-P1-P01T-00002 |
| RLD-SUMP-00031<br>L-0124 (Process Cell Sump, El. +3') | 37 | 30" Dia. x 12"<br>deep<br>Stainless Steel<br>(6% Mo) | **24590-LAW**<br>-M6-RLD-00003002<br>-P1-P01T-00002 |
| RLD-SUMP-00032<br>L-0124 (Process Cell, El. +3') | 37 | 30" Dia. x 12"<br>deep<br>Stainless Steel<br>(6% Mo) | **24590-LAW**<br>-M6-RLD-00003002<br>-P1-P01T-00002 |
| LOP-FD-00001<br>L-0123 (LOP-BULGE-00001 Drain El. +3') | N/A | 2" Dia.<br>6% Mo | **24590-LAW**<br>-M6-LOP-00001003 |
| RLD-WS-20037-S11B-01<br>L-0123 (Melter 1 Encasement Assembly Drain, El. +3') | N/A | 1" Dia.<br>316L | **24590-LAW**<br>-M6-LMP-00012001 |
| LOP-FD-00002<br>L-0124 (LOP-BULGE-00002 Drain, El. +3') | N/A | 2" Dia.<br>6% Mo | **24590-LAW**<br>-M6-LOP-00002003 |

**Table III.10.H.B – LAW Vitrification Miscellaneous Unit System Secondary Containment Sumps and Floor Drains**

| Sump/Floor Drain I.D. # & Room Location | Maximum Sump Capacity (gallons) | Sump Dimensions[a] (feet) & Materials of Construction | Engineering Description (Drawing Nos., Specification Nos., etc.) |
|---|---|---|---|
| RLD-WS-20033-S11B-01<br>L-0124 (Melter 2 Encasement Assembly Drain, El. +3') | N/A | 1" Dia.<br>316L | **24590-LAW**<br>-M6-LMP-00042001 |
| RLD-FD-00025<br>L-0304F (Curb Floor Drain for Caustic Scrubber, El. 48') | N/A | 4" Dia.<br>316L | **24590-LAW**<br>-M6-RLD-00003001 |

[a] Dimensions listed are based on permitted design. Actual dimensions may vary within acceptable design tolerances.

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~~**Table III.10.H.C – LAW Vitrification System Process and Leak Detection System Instruments and Parameters**~~

| ~~Item No.~~ | ~~P&ID (24590-LAW-M6-)~~ | ~~Control Parameter~~ | ~~Measuring Instrument~~ | ~~Instrument Tag~~ | ~~Instrument Range~~ | ~~Failure State~~ | ~~Expected Range~~ | ~~Instrument Accuracy~~ | ~~Instrument Calibration Method and Range~~ |
|---|---|---|---|---|---|---|---|---|---|
| **1.** | ~~LMP-00005001~~ | ~~Melter 1 Plenum Temperature Average~~ | ~~Temperature Element~~ | ~~LMP-TE-1263C through LMP-TE-1280C[a]~~ | ~~-454 to 2,300ºF~~ | ~~Redundant~~ | ~~650-2,012ºF~~ | ~~Greater of +/- 2.2ºC or +/- 0.75%~~ | ~~Scheduled replacement, run to failure~~ |
| | | | ~~Temperature Transmitter~~ | ~~LMP-TT-1263A (8 transmitters)~~ | | | | | |
| | | | ~~Temperature Indicator~~ | ~~LMP-TI-1263G~~ | | | | | |
| **2.** | ~~LMP-00035001~~ | ~~Melter 2 Plenum Temperature Average~~ | ~~Temperature Element (N type thermocouple)~~ | ~~LMP-TE-2263C through LMP-TE-2280C[a]~~ | ~~-454 to 2,300ºF~~ | ~~Redundant~~ | ~~650-2,012ºF~~ | ~~Greater of +/- 2.2ºC or +/- 0.75%~~ | ~~Scheduled replacement, run to failure~~ |
| | | | ~~Temperature Transmitter~~ | ~~LMP-TT-2263A[a] (8 transmitters)~~ | | | | | |
| | | | ~~Temperature Indicator~~ | ~~LMP-TI2263G~~ | | | | | |
| **3.** | ~~LMP-00002002~~ | ~~Melter 1 Glass Pool Density~~ | ~~Density Transmitter~~ | ~~LMP-DT-1404~~ | ~~+/- 30 in. WC~~ | ~~Reports Signal Failure~~ | ~~2.4 SpG~~ | ~~+/- .05% span~~ | ~~TBD[e]~~ |
| | | | ~~Density Indicator~~ | ~~LMP-DI-1404~~ | ~~0-3 SpG~~ | | | | |
| **4.** | ~~LMP-00032002~~ | ~~Melter 2 Glass Pool Density~~ | ~~Density Transmitter~~ | ~~LMP-DT-2404~~ | ~~+/- 30 in. WC~~ | ~~Reports Signal Failure~~ | ~~2.4 SpG~~ | ~~+/- .05% span~~ | ~~TBD[e]~~ |
| | | | ~~Density Indicator~~ | ~~LMP-DI-2404~~ | ~~0-3 SpG~~ | | | | |

| ~~Item No.~~ | ~~P&ID (24590-LAW-M6-)~~ | ~~Control Parameter~~ | ~~Measuring Instrument~~ | ~~Instrument Tag~~ | ~~Instrument Range~~ | ~~Failure State~~ | ~~Expected Range~~ | ~~Instrument Accuracy~~ | ~~Instrument Calibration Method and Range~~ |
|---|---|---|---|---|---|---|---|---|---|
| **5.** | ~~LMP-00002002~~ | ~~Melter 1 Glass Pool Level~~ | ~~Level Transmitter~~ | ~~LMP-LT-1403, LMP-LT-1405[a]~~ | ~~+/- 200 in. WC~~ | ~~Fails High~~ | ~~27.0-33.0 in.~~ | ~~+/- .05% span~~ | ~~TBD[e]~~ |
| | | | ~~Level Indicator~~ | ~~LMP-LI-1403A~~ | ~~0 to 100 in.~~ | | | | |
| **6.** | ~~LMP-00032002~~ | ~~Melter 2 Glass Pool Level~~ | ~~Level Transmitter~~ | ~~LMP-LT-2403, LMP-LT-2405[a]~~ | ~~+/- 200 in. WC~~ | ~~Fails High~~ | ~~27.0-33.0 in.~~ | ~~+/- .05% span~~ | ~~TBD[e]~~ |
| | | | ~~Level Indicator~~ | ~~LMP-LI-2403A~~ | ~~0 to 100 in.~~ | | | | |
| **7.** | ~~LMP-00002002~~ | ~~Melter 1 Plenum Pressure~~ | ~~Pressure Differential Transmitter~~ | ~~LMP-PDT-1410, LMP-PDT-1411[a]~~ | ~~+/- 30 in. WC~~ | ~~Fails High~~ | ~~-5.0 in. WC~~ | ~~+/- .05% span~~ | ~~TBD[e]~~ |
| | | | ~~Pressure Differential Indicator~~ | ~~LMP-PDI-1410, LMP-PDI-1411[a]~~ | | | | | |
| **8.** | ~~LMP-00032002~~ | ~~Melter 2 Plenum Pressure~~ | ~~Pressure Differential Transmitter~~ | ~~LMP-PDT-2410, LMP-PDT-2411[a]~~ | ~~+/- 30 in. WC~~ | ~~Fails High~~ | ~~-5.0 in. WC~~ | ~~+/- .05% span~~ | ~~TBD[e]~~ |
| | | | ~~Pressure Differential Indicator~~ | ~~LMP-PDI-2410, LMP-PDI-2411[a]~~ | | | | | |
| **9.** | ~~LMP-00007002~~ | ~~Melter 1 West Canister Level~~ | ~~Level Element (IR Camera)~~ | ~~LMP-LE-1466~~ | ~~0-90 in.~~ | ~~Reports Signal Failure~~ | ~~0-78 in.~~ | ~~TBD[e]~~ | ~~TBD[e]~~ |
| | | | ~~Level Transmitter~~ | ~~LMP-LT-1466~~ | | | | | |
| | | | ~~Level Indication~~ | ~~LMP-LI-1466B~~ | | | | | |
| **10.** | ~~LMP-00007001~~ | ~~Melter 1 East Canister Level~~ | ~~Level Element (IR Camera)~~ | ~~LMP-LE-1511~~ | ~~0-90 in.~~ | ~~Reports Signal Failure~~ | ~~0-78 in.~~ | ~~TBD[e]~~ | ~~TBD[e]~~ |

| ~~Item No.~~ | ~~P&ID (24590-LAW-M6-)~~ | ~~Control Parameter~~ | ~~Measuring Instrument~~ | ~~Instrument Tag~~ | ~~Instrument Range~~ | ~~Failure State~~ | ~~Expected Range~~ | ~~Instrument Accuracy~~ | ~~Instrument Calibration Method and Range~~ |
|---|---|---|---|---|---|---|---|---|---|
| | | | ~~Level Transmitter~~ | ~~LMP-LT-1511~~ | | | | | |
| | | | ~~Level Indication~~ | ~~LMP-LI-1511B~~ | | | | | |
| **11.** | ~~LMP-00037002~~ | ~~Melter 2 West Canister Level~~ | ~~Level Element (IR Camera)~~ | ~~LMP-LE-2466~~ | ~~0-90 in.~~ | ~~Reports Signal Failure~~ | ~~0-78 in.~~ | ~~TBD[e]~~ | ~~TBD[e]~~ |
| | | | ~~Level Transmitter~~ | ~~LMP-LT-2466~~ | | | | | |
| | | | ~~Level Indication~~ | ~~LMP-LI-2466~~ | | | | | |
| **12.** | ~~LMP-00037001~~ | ~~Melter 2 East Canister Level~~ | ~~Level Element (IR Camera)~~ | ~~LMP-LE-2511~~ | ~~0-90 in.~~ | ~~Reports Signal Failure~~ | ~~0-78 in.~~ | ~~TBD[e]~~ | ~~TBD[e]~~ |
| | | | ~~Level Transmitter~~ | ~~LMP-LT-2511~~ | | | | | |
| | | | ~~Level Indication~~ | ~~LMP-LI-2511B~~ | | | | | |
| **13.** | ~~LMP-00010001~~ | ~~Melter 1 West Discharge Air Lift~~ | ~~On/Off Plug Valve~~ | ~~LMP-YV-1125~~ | ~~Open/Closed~~ | ~~Fail Closed~~ | ~~Open~~ | ~~N/A~~ | ~~N/A~~ |
| | | | ~~Valve Control~~ | ~~LMP-YC-1125~~ | | | | | |
| **14.** | ~~LMP-00008001~~ | ~~Melter 1 East Discharge Air Lift~~ | ~~On/Off Plug Valve~~ | ~~LMP-YV-1047~~ | ~~Open/Closed~~ | ~~Fail Closed~~ | ~~Open~~ | ~~N/A~~ | ~~N/A~~ |
| | | | ~~Valve Control~~ | ~~LMP-YC-1047~~ | | | | | |
| **15.** | ~~LMP-00040001~~ | ~~Melter 2 West Discharge Air Lift~~ | ~~On/Off Plug Valve~~ | ~~LMP-YV-2125~~ | ~~Open/Closed~~ | ~~Fail Closed~~ | ~~Open~~ | ~~N/A~~ | ~~N/A~~ |
| | | | ~~Valve Control~~ | ~~LMP-YC-2125~~ | | | | | |

| ~~Item No.~~ | ~~P&ID (24590-LAW-M6-)~~ | ~~Control Parameter~~ | ~~Measuring Instrument~~ | ~~Instrument Tag~~ | ~~Instrument Range~~ | ~~Failure State~~ | ~~Expected Range~~ | ~~Instrument Accuracy~~ | ~~Instrument Calibration Method and Range~~ |
|---|---|---|---|---|---|---|---|---|---|
| **16.** | ~~LMP-00038001~~ | ~~Melter 2 East Discharge Air Lift~~ | ~~On/Off Plug Valve~~ | ~~LMP-YV-2047~~ | ~~Open/Closed~~ | ~~Fail Closed~~ | ~~Open~~ | ~~N/A~~ | ~~N/A~~ |
| | | | ~~Valve Control~~ | ~~LMP-YC-2047~~ | | | | | |
| **17.** | ~~LMP-00012001~~ | ~~Melter 1 Feed Encasement Assembly Leak Detection~~ | ~~Cable Type Conductivity Element~~ | ~~LMP-LE-1632~~ | ~~Low/High~~ | ~~Fail Low~~ | ~~Low~~ | ~~N/A~~ | ~~TBD[e]~~ |
| | | | ~~Level Alarm High~~ | ~~LMP-LAH-1632~~ | | | | | |
| **18.** | ~~LMP-00042001~~ | ~~Melter 2 Feed Encasement Assembly Leak Detection~~ | ~~Cable Type Conductivity Element~~ | ~~LMP-LE-2632~~ | ~~Low/High~~ | ~~Fail Low~~ | ~~Low~~ | ~~N/A~~ | ~~TBD[e]~~ |
| | | | ~~Level Alarm High~~ | ~~LMP-LAH-2632~~ | | | | | |
| **19.** | ~~LMP-00013002 and LMP-00005001~~ | ~~Melter 1 Lid Cooling~~ | ~~Temperature Element (RTD 100% Pt Sensor)~~ | ~~LMP-TE-1639, LMP-TE-1640~~ | ~~0-212ºF~~ | ~~Reports Signal Failure~~ | ~~103 ºF~~ | ~~±(0.3+.005\|t)ºC[b]~~ | ~~TBD[e]~~ |
| | | | ~~Temperature Transmitter~~ | ~~LMP-TT-1293~~ | | | | | |
| | | | ~~Temperature Indicator~~ | ~~LMP-TI-1639, LMP-TI-1640~~ | | | | | |
| **20.** | ~~LMP-00043002 and LMP-00035001~~ | ~~Melter 2 Lid Cooling~~ | ~~Temperature Element~~ | ~~LMP-TE-2639, LMP-TE-2640~~ | ~~0-212ºF~~ | ~~Reports Signal Failure~~ | ~~103 ºF~~ | ~~±(0.3+.005\|t)ºC[b]~~ | ~~TBD[e]~~ |
| | | | ~~Temperature Transmitter~~ | ~~LMP-TT-2293~~ | | | | | |
| | | | ~~Temperature Indicator~~ | ~~LMP-TI-2639, LMP-TI-2640~~ | | | | | |

| ~~Item No.~~ | ~~P&ID (24590-LAW-M6-)~~ | ~~Control Parameter~~ | ~~Measuring Instrument~~ | ~~Instrument Tag~~ | ~~Instrument Range~~ | ~~Failure State~~ | ~~Expected Range~~ | ~~Instrument Accuracy~~ | ~~Instrument Calibration Method and Range~~ |
|---|---|---|---|---|---|---|---|---|---|
| **21.** | ~~LMP-00001001~~<br>~~LMP-00002001~~ | ~~Melter 1 Bubbler Airflow Total~~ | ~~Flow Element~~ | ~~LMP-FE-1329-1397~~ | ~~0-5 scfm~~ | ~~Fail Open~~ | ~~0.75 scfm~~ | ~~1% span >30% FS~~ | ~~TBD[e]~~ |
| | | | ~~Flow Indicator~~ | ~~LMP-FI-TBD~~ | ~~0-90 scfm~~ | ~~Reports Signal Failure~~ | ~~13.5 scfm~~ | | |
| **22.** | ~~LMP-00031001 and LMP-00032001~~ | ~~Melter 2 Bubbler Airflow Total~~ | ~~Flow Element~~ | ~~LMP-FE-2329-2397~~ | ~~0-5 scfm~~ | ~~Fail Open~~ | ~~0.75 scfm~~ | ~~1% span >30% FS~~ | ~~TBD[e]~~ |
| | | | ~~Flow Indicator~~ | ~~LMP-FI-TBD~~ | ~~0-90 scfm~~ | ~~Reports Signal Failure~~ | ~~13.5 scfm~~ | | |
| **23.** | ~~LOP-00001001~~ | ~~SBS Temperature Melter 1~~ | ~~Temperature Element (RTD-100% Pt Sensor)~~ | ~~LOP-TE-1038~~ | ~~-328-1562ºF~~ | ~~Fail Low~~ | ~~122ºF~~ | ~~±(0.3+.005\|t\|) ºC[b]~~ | ~~TBD[e]~~ |
| | | | ~~Temperature Transmitter~~ | ~~LOP-TT-1038~~ | | | | | |
| | | | ~~Temperature Indicator~~ | ~~LOP-TI-1038~~ | | | | | |
| **24.** | ~~LOP-00002001~~ | ~~SBS Temperature Melter 2~~ | ~~Temperature Element (RTD-100% Pt Sensor)~~ | ~~LOP-TE-2038~~ | ~~-328-1562ºF~~ | ~~Fail Low~~ | ~~122ºF~~ | ~~±(0.3+.005\|t\|) ºC[b]~~ | ~~TBD[e]~~ |
| | | | ~~Temperature Transmitter~~ | ~~LOP-TT-2038~~ | | | | | |
| | | | ~~Temperature Indicator~~ | ~~LOP-TI-2038~~ | | | | | |
| **25.** | ~~LOP-00001004~~ | ~~WESP Temperature Melter 1~~ | ~~Temperature Element (RTD-100% Pt Sensor)~~ | ~~LOP-TE-1047~~ | ~~-328-1562ºF~~ | ~~Fail Low~~ | ~~122ºF~~ | ~~±(0.3+.005\|t\|) ºC[b]~~ | ~~TBD[e]~~ |
| | | | ~~Temperature Transmitter~~ | ~~LOP-TT-1047~~ | | | | | |
| | | | ~~Temperature Indicator~~ | ~~LOP-TI-1047~~ | | | | | |

| ~~Item No.~~ | ~~P&ID (24590-LAW-M6-)~~ | ~~Control Parameter~~ | ~~Measuring Instrument~~ | ~~Instrument Tag~~ | ~~Instrument Range~~ | ~~Failure State~~ | ~~Expected Range~~ | ~~Instrument Accuracy~~ | ~~Instrument Calibration Method and Range~~ |
|---|---|---|---|---|---|---|---|---|---|
| **26.** | ~~LOP-00002004~~ | ~~WESP Temperature Melter 2~~ | ~~Temperature Element (RTD-100% Pt Sensor)~~ | ~~LOP-TE-2047~~ | ~~-328-1562ºF~~ | ~~Fail Low~~ | ~~125ºF~~ | ~~±(0.3+.005\|t\|) ºC[b]~~ | ~~TBD[e]~~ |
| | | | ~~Temperature Transmitter~~ | ~~LOP-TT-2047~~ | | | | | |
| | | | ~~Temperature Transmitter~~ | ~~LOP-TI-2047~~ | | | | | |
| **27.** | ~~LVP-00001002~~ | ~~HEPA Inlet Temperature~~ | ~~Temperature Element (RTD-100% Pt Sensor)~~ | ~~LVP-TE-0104~~ | ~~0-900ºF~~ | ~~Reports Signal Failure~~ | ~~160ºF~~ | ~~±(0.3+.005\|t\|) ºC[b]~~ | ~~TBD[e]~~ |
| | | | ~~Temperature Transmitter~~ | ~~LVP-TT-0104~~ | | | | | |
| | | | ~~Temperature Transmitter~~ | ~~LVP-TI-0104~~ | | | | | |
| **28.** | ~~LVP-00005002~~ | ~~TCO Discharge Temperature~~ | ~~Temperature Element (Type J Thermocouple)~~ | ~~LVP-TE-0511~~ | ~~32-900ºF~~ | ~~Reports Signal Failure~~ | ~~720-750ºF~~ | ~~±(0.3+.005\|t\|) ºC[b]~~ | ~~TBD[e]~~ |
| | | | ~~Temperature Transmitter~~ | ~~LVP-TT-0511~~ | | | | | |
| | | | ~~Temperature Transmitter~~ | ~~LVP-TI-0511~~ | | | | | |
| **29.** | ~~LVP-00002006~~ | ~~Stack Maximum CO Concentration (Hourly Rolling Average)~~ | ~~Analysis Element~~ | ~~SDJ-AE-2110, SDJ-AE-2124~~ | ~~Dual Range Analyzer: 0-200 ppm 0-3000 ppm~~ | ~~Drive Output Low, Activate Alarm~~ | ~~0.3-61.6 ppm~~ | ~~1% span~~ | ~~Automated Calibration with Alarms~~ |
| | | | ~~Analysis Transmitter~~ | ~~SDJ-AT-2110, SDJ-AT-2124~~ | | | | | |

| ~~Item No.~~ | ~~P&ID (24590-LAW-M6-)~~ | ~~Control Parameter~~ | ~~Measuring Instrument~~ | ~~Instrument Tag~~ | ~~Instrument Range~~ | ~~Failure State~~ | ~~Expected Range~~ | ~~Instrument Accuracy~~ | ~~Instrument Calibration Method and Range~~ |
|---|---|---|---|---|---|---|---|---|---|
| | | | ~~Analysis Indication~~ | ~~SDJ-AI-2110, SDJ-AI-2124~~ | | | | | |

~~Footnotes:~~

~~N/A – not applicable; TBD = to be determined~~

~~[a] These instruments sets are duplicates. Only one instrument set is required to remain functioning during waste feed operations.~~

~~[b] Resistance temperature detector (RTD) class B.~~

~~[c] To be determined by Plant Engineering as each instrument calibration package is developed. All TBD items will be replaced with actual values in the required 180-day resubmittal of the EPDT Plan in accordance with III.10.H.3.a.ii.~~

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| **LAW Melter 1 (LMP-MLTR-00001) in L-0112 (see 24590-LAW-M6-LMP-00005001)** | | | | | | | |
| LMP-TT-1263B; LMP-TT-1264B; LMP-TT-1265B; LMP-TT-1266B; LMP-TT-1267B; LMP-TT-1263A; LMP-TT-1264A; LMP-TT-1266A; LMP-TI-1263F | 8 Temperature transmitters (LM-0130A); Temperature indictor (control room) | Melter 1 glass pool temperature at 3” and 20” above refractory floor; melter 1 glass pool average temperature | 212 to 2,372 °F | 2,057-2,147°F | ± 1.8 °F | Maximum glass pool temperature 2,192 °F | Prevents unsafe or off-normal melter operating conditions. Measures temperature and transmits temperature to Process Control System (PCJ) |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| **LAW Melter 1 (LMP-MLTR-00001) in L-0112 (see 24590-LAW-M6-LMP-00002002)** | | | | | | | |
| LMP-DT-1404; LMP-DI-1404 | Density transmitter – bubbler (LM-0130); density indicator (control room) | Melter 1 glass pool density | 0 to 30 inches of water; 0-3 SpG | Normal = 149.7 lbs/cubic feet | ± 0.05% span | NA | Overfill protection. Density compensation for level transmitter |
| LMP-LT-1403 / LMP-LT-1405; LMP-LI-1403A; LMP-LSLL-1403A; LMP-LSHH-1403A | Level transmitter - bubbler (LM-0130); level indicator (control room); level interlock (software) | Melter 1 glass pool level | 0 to 100 inches of water | Normal level = 30 inches | ± 0.05% span | Maximum glass pool level 35 inches | Overfill protection. Measure and transmit level to PCJ |
| **LAW Melter 1 West (LMP-MLTR-00001) in L-0112 (see 24590-LAW-M6-LMP-00007002)** | | | | | | | |
| LMP-LE-1466; LMP-LT-1466; LMP-LI-1466B; LMP-LSHH-1466B | Level element (IR camera) (L-0112); level transmitter – LMP IR camera (LCB011); level indicator (control room); level interlock (software) | Melter 1 west container level | 0-90 in. | 0-78 in. | 2% of indicated display range | Maximum ILAW container level 82-inches | Overfill protection. Measure glass level in container and transmits level to the PCJ |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| **LAW Melter 1 East (LMP-MLTR-00001) in L-0112 (see 24590-LAW-M6-LMP-00007001)** | | | | | | | |
| LMP-LE-1511; LMP-LT-1511; LMP-LI-1511B; LMP-LSHH-1511B | Level element (IR camera) (L-0112); level transmitter – LMP IR camera (LCB011); level indicator (control room); level interlock (software) | Melter 1 east container level | 0-90 in. | 0-78 in. | 2% of indicated display range | Maximum ILAW container level 82 inches | Overfill protection. Measures and transmits glass level in container to the PCJ |
| **LAW Melter 1 Lid Cooling Loop (LMP-MLTR-00001) in L-0112 (see 24590-LAW-M6-LMP-00013002 and -24590-LAW-M6-LMP-00005001)** | | | | | | | |
| LMP-TE-1639 and LMP-TE-1640; LMP-TT-1293; LMP-TI-1639 and LMP-TI-1640 | Temperature element (Dual RTD) (L-0112); temperature transmitter - 8 point virtual (LM0130A); temperature indicator (control room) | Melter 1 lid temperature | 59-212°F | Normal temperature = 103°F | ± 0.0625 percent of span | Maximum melter lid temperature 117 °F | Prevent loss of containment. Measure and transmits melter lid temperature to the PCJ |
| **LAW Melter 1 (LMP-MLTR-00001) in L-0112 (see 24590-LAW-M6-LMP-00003001)** | | | | | | | |
| LMP-FT-1206; LMP-FI-1206; LMP-TI-1206 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature | Melter 1 NW wall cooling water flow | 0 to 20 gpm; 0 to 150°F | Normal 10 gpm; 96°F | ±0.5-percent of flow rate; ±3.6°F | Minimum cooling water flow 4 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| | indicators (control room) | and temperature | | | | | |
| LMP-FT-1209; LMP-FI-1209; LMP-TI-1209 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 1 west wall cooling water flow and temperature | 0 to 20 gpm; 0 to 150°F | Normal 10 gpm; 96°F | ±0.5-percent of flow rate; ±3.6°F | Minimum cooling water flow 5 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| LMP-FT-1215; LMP-FI-1215; LMP-TI-1215 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 1 SW wall cooling water flow and temperature | 0 to 20 gpm; 0 to 150°F | Normal 10 gpm; 96°F | ±0.5-percent of flow rate; ±3.6°F | Minimum cooling water flow 2 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| LMP-FT-1218; LMP-FI-1218; LMP-TI-1218 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 1 west discharge cooling water flow and temperature | 0 to 25 gpm; 0 to 150°F | Normal 15 gpm; 96°F | ±0.5-percent of flow rate; ±3.6°F | Minimum cooling water flow 4 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| LMP-FT-1221; LMP-FI-1221; LMP-TI-1221 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 1 bottom floor cooling water flow and temperature | 0 to 70 gpm; 0 to 150°F | Normal 40 gpm; 96°F | ±0.5-percent of flow rate; ±3.6°F | Minimum cooling water flow 13 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| LMP-FT-1224; LMP-FI-1224; LMP-TI-1224 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 1 NE wall cooling water flow and temperature | 0 to 20 gpm; 0 to 150°F | Normal 10 gpm; 96°F | ±0.5-percent of flow rate; ±3.6°F | Minimum cooling water flow 4 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| LMP-FT-1227; LMP-FI-1227; LMP-TI-1227 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 1 east wall cooling water flow and temperature | 0 to 20 gpm; 0 to 150°F | Normal 10 gpm; 96°F | ±0.5-percent of flow rate; ±3.6°F | Minimum cooling water flow 5 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| LMP-FT-1233; LMP-FI-1233; LMP-TI-1233 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 1 SE wall cooling water flow and temperature | 0 to 20 gpm; 0 to 150°F | Normal 10 gpm; 96°F | ±0.5percent of flow rate; ±3.6°F | Minimum cooling water flow 2 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| LMP-FT-1236; LMP-FI-1236; LMP-TI-1236 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 1 east discharge cooling water flow and temperature | 0 to 25 gpm; 0 to 150°F | Normal 15 gpm; 96°F | ±0.5percent of flow rate; ±3.6°F | Minimum cooling water flow 4 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| LMP-FT-1536; LMP-FI-1536; LMP-TI-1536 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature | Melter 1 west glass pour seal head cooling | 0 to 25 gpm; 0 to 150°F | Normal 20 gpm; 96°F | ±0.5percent of flow rate; ±3.6°F | Minimum cooling water flow 8 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| | indicators (control room) | water flow and temperature | | | | | |
| LMP-FT-1539; LMP-FI-1539; LMP-TI-1539 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 1 east glass pour seal head cooling water flow and temperature | 0 to 25 gpm; 0 to 150°F | Normal 20 gpm; 96°F | ±0.5percent of flow rate; ±3.6°F | Minimum cooling water flow 8 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| **LAW Melter 2 (LMP-MLTR-00002) in L-0112 (see 24590-LAW-M6-LMP-00035001)** | | | | | | | |
| LMP-TT-2263B; LMP-TT-2264B; LMP-TT-2265B; LMP-TT-2266B; LMP-TT-2267B; LMP-TT-2263A; LMP-TT-2264A; LMP-TT-2266A; LMP-TI-2263F; LMP-TSH-2263F; LMP-TSL-2263F | 8 Temperature transmitters – 8 points (LM-0130A); temperature indictor (control room) | Melter 2 glass pool temperature at 3" and 20" above refractory floor; melter 2 glass pool average temperature | 212 to 2,372 °F | 2,057-2,147°F | ± 1.8 °F | Maximum glass pool temperature 2,192 °F | Prevent unsafe or off-normal melter operating conditions. Measures and transmits temperature to the PCJ |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| **LAW Melter 2 (LMP-MLTR-00002) in L-0112 (see 24590-LAW-M6-LMP-00032002)** | | | | | | | |
| LMP-DT-2404; LMP-DI-2404 | Density transmitter – bubbler (LM-0130); density indicator (control room) | Melter 2 glass pool density | 0 to 30 inches of water; 0-3 SpG | Normal 149.7 lbs/cubic feet | ± 0.05% span | NA | Overfill prevention. Density compensation for glass level transmitter |
| LMP-LT-2403 / LMP-LT-2405; LMP-LI-2403A; LMP-LSLL-2403A; LMP-LSHH-2403A | Glass pool level transmitter - bubbler (LM-0130); level indicator (control room); interlocks (software) | Melter 2 glass pool level | 0 to 100 inches of water | Normal level 30 inches | ± 0.05% span | Maximum glass pool temperature 35 inches | Overfill prevention. Measure and transmit level to PCJ |
| **LAW Melter 2 West (LMP-MLTR-00002) in L-0112 (see 24590-LAW-M6-LMP-00037002)** | | | | | | | |
| LMP-LE-2466; LMP-LT-2466; LMP-LI-2466B; LMP-LSHH-2466B | Level element (IR camera) (L-0112); level transmitter – LMP IR camera (LCB011); level indicator (control room); level interlock (software) | Melter 2 west container level | 0-90 in. | 0-78 in. | 2% of indicated display range | Maximum ILAW container level 82-inches | Overfill prevention. Measures and transmits glass level to PCJ |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| **LAW Melter 2 East (LMP-MLTR-00002) in L-0112 (see 24590-LAW-M6-LMP-00037001)** | | | | | | | |
| LMP-LE-2511; LMP-LT-2511; LMP-LI-2511B; LMP-LSHH-2511B | Level element (IR camera) (L-0112); level transmitter – LMP IR camera (LCB011); Level indicator (control room); level interlock (software) | Melter 2 east container level | 0-90 in. | 0-78 in. | 2% of indicated display range | Maximum ILAW container level 82 inches | Overfill prevention. Measures and transmits glass level to the PCJ |
| **LAW Melter 2 Lid Cooling Loop (LMP-MLTR-00002) in L-0112 (see 24590-LAW-M6-LMP-00043002 and 24590-LAW-M6-LMP-00035001)** | | | | | | | |
| LMP-TE-2639 and LMP-TE-2640; LMP-TT-2293; LMP-TI-2639 and LMP-TI-2640 | Temperature element (Dual RTD) (L-0112); temperature transmitter - 8 point virtual (LM0130A); temperature indicator (control room) | Melter 2 lid temperature | 59-212°F | Normal temperature 103°F | ± 0.0625 percent of span | Maximum melter lid temperature 117 °F | Prevent loss of containment. Measure and transmit melter lid temperatuer to the PCJ |
| **LAW Melter 2 (LMP-MLTR-00002) in L-0112 (see 24590-LAW-M6-LMP-00033001)** | | | | | | | |
| LMP-FT-2206; LMP-FI-2206; LMP-TI-2206 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature | Melter 2 NW wall cooling water flow | 0 to 20 gpm; 0 to 150°F | Normal 10 gpm; 96°F | ±0.5 percent of flow rate; ±3.6°F | Minimum cooling water flow 4 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| | indicators (control room) | and temperature | | | | | |
| LMP-FT-2209; LMP-FI-2209; LMP-TI-2209 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 2 west wall cooling water flow and temperature | 0 to 20 gpm; 0 to 150°F | Normal 10 gpm; 96°F | ±0.5 percent of flow rate; ±3.6°F | Minimum cooling water flow 5 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| LMP-FT-2215; LMP-FI-2215; LMP-TI-2215 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 2 SW wall cooling water flow and temperature | 0 to 20 gpm; 0 to 150°F | Normal 10 gpm; 96°F | ±0.5 percent of flow rate; ±3.6°F | Minimum cooling water flow 2 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| LMP-FT-2218; LMP-FI-2218; LMP-TI-2218 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 2 west discharge cooling water flow and temperature | 0 to 25 gpm; 0 to 150°F | Normal 15 gpm; 96°F | ±0.5 percent of flow rate; ±3.6°F | Minimum cooling water flow 4 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| LMP-FT-2221; LMP-FI-2221; LMP-TI-2221 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 2 bottom floor cooling water flow and temperature | 0 to 70 gpm; 0 to 150°F | Normal 40 gpm; 96°F | ±0.5 percent of flow rate; ±3.6°F | Minimum cooling water flow 13 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| LMP-FT-2224; LMP-FI-2224; LMP-TI-2224 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 2 NE wall cooling water flow and temperature | 0 to 20 gpm; 0 to 150°F | Normal 10 gpm; 96°F | ±0.5 percent of flow rate; ±3.6°F | Minimum cooling water flow 4 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| LMP-FT-2227; LMP-FI-2227; LMP-TI-2227 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 2 east wall cooling water flow and temperature | 0 to 20 gpm; 0 to 150°F | Normal 10 gpm; 96°F | ±0.5 percent of flow rate; ±3.6°F | Minimum cooling water flow 5 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| LMP-FT-2233; LMP-FI-2233; LMP-TI-2233 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 2 SE wall cooling water flow and temperature | 0 to 20 gpm; 0 to 150°F | Normal 10 gpm; 96°F | ±0.5 percent of flow rate; ±3.6°F | Minimum cooling water flow 2 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| LMP-FT-2236; LMP-FI-2236; LMP-TI-2236 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 2 east discharge cooling water flow and temperature | 0 to 25 gpm; 0 to 150°F | Normal 15 gpm; 96°F | ±0.5 percent of flow rate; ±3.6°F | Minimum cooling water flow 4 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| LMP-FT-2536; LMP-FI-2536; LMP-TI-2536 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature | Melter 2 west glass pour seal head cooling | 0 to 25 gpm; 0 to 150°F | Normal 20 gpm; 96°F | ±0.5 percent of flow rate; ±3.6°F | Minimum cooling water flow 8 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| | indicators (control room) | water flow and temperature | | | | | |
| LMP-FT-2539; LMP-FI-2539; LMP-TI-2539 | Flow transmitter – swirl flowmeter (LP0112); flow and temperature indicators (control room) | Melter 2 east glass pour seal head cooling water flow and temperature | 0 to 25 gpm; 0 to 150°F | Normal 20 gpm; 96°F | ±0.5 percent of flow rate; ±3.6°F | Minimum cooling water flow 8 gpm | Prevent loss of containment; measure and transmit flow rate and temperature to PCJ |
| **Melter 1 Primary Film Coolers (LOP-FCLR-00001) in LP-0112 (see 24590-LAW-M6-LOP-00001005 and 24590-LAW-M6-LMP-00005001)** | | | | | | | |
| LOP-TE-1062; LMP-TT-1322; LOP-TI-1062 | Temperature element (Dual TC Type E) (LP-0112); temperature transmitter - 8 point virtual (LM0130A); temperature indicator (control room) | Melter 1 primary film cooler outlet temperature | 0-1,200 °F | Normal temperature 619 °F | ± 0.72 °F across range | Maximum outlet temperature 1,112 °F | Prevent degradation of emission control equipment and/or operating conditions. Measure and transmit film cooler outlet temperature to the PCJ |
| **Melter 1 Standby Film Coolers (LOP-FCLR-00002) in LP-0112 (see 24590-LAW-M6-LOP-00001005 and 24590-LAW-M6-LMP-00005001)** | | | | | | | |
| LOP-TE-1066; LMP- | Temperature element (Dual TC Type E) | Melter 1 secondary film cooler | 0-1,200 °F | Normal temperature 619 °F | ± 0.72 °F across range | Maximum outlet | Prevent degradation of emission control equipment and/or operating |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| TT-1322; LOP-TI-1066 | (LP-0112); temperature transmitter - 8 point virtual (LM0130A); temperature indicator (control room) | outlet temperature | | | | temperature 1,112 °F. | conditions. Measure and transmit film cooler outlet temperature to the PCJ |
| **Melter 2 Primary Film Coolers (LOP-FCLR-00003) in LP-0112 (24590-LAW-M6-LOP-00002005 and 24590-LAW-M6-LMP-00035001)** | | | | | | | |
| LOP-TE-2062; LMP-TT-2322; LOP-TI-2062 | Temperature element (Dual TC Type E) (LP-0112); temperature transmitter - 8 point virtual (LM0130A); temperature indicator (control room) | Melter 2 primary film cooler outlet temperature | 0-1,200 °F | Normal temperature 619 °F | ± 0.72°F across range | Maximum outlet temperature 1,112 °F | Prevent degradation of emission control equipment and/or operating conditions. Measure and transmit film cooler outlet temperature to the PCJ |
| **Melter 2 Standby Film Coolers (LOP-FCLR-00004) in LP-0112 (see 24590-LAW-M6-LOP-00002005 and 24590-LAW-M6-LMP-00035001)** | | | | | | | |
| LOP-TE-2066; LMP-TT-2322; LOP-TI-2066 | Temperature element (Dual TC Type E) (LP-0112); temperature | Melter 2 secondary film cooler outlet temperature | 0-1,200 °F | Normal temperature 619 °F | ± 0.72 °F across range | Maximum outlet temperature 1,112 °F | Prevent degradation of emission control equipment and/or operating conditions. Measure and transmit film cooler outlet temperature to the PCJ |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| | transmitter - 8 point virtual (LM0130A); temperature indicator (control room) | | | | | | |
| **Melter 1 Submerged Bed Scrubbers (LOP-SCB-00001) in L-0123 (see 24590-LAW-M6-LOP-00001001)** | | | | | | | |
| LOP-LT-1063; LOP-LI-1063; LOP-LSHH-1063; LOP-LSLL-1063 | Level Transmitter - Ultrasonic / radar (L-0202); level indicator (control room); level interlock (software) | Liquid level in the LOP-SCB-00001 | 51.3 to 84.3 inches | Normal 63 inches | ±0.4 inches | Maximum overfill 68-inches Minimum liquid level 61 inches | Overfill protection; measures and transmits liquid level to the PCJ |
| **Melter 2 Submerged Bed Scrubbers (LOP-SCB-00002) in L-0124 (see 24590-LAW-M6-LOP-00002001)** | | | | | | | |
| LOP-LT-2063; LOP-LI-2063; LOP-LSHH-2063; LOP-LSLL-2063 | Level Transmitter – Ultrasonic / Radar (L-0202); level Indicator (control room); level interlocks (software) | Liquid level in the LOP-SCB-00002 | 51.3 to 84.3inches | Normal 63-inches | ±0.4 inches | Maximum overfill 68 inches Minimum liquid level 61 inches | Overfill protection; measures and transmits liquid level to the PCJ |
| **Melter 1 Wet Electrostatic Precipitator (LOP-WESP-00001) in L-0123 (see 24590-LAW-M6-LOP-00001004)** | | | | | | | |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| LOP-LT-1060; LOP-LI-1060; LOP-LSHH-1060 | Level Transmitter Ultrasonic / Radar (L-0202); level Indicator (control room); level interlock (software) | WESP liquid level | 0 to 35.5 inches | Normal 0 inches | ±0.4 inches | Maximum liquid level 5 inches | High level interlock prevents inadvertent liquid back flow to the submerged bed scrubber; prevent blockage of block melter off gas flow; measures and transmits liquid level to the PCJ |
| **Melter 2 Wet Electrostatic Precipitators (LOP-WESP-00002) in L-0124 (see 24590-LAW-M6-LOP-00002004)** | | | | | | | |
| LOP-LT-2060; LOP-LI-2060; LOP-LSHH-2060 | Level transmitter ultrasonic / radar (L-0202); level indicator (control room); level interlock (software) | WESP liquid level | 0 to 35.5 inches | Normal = 0 inches | ±0.4 inches | Maximum liquid level 5-inches | High level interlock prevents inadvertent liquid back flow to the submerged bed scrubber; prevent blockage of melter off gas flow; measures and transmits liquid level to the PCJ |
| **Thermal Catalytic Oxidizer / Selective Catalytic Reducer Skid (LVP-SCO-00001 / LVP-SCR-00001) in L-0304F (see 24590-LAW-LVP-00005002)** | | | | | | | |
| LVP-TT-0524; LVP-TI-0524 | Temperature transmitter (L-0322); temperature indication (control room) | Thermo-catalytic oxidizer outlet temperature | 0 to 600 °F | <RESERVED> | 0.3-percent of span | Maximum operating temperature 418 °F | Prevents degradation of emissions control equipment and/or operating conditions. Measures and transmits temperature to the PCJ |
| **Melter Offgas Caustic Scrubber (LVP-SCB-00001) in L-0304F (see 24590-LAW-M6-LVP-00002002)** | | | | | | | |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| LVP-LT-0090; LVP-LI-0090; LVP-LSHH-0090 | Level transmitter – ultrasonic / radar (L-0308); level indicator (control room); level interlock (software) | Liquid level in LVP-SCB-00001 | 0 to 24 inches | Normal = 0-inches | ± 0.4-inch | Maximum liquid level 1.1 inches | Prevents inadvertent transfer of fluids; prevent blockage of melter off-gas flow; transmit liquid level to the PCJ |
| **Melter Offgas HEPA Filters (LVP-HEPA-00001A/1B, LVP-HEPA-00002A/2B, and LVP-HEPA-00003A) in L-304H (see 24590-LAW-M6-LVP-00001003)** | | | | | | | |
| LVP-PDT-0007; LVP-PDI-0007; LVP-PDSHH-0007 | Differential pressure transmitter (L-0306); differential pressure indicator (control room); pressure differential interlock (software) | Differential Pressure across LVP-HEPA-00001B | 0 to 7-inches of water | Normal = 1-inch of water | 0.075-percent of span | Maximum differential pressure 4.5 inches of water | Indicates degraded emission control; measures and transmits differential pressure to the PCJ |
| LVP-PDT-0008; LVP-PDI-0008; LVP-PDSHH-0008 | Differential pressure transmitter (L-0306); differential pressure indicator (control room); pressure differential interlock (software) | Differential Pressure across LVP-HEPA-00002B | 0 to 7-inches of water | Normal = 1-inch of water | 0.075-percent of span | Maximum differential pressure 4.5 inches of water | Indicates degraded emission control; measures and transmits differential pressure to the PCJ |

## Table III.10.H.C – LAW Miscellaneous Unit Process and Leak Detection System Instruments and Parameters

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy [1] | Action Level[1] | Control Function |
|---|---|---|---|---|---|---|---|
| LVP-PDT-0011; LVP-PDI-0011; LVP-PDSHH-0011 | Differential pressure transmitter (L-0306); differential pressure indicator (control room); differential pressure interlock (software) | Differential Pressure across LVP-HEPA-00002A and LVP-HEPA-00001A | 0 to 7-inches of water | Normal = 1-inch of water | 0.075-percent of span | Maximum differential pressure 4.5 inches of water | Indicates degraded emission control; measures and transmits differential pressure to the PCJ |
| LVP-PDT-0012; LVP-PDI-0012; LVP-PDSHH-0012 | Differential pressure transmitter (L-0306); differential pressure indicator (control room); pressure differential interlock (software) | Differential pressure across LVP-HEPA-00003A | 0 to 7-inches of water | Normal = 1-inch of water | 0.075-percent of span | Maximum differential pressure 4.5 inches of water | Indicates degraded emission control; measures and transmits differential pressure to the PCJ |

Footnotes:

1 These values (i.e., measurement or display range, expected operating range, accuracy and action level) are estimated, not automatic waste feed cut-offs and under the control of the permittee.

1

**Table III.10.H.D – Maximum Feed-Rates to LAW Vitrification System**

| Description of Waste | Individual Rate (lb/hr) | Total Rate (lb/hr) |
|---|---|---|
| PODC (as total organic carbon)[2] | -- | 13.64 |
| Naphthalene | 11.6 | -- |
| Chlorobenzene | 2.04 | -- |
| Dangerous and Mixed Waste Feed-rate | -- | 68.76 |
| Total Chlorine/Chloride Feed-rate | -- | 40.73 |
| Chlorine (from simulant) | TBD | -- |
| Chlorine (from metals spiking) | TBD | -- |
| Chlorine (from PODC spiking) | 0.64 | -- |
| Total Metal Feed-rates | -- | 14.39 |
| Lead (from spiking) | 4.91 | -- |
| Chromium (from spiking) | 9.48 | -- |
| EMF Effluent Return Metal Feed-rates[1] | TBD | TBD |

Footnotes:

[1] Process samples will be taken in accordance with Section 5.1.4.2 of Appendix 9.15, Environmental Performance Demonstration Test Plan.

[2] Feed sufficient to demonstrate 99.99% DRE plus a safety factor of 10.

2

**Table III.10.H.E – LAW Vitrification System Estimated Emission Rates**

| Analyte | Performance Standard |
|---|---|
| 2,3,7,8 -like Dioxins/furans, ng-TEQ/dscm | 0.20 ng/dscm |
| Low-volatile Metals, **total** | 97 µg/dscm |
| • Arsenic | _ |
| • Beryllium | _ |
| • Chromium | _ |
| Semivolatile Metals, **total** | 120 µg/dscm |

**Table III.10.H.E – LAW Vitrification System Estimated Emission Rates**

| Analyte | Performance Standard |
|---|---|
| • Lead | _ |
| • Cadmium | _ |
| Mercury | 45 µg/dscm |
| Hydrogen chloride and chlorine gas (total chlorine) | 21 ppmv |
| Particulate Matter | 0.015 gr/dscf |
| Carbon Monoxide | 100 ppmv |
| Hydrocarbon (as propane)[1] | 10 ppmv |

Footnotes:

[1] Hydrocarbon are only applicable during the Demonstration Test Period and is measured by a temporary continuous monitoring system.

~~**Table III.10.H.F – LAW Vitrification System Automatic Waste Feed Cutoff Parameters During Short Term Treatment Operations**~~

| ~~Item~~ | ~~Sub-system~~ | ~~Parameter Description~~ | ~~Type of Indicator~~ | ~~Instrument Tag Number~~ | ~~AWFCO Setpoint~~ |
|---|---|---|---|---|---|
| ~~1.~~ | ~~Bubblers Melter 1~~ | ~~Total Air Flow Maximum~~ | ~~Flow Indicator~~ | ~~LMP-FI-TBD~~ | ~~24.0 scfm~~ |
| ~~2.~~ | ~~Bubblers Melter 2~~ | ~~Total Air Flow Maximum~~ | ~~Flow Indicator~~ | ~~LMP-FI-TBD~~ | ~~24.0 scfm~~ |
| ~~3.~~ | ~~Plenum Melter 1~~ | ~~Plenum vs. Annulus Pressure Differential Maximum~~ | ~~Pressure Differential~~ | ~~LMP-PDI-1410A, LMP-PDSHH-1410A~~ | ~~-0.5 in. WC~~ |
| ~~4.~~ | ~~Plenum Melter 2~~ | ~~Plenum vs. Annulus Pressure Differential Maximum~~ | ~~Pressure Differential~~ | ~~LMP-PDI-2410A, LMP-PDSHH-2410A~~ | ~~-0.5 in. WC~~ |
| ~~5.~~ | ~~SBS Melter 1~~ | ~~Maximum Gas Temperature~~ | ~~Temperature Indicator~~ | ~~LOP-TI-1038~~ | ~~150ºF~~ |
| ~~6.~~ | ~~SBS Melter 2~~ | ~~Maximum Gas Temperature~~ | ~~Temperature Indicator~~ | ~~LOP-TI-2038~~ | ~~150ºF~~ |
| ~~7.~~ | ~~WESP Melter 1~~ | ~~Maximum Gas Temperature~~ | ~~Temperature Indicator~~ | ~~LOP-TI-1047~~ | ~~155ºF~~ |
| ~~8.~~ | ~~WESP Melter 2~~ | ~~Maximum Gas Temperature~~ | ~~Temperature Indicator~~ | ~~LOP-TI-2047~~ | ~~155ºF~~ |
| ~~9.~~ | ~~HEPA Inlet Temperature~~ | ~~Maximum Gas Temperature~~ | ~~Temperature Indicator~~ | ~~LVP-TI-0104~~ | ~~191ºF~~ |
| ~~10.~~ | ~~TCO Temperature~~ | ~~Minimum Gas Temperature~~ | ~~Temperature Indicator~~ | ~~LVP-TI-0511~~ | ~~698ºF~~ |
| ~~11.~~ | ~~LAW Stack~~ | ~~Maximum CO Concentration (Hourly Rolling Average)~~ | ~~Concentration Analyzer Indicator~~ | ~~SDJ-AI-2110D~~ | ~~100 ppm ROHA~~ |

## Table III.10.H.F – LAW Vitrification System Automatic Waste Feed Cutoff Parameters During Short-term Treatment Operations

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy[1] | Numerical Set Point | Control Function and Testing Rationale |
|---|---|---|---|---|---|---|---|
| **LAW Melter 1 (LMP-MLTR-00001) in L-0112 (see 24590-LAW-M6-LMP-00002002)** | | | | | | | |
| LMP-PDT-1410 and LMP-PDT-1411; LMP-PDSHH-~~1410A~~1410B | Pressure differential transmitter (L-0112); indicator (control room); and differential pressure interlock (software) | Melter 1 plenum to annulus pressure differential | -15 to 15 inches of water | < -0.5 in. WC relative to C5 pressure | ± 0.05% span | ~~Less than~~Maximum pressure differential -0.5 inches of water | Prevent an unsafe or off-normal melter operating condition. Measure and transmit differential pressure between annulus and plenum to the Process Control System PCJ<br>EPA requires a thermal unit to be at negative pressure to control fugitive emissions and mandated in III.10.H.1.c.ix |
| **LAW Melter 1 (LMP-MLTR-00001) in L-0112 (see 24590-LAW-M6-LMP-00001001 and 24590-LAW-M6-LMP-00002001)** | | | | | | | |
| LMP-FT-TBD; LMP-FSLL-TBD | Flow transmitter (TBD); flow indicator (control room); and interlock (software) | Total air flow to bubblers in melter 1 | <RESERVED> | <RESERVED> | <RESERVED> | ~~Less than~~Minimum air flow 24.0 standard cubic feet per minute | Ensure adequate mixing. Measure and transmits total air flow to PCJ<br>Indication of production rate |
| **LAW Melter 2 (LMP-MLTR-00002) in L-0112 (see 24590-LAW-M6-LMP-00032002)** | | | | | | | |
| LMP-PDT-2410 and LMP-PDT-2411; LMP- | Pressure differential transmitter (L-0112); pressure differential | Melter 2 plenum to annulus | -15 to 15 inches of water | < -0.5 in. WC relative to C5 pressure | ± 0.05% span | ~~Less than~~Maximum pressure differential | Prevent an unsafe or off-normal melter operating condition. Measure and transmit |

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy[1] | Numerical Set Point | Control Function and Testing Rationale |
|---|---|---|---|---|---|---|---|
| PDSHH-~~2410A~~2410B | indicator (control room); pressure differential interlock (software) | pressure differential | | | | -0.5 inches of water | differential pressure between annulus and plenum to the PCJ<br>EPA requires a thermal unit to be at negative pressure to control fugitive emissions and mandated in III.10.H.1.c.ix |
| **LAW Melter 2 (LMP-MLTR-00002) in L-0112 (see 24590-LAW-M6-LMP-00031001 and 24590-LAW-M6-LMP-00032001)** | | | | | | | |
| LMP-FT-TBD; LMP-FSLL-TBD | Flow transmitter (TBD); flow indicator (control room); and interlock (software) | Total air flow to bubblers in melter 2 | <RESERVED> | <RESERVED> | <RESERVED> | ~~Less than~~Minimum air flow 24.0 standard cubic feet per minute | Ensure adequate mixing. Measure and transmits total air flow to PCJ<br>Indication of production rate |
| **Melter Submerged Bed Scrubbers (LOP-SCB-00001) in L-0123 (see 24590-LAW-M6-LOP-00001001)** | | | | | | | |
| LOP-TT-1038; LOP-TSHH-TBD | Temperature transmitter (L-0226A); temperature indicator (control room); temperature interlock (software) | LOP-SCB-00001 outlet temperature | 50 to 200 °F | <RESERVED> | 0.3-percent of span | ~~Less than~~Maximum outlet temperature 150 °F | Prevent degradation of emission control equipment and/or operating conditions. Measure and transmits temperature to the PCJ<br>Reduce the residence time of gas to provide a worst-case scenario for treatment of constituents in the system |
| **Melter Submerged Bed Scrubbers (LOP-SCB-00002) in L-0124 (see 24590-LAW-M6-LOP-00002001)** | | | | | | | |

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy[1] | Numerical Set Point | Control Function and Testing Rationale |
|---|---|---|---|---|---|---|---|
| LOP-TT-2038; LOP-TSHH-TBD | Temperature transmitter (L-0202); temperature indicator (control room); temperature interlock (software) | LOP-SCB-00002 outlet temperature | 50 to 200 °F | <RESERVED> | 0.3-percent of span | ~~Less than~~Maximum outlet temperature 150° F | Prevent degradation of emission control equipment and/or operating conditions. Measure and transmits temperature to the PCJ<br>Reduce the residence time of gas to provide a worst-case scenario for treatment of constituents in the system |
| **Melter Wet Electrostatic Precipitators (LOP-WESP-00001) in L-0123 (see 24590-LAW-M6-LOP-00001004)** | | | | | | | |
| LOP-TT-1047; LOP-TSHH-TBD | Temperature transmitter (L-0322); temperature indicator (control room); temperature interlock (software) | LOP-WESP-00001 Outlet temperature | 50 – 200 °F | <RESERVED> | 0.3-percent of span | ~~Less than~~Maximum outlet temperature 155 °F | Prevent degradation of emission control equipment and/or operating conditions. Measure and transmits temperature to the PCJ<br>Reduce the residence time of gas to provide a worst-case scenario for treatment of constituents in the system |
| **Melter Wet Electrostatic Precipitators (LOP-WESP-00002) in L-0124 (see 24590-LAW-M6-LOP-00002004)** | | | | | | | |
| LOP-TT-2047; LOP-TSHH-TBD | Temperature transmitter (L-0322); temperature indicator (control room); temperature | LOP-WESP-00002 Outlet temperature | 50 – 200 °F | <RESERVED> | 0.3-percent of span | ~~Less than~~Maximum outlet temperature 155 °F | Prevent degradation of emission control equipment and/or operating conditions. Measure and transmits temperature to the PCJ<br>Reduce the residence time of gas to provide a worst-case |

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy[1] | Numerical Set Point | Control Function and Testing Rationale |
|---|---|---|---|---|---|---|---|
| | interlock (software) | | | | | | scenario for treatment of constituents in the system |
| **Thermal Catalytic Oxidizer Skid (LVP-SCO-00001/LVP-SCR-00001) in L-0304F (see 24590-LAW-M6-LVP-00005002)** | | | | | | | |
| LVP-TT-0511; LVP-TSHH-TBD | Temperature transmitter (L-0322); temperature indicator (control room); temperature interlock (software) | LVP-HTR-00002 outlet gas temperature | 0 to 1,000 °F | <RESERVED> | 0.3-percent of span | ~~Greater~~Maximum outlet temperature than 698 °F | Prevent degradation of emission control equipment and/or operating conditions. Measures and transmits temperature to the PCJ<br>Worst case for organics removal efficiency. BNI takes credit for organic destruction in the TCO; thus, a low temperature creates a worst case environment |
| **Melter Offgas HEPA Preheaters (LVP-HTR-00001A/LVP-HTR-00001B/LVP-HTR-00003A/LVP-HTR-00003B) in L-304H (see 24590-LAW-M6-LVP-00001002)** | | | | | | | |
| LVP-TT-0104; LVP-TSHH-TBD | Temperature transmitter (L-0306); temperature indicator (control room); temperature interlock (software) | LVP-HTR-00003A and LVP-HTR-00001A HEPA preheater outlet temperatur1e | 0° F to 250 °F | <RESERVED> | 0.3-percent of span | ~~Less than~~Maximum outlet temperature 191 °F | Prevent degradation of emission control equipment and/or operating conditions. Measures and transmits temperature to the PCJ<br>Reduce the residence time of gas to provide a worst-case scenario for treatment of constituents in the system |

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy[1] | Numerical Set Point | Control Function and Testing Rationale |
|---|---|---|---|---|---|---|---|
| **Stack Discharge Monitoring (LVP-SCB-00001) in L-0304F (see 24590-LAW-M6-LVP-00002006)** | | | | | | | |
| SDJ-AT-2110 and SDJ-AT-2124; SDJ-ASHH-2110D | Analysis transmitter – CO (L-0304G); analysis indicator - CO (control room); analysis interlock – CO (software) | Melter off gas stack discharge CO continuous emissions monitoring | 0 to 200 ppmv (CO low range)<br>0 to 3,000 ppmv (CO high range) | <RESERVED> | 1-percent of span | Maximum CO outlet concentration 100 ppm rolling hourly average | Prevent degradation of emission control equipment and/or operating conditions. Measure and transmits analysis results to PCJ |
| **Mercury Mitigation Equipment Bypass (LVP-YV-0403) in L-0304F (see 24590-LAW-M6-LVP-00004001)** | | | | | | | |
| LVP-PDT-0401; LVP-TT-0104 | Butterfly valve (L-0304F) | Valve position (LVP-ZSL-0403) | Open or closed | Closed | NA | Not closed | Bypasses the mercury mitigation skid to when temperature or CO indicate a potential fire or at high differential pressure prevent melter pressurization |
| **Caustic Scrubber Bypass (LVP-YV-0097) in L-0304F (see 24590-LAW-M6-LVP-00002001)** | | | | | | | |
| LVP-PDT-0047 | Butterfly valve (L-0304F) | Valve position (LVP-ZSL-0501) | Open or closed | Closed | NA | Not closed | Bypasses the caustic scrubber on high differential pressure to prevent melter pressurization |
| **SCO/SCR Skid Bypass (LVP-YV-0501) in L-0304F (see 24590-LAW-M6-LVP-00005002)** | | | | | | | |
| LVP-PDT-0502 | Butterfly valve (L-0304F) | Valve position | Open or closed | Closed | NA | Not closed | Bypasses the LVP SCO-SCR skid on high differential pressure to prevent melter pressurization |

| Instrument / Monitor Tag Number | Type and Location | Monitored Parameter | Measurement or Display Range[1] | Expected Operating Range[1] | Accuracy[1] | Numerical Set Point | Control Function and Testing Rationale |
|---|---|---|---|---|---|---|---|
| | | (LVP-ZSL-0501) | | | | | |

**Footnotes:**

1 These values (i.e., measurement or display range, expected operating range and accuracy) are estimated, not automatic waste feed cut-offs and under the control of the permitee.

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## III.10.I LAW VITRIFICATION SYSTEM – LONG TERM MISCELLANEOUS THERMAL TREATMENT UNIT

For purposes of Permit Section III.10.I, where reference is made to WAC 173-303-640, the following substitutions apply: substitute the terms "LAW Vitrification System" for "tank system(s)," "sub-system(s)" for "tank(s)," "sub-system equipment" for "ancillary equipment," and "sub-system(s) or sub-system equipment of a LAW Vitrification System" for "component(s)," in accordance with WAC 173-303-680.

### III.10.I.1 Requirements for LAW Vitrification System Beginning Normal Operation

Prior to commencing normal operations provided in Permit Section III.10.I, all requirements in Permit Section III.10.H will have been met by the Permittees and approved by Ecology, including the following: The LAW Vitrification System Demonstration Test results and the revised Final Risk Assessment provided for in Permit Condition III.10.C.11.c or III.10.C.11.d and Permit Section III.10.H, will have been evaluated and approved by Ecology, Permit Tables III.10.I.D and F, as approved/modified pursuant to Permit Condition III.10.H.5, will have been completed, submitted and approved pursuant to Permit Condition III.10.H.3.d.v and Permit Table III.10.I.E, as approved/modified pursuant to Permit Condition III.10.H.5, will have been completed, submitted and approved pursuant to Permit Condition III.10.C.11.c or d.

**III.10.I.1.a** Construction and Maintenance [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-340].

**III.10.I.1.a.i** The Permittees will maintain the design and construction of the LAW Vitrification System as specified in Permit Condition III.10.I.1, Operating Unit Group 10, Chapter 4 of this Permit, and Operating Unit Group 10, Appendices 9.1 through 9.17 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.a through d and III.10.H.5.f.

**III.10.I.1.a.ii** The Permittees will maintain the design and construction of all containment systems for the LAW Vitrification System, as specified in Operating Unit Group 10, Chapter 4 of this Permit, and Operating Unit Group 10, Appendices 9.2 and 9.4 through 9.14 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.a through d.

**III.10.I.1.a.iii** Modifications to approved design, plans, and specifications in Operating Unit Group 10 of this Permit for the LAW Vitrification System will be allowed only in accordance with Permit Conditions III.10.C.2.e and f, or III.10.C.2.g, III.10.C.9.d, e, and h.

**III.10.I.1.a.iv** The Permittees will ensure all certifications required by specialists (e.g., independent qualified registered professional engineer; registered professional engineer; independent corrosion expert; independent qualified installation inspector; installation inspector; etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new LAW Vitrification system or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following LAW Vitrification System components (e.g., the venting piping, etc.), as required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs [i.e., (a) through (g)], in accordance with WAC 173-303-680.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

**III.10.I.1.a.v** The Permittees will ensure periodic integrity assessments are conducted on the LAW Vitrification System listed in Permit Table III.10.I.A, as approved/modified pursuant to Permit Condition III.10.H.5, over the term of this Permit in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Operating Unit Group 10, Chapter 6 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i and III.10.C.5.c. Results of the integrity assessments will be included in the WTP Unit operating record until ten (10) years after post closure, or corrective action is complete and certified, whichever is later.

**III.10.I.1.a.vi** The Permittees will address problems detected during the LAW Vitrification System integrity assessments specified in Permit Condition III.10.I.1.a.v following the description of the integrity assessment program in Operating Unit Group 10, Chapter 6 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i and III.10.C.5.c.

**III.10.I.1.a.vii** All process monitors/instruments as specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v, will be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified in Permit Table III.10.I.F.

**III.10.I.1.a.viii** The Permittees will install and test all process and leak detection system monitors/instruments, as specified in Permit Tables III.10.I.C and III.10.I.F, as approved/modified pursuant to Permit Condition III.10.H.5 and III.10.H.3.d.v, in accordance with Operating Unit Group 10, Appendices 9.1, 9.2, and 9.14 of this Permit, as approved pursuant to Permit Conditions III.10.H.5.d.x and III.10.H.5.f..xvi.

**III.10.I.1.a.ix** No dangerous and/or mixed waste will be treated in the LAW Vitrification System unless the operating conditions, specified under Permit Condition III.10.I.1.c are complied with.

**III.10.I.1.a.x** The Permittees will not place dangerous and/or mixed waste, treatment reagents, or other materials in the LAW Vitrification System if these substances could cause the sub-system, sub-system equipment, or the containment system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)]. This condition is not applicable to corrosion of LAW Vitrification System sub-system or sub-system equipment that are expected to be replaced as part of normal operations (e.g., melters).

**III.10.I.1.a.xi** The Permittees will operate the LAW Vitrification System to prevent spills and overflows using description of controls and practices as required under WAC 173-303-640(5)(b), described in Permit Condition III.10.C.5 and Operating Unit Group 10, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(c)(ix)].

**III.10.I.1.a.xii** For routinely non-accessible LAW Vitrification System sub-systems, as specified in Operating Unit Group 10, Chapter 4 of this Permit, as updated pursuant to Permit Condition III.10.H.5.e.vi, the Permittees will mark all routinely non-accessible LAW Vitrification System sub-systems access points with labels or signs to identify the waste contained in each LAW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the LAW Vitrification System sub-systems. For the purposes of this permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

**III.10.I.1.a.xiii** For the LAW Vitrification System sub-systems not addressed in Permit Condition III.10.I.1.a.xii, the Permittees will mark these LAW Vitrification System sub-systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the LAW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the LAW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

**III.10.I.1.a.xiv** The Permittees will ensure that the secondary containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.I.A and III.10.I.B, as approved/modified pursuant to Permit Condition III.10.H.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during use of the LAW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems will be investigated and repaired in accordance with Operating Unit Group 10, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e.v [WAC 173-303-640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

**III.10.I.1.a.xv** The Permittees must immediately, and safely, remove from service any LAW Vitrification System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Condition III.10.I.1.a.xvii A through D, and F. The affected LAW Vitrification System or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.I.1.a.xvii.E [WAC 173-303-640(7)(e) and (f) and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

**III.10.I.1.a.xvi** An impermeable coating, as specified in Operating Unit Group 10, Appendices 9.4, 9.5, 9.7, 9.9, 9.11, and 9.12 of this Permit, as approved pursuant to Permit Condition III.10.H.5.b.v, will be maintained for all concrete containment systems and concrete portions of containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.I.A and III.10.I.B, as approved/modified pursuant to Permit Condition III.10.H.5 (concrete containment systems that do not have a liner, pursuant to WAC 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, will meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2). The coating will prevent migration of any

dangerous and/or mixed waste into the concrete. All coatings will meet the following performance standards:

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present.

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and mixed waste could migrate from the system.

C. The coating must be compatible with the dangerous and/or mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-806(4)(i)(i)(A)].

**III.10.I.1.a.xvii** The Permittees inspect all secondary containment systems for the LAW Vitrification System sub-systems listed in Permit Tables III.10.I.A and III.10.I.B, as approved/modified pursuant to Permit Condition III.10.H.5, in accordance with the Inspection Plan specified in Operating Unit Group 10, Chapter 6A of this Permit, as approved pursuant to Permit Conditions III.10.H.5.e.i and III.10.C.5.c, and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)].

A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the LAW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed waste.

C. Remove the waste from the containment area in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(b). The waste removed from containment areas of the LAW Vitrification System sub-systems will be, as a minimum, managed as dangerous and/or mixed waste.

D. If the cause of the release was a spill that has not damaged the integrity of the LAW Vitrification System sub-system, the Permittees may return the LAW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees will take action to ensure the incident that caused the dangerous and/or mixed waste to enter the containment system will not reoccur.

E. If the source of the dangerous and/or mixed waste is determined to be a leak from the primary LAW Vitrification System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees will comply with the requirements of WAC 173-303-640(7) and take the following actions:

1. Close the LAW Vitrification System sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and Operating Unit Group 10, Chapter 11 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.I.1.a.iii) the LAW Vitrification System in accordance with Operating Unit Group 10, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e.v, before the LAW Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

F. The Permittees will document in the WTP Unit operating record actions/procedures taken to comply with A through E above, as specified in WAC 173-303-640(6)(d), in accordance with WAC 173-303-680(2) and (3).

G. In accordance with WAC 173-303-680(2) and (3), the Permittees will notify and report releases to the environment to Ecology, as specified in WAC 173-303-640(7)(d).

**III.10.I.1.a.xviii** If liquids (e.g., dangerous and/or mixed waste, leaks and spills, precipitation, fire water, liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification will provide the information in A, B, and C, listed below. The Permittees will provide Ecology with a written demonstration within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

A. Reasons for delayed removal.

B. Measures implemented to ensure continued protection of human health and the environment.

C. Current actions being taken to remove liquids from secondary containment.

**III.10.I.1.a.xix** All air pollution control devices and capture systems in the LAW Vitrification System will be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring that the air pollution control devices and capture systems in the LAW Vitrification System are properly operated and maintained so as to minimize the emission of air contaminants and process upsets will be established.

**III.10.I.1.a.xx** In all future narrative permit submittals, the Permittees will include LAW Vitrification sub-system names with the sub-system designation.

**III.10.I.1.a.xxi** For any portion of the LAW Vitrification System that has the potential for formation and accumulation of hydrogen gases, the Permittees will operate the portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

**III.10.I.1.a.xxii** For each LAW Vitrification System sub-system holding dangerous and/or mixed waste that are acutely or chronically toxic by inhalation, the Permittees will operate the system to prevent escape of vapors, fumes, or other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-303-680].

**III.10.I.1.a.xxiii** The existing LAW building will retain capability to install the third melter before or after hot start-up. No permanent systems, structures, or components shall be installed in the melter cell, pour cave or wet process cell for the third melter that would preclude future installation of the third melter.

**III.10.I.1.b** Performance Standards

**III.10.I.1.b.i** The LAW Vitrification System must achieve a DRE of 99.99% for the PODCs listed below [40 CFR §63.1203(c)(1) and 40CFR §63.1203(c)(2), in accordance with WAC 173-303-680(2)]:

RESERVED

DRE in this permit condition will be calculated in accordance with the formula given below:

DRE=[1-(Wout/Win)] x 100%

Where:

Win=mass feed rate of one PODC in a waste feed stream; and

Wout=mass emission rate of the same PODC present in exhaust emissions prior to release to the atmosphere.

**III.10.I.1.b.ii** Particulate matter emissions from the LAW Vitrification System will not exceed 34 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-303-680(2)];

**III.10.I.1.b.iii** Hydrochloric acid and chlorine gas emissions from the LAW Vitrification System will not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC 173-303-680(2)];

**III.10.I.1.b.iv** Dioxin and Furan TEQ emissions from the LAW Vitrification System will not exceed 0.2 nanograms (ng)/dscm, [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-680(2)];

**III.10.I.1.b.v** Mercury emissions from the LAW Vitrification System will not exceed 45 µg/dscm [40 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)];

**III.10.I.1.b.vi** Lead and cadmium emissions from the LAW Vitrification System will not exceed 120 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)];

**III.10.I.1.b.vii** Arsenic, beryllium, and chromium emissions from the LAW Vitrification System will not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)];

**III.10.I.1.b.viii** Carbon monoxide (CO) emission from the LAW Vitrification System will not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the CMS), dry basis [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2) and (3)];

**III.10.I.1.b.ix** RESERVED

**III.10.I.1.b.x** If the emissions from the LAW Vitrification System exceed the emission rates listed in Permit Table III.10.I.E, as approved pursuant to Permit Condition III.10.C.11.c or d, the Permittees will perform the following actions [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)]:

A. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21.

B. Submit to Ecology additional risk information to indicate that the increased emissions impact is offset by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a

report of the investigation findings to Ecology within fifteen (15) days of the discovery of exceeding the emission rate(s).

C. Based on the notification and any additional information, Ecology may provide, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e through g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

The emission limits specified in Permit Conditions III.10.I.1.b.i through III.10.I.1.b.ix above, will be met for the LAW Vitrification System by limiting feed rates as specified in Permit Tables III.10.I.D and III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v, compliance with operating conditions specified in Permit Condition III.10.I.1.c (except as specified in Permit Condition III.10.I.1.b.xii), and compliance with Permit Condition III.10.I.1.b.xi;

**III.10.I.1.b.xi** Treatment effectiveness, feed-rates and operating rates for dangerous and/or mixed waste management units contained in the LAW Building, but not included in Permit Table III.10.I.A, as approved/modified pursuant to Permit Condition III.10.H.5, will be as specified in Permit Sections III.10.D through F and consistent with assumptions and basis which are reflected in Operating Unit Group 10, Appendix 6.3 of this Permit, as approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit condition, Operating Unit Group 10, Appendix 6.3 will be superseded by Appendix 6.4 upon its approval pursuant to either Permit Condition III.10.C.11.c or III.10.C.11.d [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)];

**III.10.I.1.b.xii** Except during periods of LAW Vitrification System startup and shutdown, compliance with the operating conditions specified in Permit Condition III.10.I.1.c, will be regarded as compliance with the required performance standards identified in Permit Conditions III.10.I.1.b.i through x. However, if it is determined that during the effective period of this Permit that compliance with the operating conditions in Permit Condition III.10.I.1.c is not sufficient to ensure compliance with the performance standards specified in Permit Conditions III.10.I.1.b.i through x, the Permit may be modified, revoked, or reissued pursuant to Permit Conditions III.10.C.2.e and f, or III.10.C.2.g.

**III.10.I.1.c** Operating Conditions [WAC 173-303-670(6), in accordance with WAC 173-303-680(2) and (3)]

The Permittees will operate the LAW Vitrification System in accordance with Operating Unit Group 10, Chapter 4 of this Permit, as updated pursuant to Permit Condition III.10.H.5.e.vi and Operating Unit Group 10, Appendix 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5.e, and Operating Unit Group 10, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f, except as modified pursuant to Permit Conditions III.10.H.3, III.10.I.1.b.x, III.10.I.1.b.xii, III.10.I.1.h, and in accordance with and the following:

**III.10.I.1.c.i** The Permittees will operate the LAW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.I.C and III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v, within the set-points specified in Permit Table III.10.I.F.

**III.10.I.1.c.ii** The Permittees will operate the AWFCO systems, specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v, to automatically cut-off and/or lock-out the dangerous and/or mixed waste feed to LAW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.I.F.

**III.10.I.1.c.iii** The Permittees will operate the AWFCO systems, specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v, to automatically cut-off and/or lock-out the dangerous and/or mixed waste feed to LAW Vitrification System when all instruments specified in Permit Table III.10.H.F for measuring the monitored parameters fails or exceeds its span value.

**III.10.I.1.c.iv** The Permittees will operate the AWFCO systems, specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v, to automatically cut-off and/or lock out the dangerous waste and/or mixed waste feed to the LAW Vitrification System when any portion of the LAW Vitrification System is bypassed. The terms "bypassed" and "bypass event," as used in Permit Sections III.10.H and III.10.I, will mean if any portion of the LAW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.

**III.10.I.1.c.v** In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v, the Permittees will immediately, manually cut-off the dangerous and/or mixed waste feed to the LAW Vitrification System. The Permittees will not restart the dangerous and/or mixed waste feed until the problem causing the malfunction has been identified and corrected.

**III.10.I.1.c.vi** The Permittees will manually cut-off the dangerous and/or mixed waste feed to the LAW Vitrification System when the operating conditions deviate from the limits specified in Permit Condition III.10.I.1.c.i, unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.I.1.c.ii, iii, and/or iv.

**III.10.I.1.c.vii** If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the LAW Vitrification System occur due to deviations from Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v, within a sixty (60) day period, the Permittees will submit a written report to Ecology within five (5) calendar days of the thirty-first exceedance, including the information specified below. These dangerous and/or mixed waste feed cut-offs to the LAW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous and/or mixed waste and waste residues continue to be processed in the LAW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified in Permit Table III.10.I.F, from which the set-point is deviated:

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.I.F.
B. The magnitude, dates, and duration of the deviations.
C. Results of the investigation of the cause of the deviations.
D. Corrective measures taken to minimize future occurrences of the deviations.

**III.10.I.1.c.viii** If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the LAW Vitrification System occur due to deviations from Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v, within a thirty (30) day period, the Permittees will submit the written report required to be submitted pursuant to Permit Condition III.10.I.1.c.vii to Ecology on the first business day following the thirty-first exceedance. These dangerous and/or mixed waste feed cut-offs to the LAW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous and/or mixed waste and waste residues continue to be processed in the LAW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.I.F, from which the set-point is deviated:

In accordance with WAC 173-303-680(2) and (3), the Permittees may not resume dangerous and/or mixed waste feed to the LAW Vitrification System until this written report has been submitted, and

A. Ecology has authorized the Permittees, in writing, to resume dangerous and/or mixed waste feed, or

B. Ecology has not, within seven (7) days, notified the Permittees in writing of the following:

1. The Permittees written report does not document that the corrective measures taken will minimize future exceedances.

2. The Permittees must take further corrective measures and document that these further corrective measures will minimize future exceedances.

**III.10.I.1.c.ix** If any portion of the LAW Vitrification System is bypassed while treating dangerous and/or mixed waste, it will be regarded as non-compliance with the operating conditions specified in Permit Condition III.10.I.1.c and the performance standards specified in Permit Condition III.10.I.1.b. After such a bypass event, the Permittees will perform the following actions:

A. Investigate the cause of the bypass event.

B. Take appropriate corrective measures to minimize future bypasses.

C. Record the investigation findings and corrective measures in the WTP Unit operating record.

D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

**III.10.I.1.c.x** The Permittees will control fugitive emissions from the LAW Vitrification System by maintaining the melters under negative pressure.

**III.10.I.1.c.xi** Except during periods of vitrification system startup and shutdown, compliance with the operating conditions specified in Permit Condition III.10.I.1.c will be regarded as compliance with the required performance standards identified in Permit Condition III.10.I.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, will justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e and f, or III.10.C.2.g.

**III.10.I.1.d** Inspection Requirements [WAC 173-303-680(3)]

**III.10.I.1.d.i** The Permittees will inspect the LAW Vitrification System in accordance with the Inspection Plan in Operating Unit Group 10, Chapter 6A of this Permit, as modified in accordance with Permit Condition III.10.C.5.c.

**III.10.I.1.d.ii** The inspection data for LAW Vitrification System will be recorded, and the records will be placed in the WTP Unit operating record for LAW Vitrification System, in accordance with Permit Condition III.10.C.4.

**III.10.I.1.d.iii** The Permittees will comply with the inspection requirements specified in Operating Unit Group 10, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f and as modified by Permit Conditions III.10.H.3, III.10.I.1.b.x, III.10.I.1.b.xii, and III.10.I.1.h.

**III.10.I.1.e** Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]

**III.10.I.1.e.i** Upon receipt of a written request from Ecology, the Permittees will perform sampling and analysis of the dangerous and/or mixed waste and exhaust emissions to verify that the operating requirements established in the Permit achieve the performance standards delineated in this Permit.

**III.10.I.1.e.ii** The Permittees will comply with the monitoring requirements specified in the Operating Unit Group 10, Appendices 9.2, 9.3, 9.7, 9.13, 9.15 and 9.18 of this Permit, as approved pursuant to Permit Condition III.10.H.5, and as modified by Permit Conditions III.10.H.3, III.10.I.1.h, III.10.I.1.b.x, and III.10.I.1.b.xii.

**III.10.I.1.e.iii** The Permittees will operate, calibrate, and maintain the carbon monoxide and CEMS as specified in this Permit in accordance with Performance Specifications found in 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Operating Unit Group 10 Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f, and as modified by Permit Conditions III.10.H.3, III.10.I.1.h, III.10.I.1.b.x, and III.10.I.1.b.xii.

**III.10.I.1.e.iv** The Permittees will operate, calibrate, and maintain the instruments specified in Permit Tables III.10.I.C and F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v, in accordance with Operating Unit Group 10, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.5.f, and as modified by Permit Conditions III.10.H.3, III.10.I.1.h, III.10.I.1.b.x, and III.10.I.1.b.xii.

**III.10.I.1.e.v** The Permittees shall calibrate, inspect, and maintain or replace the following Melter 1 and Melter 2 cooling water flow and temperature instruments in accordance with manufacturer's recommendations, or as specified in this permit, or otherwise agreed to by Ecology (Melter 1: FT/TI&FI-1206, FT/TI&FI-1209, FT/TI&FI-1215, FT/TI&FI-1218, FT/TI&FI-1221, FT/TI&FI-1224, FT/TI&FI-1227, FT/TI&FI-1233, FT/TI&FI-1236, FT/TI&FI-1536, FT/TI&FI-1539; Melter 2: FT/TI&FI-2206, FT/TI&FI-2209, FT/TI&FI-2215, FT/TI&FI-2218, FT/TI&FI-2221, FT/TI&FI-2224, FT/TI&FI-2227, FT/TI&FI-2233, FT/TI&FI-2236, FT/TI&FI-2536, FT/TI&FI-2539).

**III.10.I.1.f** Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

**III.10.I.1.f.i** The Permittees will record and maintain in the WTP Unit operating record for the LAW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with

Permit Conditions III.10.C.4 and 5, as modified by Permit Conditions III.10.H.3, III.10.I.1.h, III.10.I.1.b.x, and III.10.I.1.b.xii.

**III.10.I.1.f.ii** The Permittees will record in the WTP Unit operating record the date, time, and duration of all automatic waste feed cutoffs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees will also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure.

**III.10.I.1.f.iii** The Permittees will submit to Ecology an annual report each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and/or mixed waste feed processing time for the LAW Vitrification System.

B. Date/Time of all LAW Vitrification System startups and shutdowns.

C. Date/Time/Duration/Cause/Corrective Action taken for all LAW Vitrification System shutdowns caused by malfunction of either process or control equipment.

D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous and/or mixed waste feed cut-off due to deviations from Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v.

**III.10.I.1.f.iv** The Permittees will submit an annual report to Ecology each calendar year within ninety (90) days following the end of the year of all quarterly CEMS Calibration Error and Annual CEMS Performance Specification Tests conducted, in accordance with Permit Condition III.10.I.1.e.iii.

**III.10.I.1.f.v** The Permittees shall maintain operating and calibration/maintenance records for Ecology's inspection for the following Melter 1 and Melter 2 cooling water flow and temperature instruments (Melter 1: FT/TI&FI-1206, FT/TI&FI-1209, FT/TI&FI-1215, FT/TI&FI-1218, FT/TI&FI-1221, FT/TI&FI-1224, FT/TI&FI-1227, FT/TI&FI-1233, FT/TI&FI-1236, FT/TI&FI-1536, FT/TI&FI-1539; Melter 2: FT/TI&FI-2206, FT/TI&FI-2209, FT/TI&FI-2215, FT/TI&FI-2218, FT/TI&FI-2221, FT/TI&FI-2224, FT/TI&FI-2227, FT/TI&FI-2233, FT/TI&FI-2236, FT/TI&FI-2536, FT/TI&FI-2539).

**III.10.I.1.f.vi** The Permittees shall maintain refractory thermocouple temperature data for Ecology inspection.

**III.10.I.1.g** Closure

The Permittees will close the LAW Vitrification System in accordance with Operating Unit Group 10, Chapter 11 of this Permit, as approved pursuant to Permit Condition III.10.C.8.

**III.10.I.1.h** Periodic Emission Re-testing Requirements [WAC 173-303-670(5), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]

**III.10.I.1.h.i** The Permittees must perform re-testing in accordance with the methods and frequencies described below or may submit proposed alternative test methods (e.g. CEMS) for consideration. This submittal must be provided no less than 6 months prior to any required re-testing and must be approved by Ecology prior to implementation.

**III.10.I.1.h.ii** Dioxin and Furan Emission Testing

A. Within eighteen (18) months of commencing operation pursuant to Permit Section III.10.I, the Permittees will submit to Ecology for approval, a Dioxin and Furan Emission Test Plan (DFETP) for the performance of emission testing of the LAW Vitrification System gases for dioxin and furans during "Normal Operating Conditions" as a permit modification in accordance with Permit Conditions III.10.C.2.e and III.10.C.2.f. The DFETP will include all elements applicable to dioxin and furan emission testing included in the "Previously Approved Demonstration Test Plan," applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for dioxin and furan emission test. "Normal Operating Conditions" will be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.I.F (as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v), that were established to maintain compliance with Permit Condition III.10.I.1.b.iv as specified in Operating Unit Group 10, Appendix 9.15 of this Permit (as approved pursuant to Permit Condition III.10.H.3.d, and in accordance with III.10.I.1.b.xii and III.10.I.1.c.xi), are held within the range of the average value over the previous twelve (12) months and the set-point value specified in Permit Table III.10.I.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value will not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed waste.
2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.I.D (as approved/modified pursuant to Permit Conditions III.10.H.5 and III.10.H.3.d.v). Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value will not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.H.5.f.

B. Within sixty (60) days of Ecology's approval of the DFETP, or within thirty-one (31) months of commencing operation pursuant to Permit Section III.10.I, whichever is later, the Permittees will implement the DFETP approved pursuant to Permit Condition III.10.I.1.h.ii.A.

C. The Permittees will resubmit the DFETP, approved pursuant to Permit Condition III.10.I.1.h.ii.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for dioxin and furan emission test as a permit modification in accordance with Permit Conditions

III.10.C.2.e and III.10.C.2.f at twenty-four (24) months from the implementation date of the testing required pursuant to Permit Condition III.10.I.1.h.ii.A and at reoccurring eighteen (18) month intervals from the implementation date of the previously approved DFETP. The Permittees will implement these newly approved revised DFETPs, every thirty-one (31) months from the previous approved DFETP implementation date or within sixty (60) days of the newly Ecology approved revised DFETP, whichever is later, for the duration of this Permit.

D. The Permittees will submit a summary of operating data collected pursuant to the DFETPs in accordance with Permit Conditions III.10.I.1.h.ii.A and C to Ecology upon completion of the tests. The Permittees will submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports will be certified as specified in WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

E. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.I.1.h.ii.A and C show that one or more of the performance standards listed in Permit Condition III.10.I.1.b, with the exception of Permit Condition III.10.I.1.b.x, for the LAW Vitrification System were not met during the emission test, the Permittees will perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the LAW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).
2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit Condition I.E.21.
3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).
4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.I.1.b, with the exception of Permit Condition III.10.I.1.b.x, for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated.
5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.I.1.h.ii.E.1 through 4 above, and any additional information, Ecology may provide in writing, direction to the Permittees to stop dangerous waste and mixed waste feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan pursuant to Permit Condition III.10.I.1.h.ii.E.6.
6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating

conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and F.

F. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.I.1.h.ii.A and C show that any emission rate for any constituent listed in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.C.11.c or d is exceeded for LAW Vitrification System during the emission test, the Permittees will perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s), as specified in Permit Condition I.E.21.
2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance and submit a report of the investigation findings to Ecology within fifteen (15) days of this discovery of exceeding the emission rate(s).
3. Based on the notification and any additional information, Ecology may provide, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e and f, or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and III.10.I.F.

**III.10.I.1.h.iii** Non-organic Emission Testing

A. Within forty-eight (48) months of commencing operation pursuant to Permit Section III.10.I, the Permittees will resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e and III.10.C.2.f. The revised Demonstration Test Plan (RDTP) will include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, projected commencement and completion dates for emission testing to demonstrate performance standards specified in Permit Conditions III.10.I.1.b.ii, iii, v, vi, and vii, and non-organic emissions as specified in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.H.3.d and III.10.C.11.c or d, under "Normal Operating Conditions." "Normal Operating Conditions" will be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Conditions III.10.H.3.d and III.10.C.11.c or d, that were established to maintain compliance with Permit Conditions III.10.I.1.b.ii, iii, v, vi, and vii, and non-organic emissions, as specified in Permit Table III.10.I.E, as specified in Operating Unit Group 10, Appendix 9.15 of this Permit (as approved pursuant to Permit Conditions III.10.H.3.d and III.10.C.11.c or d), are held within the range of the average value over the previous

twelve (12) months and the set-point value specified in Permit Table III.10.I.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value will not include calibration data, malfunction data, and data obtained when not processing dangerous or mixed waste.

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified in Permit Table III.10.I.D, as approved/modified pursuant to Permit Conditions III.10.H.3.d and III.10.C.11.c or d. The average value is defined as the sum of all rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value will not include data obtained when not processing dangerous or mixed waste.

For purposes of this permit condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.H.5.f.

B. Within sixty (60) days of Ecology's approval of the RDTP, or within sixty (60) months of commencing operation pursuant to Permit Section III.10.I, whichever is later, the Permittees will implement the RDTP approved pursuant to Permit Condition III.10.I.1.h.ii.A.

C. The Permittees will resubmit the RDTP, approved pursuant to Permit Condition III.10.I.1.h.ii.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e and f at forty-eight (48) months from the implementation date of the testing required pursuant to Permit Condition III.10.I.1.h.ii.A and at reoccurring forty-eight (48) month intervals from the implementation date of the previously approved RDTP. The Permittees will implement these newly approved revised RDTP, every sixty (60) months from the previous approved RDTP implementation date or within sixty (60) days of the newly Ecology approved revised RDTP, whichever is later, for the duration of this Permit.

D. The Permittees will submit a summary of operating data collected pursuant to the RDTPs in accordance with Permit Conditions III.10.I.1.h.ii.A and C to Ecology upon completion of the tests. The Permittees will submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports will be certified pursuant to WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

E. If any calculations or testing results collected pursuant to the RDTPs in accordance with Permit Conditions III.10.I.1.h.ii.A and C show that any emission rate for any constituent listed in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.H.3.d and III.10.C.11.c or d, is exceeded for LAW Vitrification System during the emission test, the Permittees will perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s), as specified in Permit Condition I.E.21;

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance and submit a report of the investigation findings to Ecology within fifteen (15) days of this discovery of exceeding the emission rate(s); and
3. Based on the notification and any additional information, Ecology may provide, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e and f, or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and III.10.I.F.

F. If any calculations or testing results collected pursuant to the RDTPs in accordance with Permit Conditions III.10.I.1.h.ii.A and C show that one or more of the performance standards listed in Permit Condition III.10.I.1.b, with the exception of Permit Condition III.10.I.1.b.x, for the LAW Vitrification System were not met during the emission test, the Permittees will perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the LAW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s);
2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit Condition I.E.21;
3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s);
4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.I.1.b, with the exception of Permit Condition III.10.I.1.b.x, for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated;
5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.I.1.h.ii.F.1 through 4 above, and any additional information, Ecology may provide in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan pursuant to Permit Condition III.10.I.1.h.ii.F.6; and
6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e and f. The revised Demonstration Test Plan must include substantive changes to

prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and F.

**III.10.I.1.h.iv** Other Emission Testing

A. Within seventy-eight (78) months of commencing operation pursuant to Permit Section III.10.I, the Permittees will resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e and f. The Revised Demonstration Test Plan (RDTP) will include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, projected commencement and completion dates for emission testing to demonstrate performance standards as specified in Permit Conditions III.10.I.1.b.viii and ix, and emissions as specified in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.H.3.d and III.10.C.11.c or d, not addressed under Permit Conditions III.10.I.1.h.ii or iii under "Normal Operating Conditions." "Normal Operating Conditions" will be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.I.F, as approved/modified pursuant to Permit Condition III.10.H.3.d and III.10.C.11.c or d, that were established to maintain compliance with Permit Conditions III.10.I.1.b.viii and ix, and emissions as specified in Permit Table III.10.I.E, not addressed under Permit Conditions III.10.I.1.h.ii or iii as specified in Operating Unit Group 10, Appendix 9.15 of this Permit, as approved pursuant to Permit Condition III.10.H.3.d, and in accordance with Permit Conditions III.10.I.1.b.xii and III.10.I.1.c.xi are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.I.F. The average value is defined as the sum of all rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value will not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed waste.
2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified in Permit Table III.10.I.D, as approved/modified pursuant to Permit Conditions III.10.H.3.d and III.10.C.11.c or d. Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value will not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.H.5.f.

B. Within sixty (60) days of Ecology's approval of the RDTP, or within ninety-one (91) months of commencing operation pursuant to Permit Section III.10.I, whichever is later, the Permittees will implement the RDTP approved pursuant to Permit Condition III.10.I.1.h.iv.A.

C. The Permittees will submit a summary of operating data collected pursuant to the RDTPs in accordance with Permit Condition III.10.I.1.h.iv.A to Ecology upon completion of the tests. The Permittees will submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports will be certified as specified in WAC 173-303-807(8), in accordance with Permit Condition WAC 173-303-680(2) and (3).

D. If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.I.1.b, with the exception of Permit Condition III.10.I.1.b.x, for the LAW Vitrification System were not met during the emission test, the Permittees will perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the LAW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s);
2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit Condition I.E.21.
3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).
4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.I.1.b, with the exception of Permit Condition III.10.I.1.b.x, for the LAW Vitrification System were met during the demonstration test, if any such mode was demonstrated.
5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.I.1.h.iv.D.1 through 4 above, and any additional information, Ecology may provide in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan, pursuant to Permit Condition III.10.I.h.1.iv.D.6.
6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e and f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and III.10.I.F.

E. If any calculations or testing results show that any emission rate for any constituent listed in Permit Table III.10.I.E, as approved/modified pursuant to Permit Conditions III.10.C.11.c or d, is exceeded for LAW Vitrification

System during the emission test, the Permittees will perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s), as specified in Permit Condition I.E.21.
2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of the exceedance of the emission rate(s).
3. Based on the notification and any additional information, Ecology may provide, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e and f, or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.I.D and F.

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**Table III.10.I.A – LAW Vitrification System Description[a]**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos, Specification Nos, etc.) | Narrative Description, Tables and Figures |
|---|---|---|---|
| RESERVED | RESERVED | RESERVED | RESERVED |

[a] Permit Table III.10.I.A will be completed in accordance with Permit Condition III.10.H.5.e.x, prior to initiating Permit Condition III.10.I.1. See Permit Table III.10.H.A for the current LAW Vitrification System Description.

1

**Table III.10.I.B – LAW Vitrification System Secondary Containment Systems Including Sumps and Floor Drains**

| Sump/Floor Drain I.D. # & Room Location | Maximum Sump Capacity (gallons) | Sump Dimensions[b] (feet) & Materials of Construction | Engineering Description (Drawing Nos, Specification Nos, etc.) |
|---|---|---|---|
| RESERVED | RESERVED | RESERVED | RESERVED |

[a] Permit Table III.10.I.B will be completed in accordance with Permit Condition III.10.H.5.b.vii, prior to initiating Permit Condition III.10.I.1. See Permit Table III.10.H.B for the current LAW Vitrification System Secondary Containment Systems Including Sumps and Floor Drains.

[b] Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).

2

**Table III.10.I.C – LAW Vitrification Systems Process and Leak Detection System Instruments and Parameters**

| Sub-system Locator and Name (Including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Failure State | Expected Range | Instrument Accuracy | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |

[a] Permit Table III.10.I.C will be completed in accordance with Permit Condition III.10.H.5.e.ix, prior to initiating Permit Condition III.10.I.1. See Permit Table III.10.H.C for the current LAW Vitrification Systems Process and Leak Detection System Instruments and Parameters.

3

**Table III.10.I.D – Maximum Feed-rates to LAW Vitrification System (RESERVED)**

| Description of Waste | Normal Operation |
|---|---|
| Dangerous and/or Mixed Waste Feed Rate | RESERVED |
| Ash Feed Rate | RESERVED |
| Total Chlorine/Chloride Feed Rate | RESERVED |
| Total Metal Feedrates | RESERVED |

**Table III.10.I.E – LAW Vitrification System Estimated Emission Rates (RESERVED)**

| Chemicals | CAS Number | Emission Rates (grams/second) |
|---|---|---|
| RESERVED | RESERVED | RESERVED |

**TABLE III.10.I.F – LAW Vitrification System Waste Feed Cut-off Parameters* [1] (RESERVED)**

| Sub-system Designation | Instrument Tag Number | Parameter Description | Set-points During Normal Operation |
|---|---|---|---|
| RESERVED | RESERVED | RESERVED | RESERVED |

*A CMS will be used as defined in Permit Section III.10.C.1.

[1]Maximum Feed-rate will be set based on not exceeding any of the constituent (e.g., metals, ash, and chlorine/chloride) feed limits specified on Table III.10.I.D of this Permit.

## III.10.J HLW VITRIFICATION SYSTEM – SHORT TERM MISCELLANEOUS THERMAL TREATMENT UNIT-SHAKEDOWN, DEMONSTRATION TEST, AND POST DEMONSTRATION TEST

For purposes of Permit Section III.10.J, where reference is made to WAC 173-303-640, the following substitutions apply: substituting the terms "HLW Vitrification System" for "tank system(s)," "sub-system(s)" for "tank(s)," "sub-system equipment" for "ancillary equipment," and "sub-system(s) or sub-system equipment of a HLW Vitrification System" for "component(s)," in accordance with WAC 173-303-680.

### III.10.J.1 General Conditions During Shakedown, Demonstration Test, and Post-Demonstration Test for HLW Vitrification System

**III.10.J.1.a** Construction and Maintenance [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-340].

**III.10.J.1.a.i** The Permittees will construct the HLW Vitrification System (listed in Permit Tables III.10.J.A and III.10.J.B, as approved/modified pursuant to Permit Condition III.10.J.5) as specified in Permit Condition III.10.J.1 and Operating Unit Group 10, Chapter 4 of this Permit, and Operating Unit Group 10, Appendices 10.1 through 10.15 and 10.17 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.a through d, and III.10.J.5.f.

**III.10.J.1.a.ii** The Permittees will construct all containment systems for the HLW Vitrification System as specified in Operating Unit Group 10, Chapter 4 of this Permit, and Operating Unit Group 10, Appendices 10.2, 10.4, through 10.14 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.a through d.

**III.10.J.1.a.iii** The Permittees will ensure all certifications required by specialists (e.g., independent qualified registered professional engineer, independent corrosion expert, independent qualified installation inspector, etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new HLW Vitrification system or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following HLW Vitrification system components (e.g., the venting piping, etc.), as required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs (i.e., (a) through (g)) in accordance with WAC 173-303-680).

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

**III.10.J.1.a.iv** The Permittees must ensure that proper handling procedures are adhered to in order to prevent damage to the HLW Vitrification System during installation. Prior to covering, enclosing, or placing the new HLW Vitrification System or component in use, an independent qualified installation inspector or an independent qualified registered professional engineer, either of whom is trained and experienced in the proper installation of similar systems or components, must inspect the system for the presence of any of the following items:

A. Weld breaks
B. Punctures
C. Scrapes of protective coatings
D. Cracks
E. Corrosion
F. Other structural damage or inadequate construction/installation

All discrepancies must be remedied before the HLW Vitrification system is covered, enclosed, or placed in use [WAC 173-303-640(3)(c), in accordance with WAC 173-303-680(2) and (3)].

**III.10.J.1.a.v** For the HLW Vitrification System or components that are placed underground and that are back-filled, the Permittees must provide a backfill material that is a non-corrosive, porous, homogeneous substance. The backfill must be installed so that it is placed completely around the HLW Vitrification System and compacted to ensure that the HLW Vitrification System is fully and uniformly supported [WAC 173-303-640(3)(d), in accordance with WAC 173-303-680(2) and (3)].

**III.10.J.1.a.vi** The Permittees must test for tightness the HLW Vitrification System or components, prior to being covered, enclosed, or placed into use. If the HLW Vitrification System or components are found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the HLW Vitrification System being covered, enclosed, or placed in use [WAC 173-303-640(3)(e), in accordance with WAC 173-303-680(2) and (3)].

**III.10.J.1.a.vii** The Permittees must ensure the HLW Vitrification System equipment is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction [WAC 173-303-640(3)(f), in accordance with WAC 173-303-680(2) and (3)].

**III.10.J.1.a.viii** The Permittees must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in Operating Unit Group 10, Appendices 10.9 and 10.11 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.b.i, III.10.J.5.b.iv, III.10.J.5.b.v, III.10.J.5.c.i, III.10.J.5.c.iv, III.10.J.5.c.v, III.10.J.5.d.i, III.10.J.5.d.iv, and III.10.J.5.d.v, or other corrosion protection if Ecology believes other corrosion protection is necessary to ensure the integrity of the HLW Vitrification System during use of the HLW Vitrification System. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation [WAC 173-303-640(3)(g), in accordance with WAC 173-303-680(2) and (3)].

**III.10.J.1.a.ix** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will obtain and keep on file in the WTP Unit operating record, written statements by those persons required to certify the design of the HLW Vitrification System and supervise the installation of the HLW Vitrification System, as specified in WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), in accordance with WAC 173-303-680, attesting that the HLW Vitrification system and corresponding containment system listed in Permit Tables III.10.J.A and III.10.J.B, as approved/modified pursuant to Permit Condition III.10.J.5, were properly designed and installed, and that repairs, in accordance with WAC 173-303-640(3)(c) and (e), were performed [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(h), in accordance with WAC 173-303-680(3)].

**III.10.J.1.a.x** The independent HLW Vitrification System installation inspection and subsequent written statements will be certified in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.J.1.a.iii, comply with all requirements of WAC 173-303-640(3)(h) in accordance with WAC 173-303-680, and will consider, but not be limited to, the following LAW Vitrification System installation documentation:

A. Field installation report with date of installation.
B. Approved welding procedures.
C. Welder qualification and certifications.
D. Hydro-test reports, as applicable, in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 1; American Petroleum Institute (API) Standard 620, or Standard 650, as applicable.
E. Tester credentials.
F. Field inspector credentials.
G. Field inspector reports.
H. Field waiver reports.
I. Non-compliance reports and corrective action (including field waiver reports) and repair reports.

**III.10.J.1.a.xi** The Permittees will ensure periodic integrity assessments are conducted on the HLW Vitrification System, listed in Permit Table III.10.J.A, as approved/modified pursuant to Permit Condition III.10.J.5, over the term of this Permit, in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Operating Unit Group 10, Addendum E of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i and III.10.C.5.c Results of the integrity assessments will be included in the WTP Unit operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

**III.10.J.1.a.xii** The Permittees will address problems detected during the HLW Vitrification System integrity assessments specified in Permit Condition III.10.J.1.a.xi following the integrity assessment program in Operating Unit Group 10, Addendum E of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i and III.10.C.5.c.

**III.10.J.1.a.xiii** All process monitors/instruments as specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5, will be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified in Permit Table III.10.J.F.

**III.10.J.1.a.xiv** The Permittees will install and test all process and leak detection system monitors/instrumentation as specified in Permit Tables III.10.J.C and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5, in accordance with Operating Unit Group 10, Appendices 10.1, 10.2, and 10.14 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.d.x and III.10.J.5.f.xvi.

**III.10.J.1.a.xv** Except during periods of HLW Vitrification System start up and shut down, no dangerous and/or mixed waste will be treated in the HLW Vitrification System unless the operating conditions specified under Permit Condition III.10.J.1.c are complied with.

**III.10.J.1.a.xvi** The Permittees will not place dangerous and/or mixed waste, treatment reagents, or other materials in the HLW Vitrification System if these substances could cause the subsystem, subsystem equipment, or the containment system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)]. This condition is not applicable to corrosion of HLW Vitrification System sub-system and sub-system equipment that are expected to be replaced as part of normal operations (e.g., melters).

**III.10.J.1.a.xvii** The Permittees will operate the HLW Vitrification System to prevent spills and overflows using description of controls and practices as required under WAC 173-303-640(5)(b) described in Permit Condition III.10.C.5, and Operating Unit Group 10, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(c)(ix)].

**III.10.J.1.a.xviii** For routinely non-accessible HLW Vitrification System sub-systems, as specified in Operating Unit Group 10, Chapter 4 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi, the Permittees will mark all routinely non-accessible HLW Vitrification System sub-systems access points with labels or signs to identify the waste contained in each HLW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems. For the purposes of this permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

**III.10.J.1.a.xix** For all HLW Vitrification System sub-systems not addressed in Permit Condition III.10.J.1.a.xviii, the Permittees will mark all these HLW Vitrification System sub-systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the HLW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

**III.10.J.1.a.xx** The Permittees will ensure that the containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.J.A and III.10.J.B, as approved/modified pursuant to Permit Condition III.10.J.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during use of the HLW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems will be investigated and repaired in accordance with Operating Unit Group 10, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v [WAC 173-303–640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

**III.10.J.1.a.xxi** The Permittees must immediately, and safely, remove from service any HLW Vitrification System or secondary containment system which, through an integrity assessment, is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Conditions III.10.J.1.a.xxiii.A through D, and F. The affected HLW Vitrification System, or secondary containment system, must be either repaired or closed in accordance with Permit Condition III.10.J.1.a.xxiii.E [WAC 173-303-640(7)(e) and (f), and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

**III.10.J.1.a.xxii** An impermeable coating, as specified in Operating Unit Group 10, Appendices 10.4, 10.5, 10.7, 10.9, 10.11, and 10.12 of this Permit, as approved pursuant to Permit Condition III.10.J.5.b.v, will be maintained for all concrete containment systems and concrete portions of containment systems for each HLW Vitrification System sub-systems listed in Permit Tables III.10.J.A and III.10.J.B as approved/modified pursuant to Permit Condition III.10.J.5 (concrete containment systems that do not have a liner, pursuant to WAC 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, will meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2). The coating will prevent migration of any dangerous and mixed waste into the concrete. All coatings will meet the following performance standards:

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate, are present;

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and mixed waste could migrate from the system; and

C. The coating must be compatible with the dangerous and mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(i)(i)(A)].

**III.10.J.1.a.xxiii** The Permittees will inspect all containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.J.A and III.10.J.B, as approved/modified pursuant to Permit Condition III.10.J.5, in accordance with the Inspection Plan specified in Operating Unit Group 10, Chapter 6A of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i and III.10.C.5.c, and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)]:

A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the HLW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed waste.

C. Remove the dangerous and/or mixed waste from the containment area in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed waste removed from containment areas of the HLW Vitrification System sub-systems will be, as a minimum, managed as mixed waste.

D. If the cause of the release was a spill has not damaged the integrity of the HLW Vitrification System sub-system, the Permittees may return the HLW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees will take action to ensure the incident that caused the dangerous and/or mixed waste to enter the containment system will not re-occur [WAC 173-303-320(3)].

E. If the source of the dangerous and/or mixed waste is determined to be a leak from the primary HLW Vitrification System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees will comply with the requirements of WAC 173-303-640(7) and take the following actions:

1. Close the HLW Vitrification System Sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680 and Operating Unit Group 10, Addendum H of this Permit, as approved pursuant to Permit Condition III.10.C.8, or

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.J.1.a.iii) the HLW Vitrification System in accordance with Operating Unit Group 10, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v, before the HLW Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

F. The Permittees will document, in the WTP Unit operating record, actions/procedures taken to comply with A. through E. above, as specified in WAC 173-303-640(6)(d), in accordance with WAC 173-303-680(2) and (3).

G. In accordance with WAC 173-303-680(2) and WAC 173-303-680 (3), the Permittees will notify and report releases to the environment to Ecology, as specified in WAC 173-303-640(7)(d).

**III.10.J.1.a.xxiv** If liquids (e.g., dangerous and/or mixed waste leaks and spills, precipitation, fire water, liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification will provide the information in A, B, and C, listed below. The Permittees will provide Ecology with a written demonstration within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

A. Reasons for delayed removal;

B. Measures implemented to ensure continued protection of human health and the environment;

C. Current actions being taken to remove liquids from secondary containment.

**III.10.J.1.a.xxv** All air pollution control devices and capture systems in the HLW Vitrification System will be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring that the air pollution control devices and capture systems in the HLW Vitrification System are properly operated and maintained so as to minimize the emission of air contaminants and process upsets will be established.

**III.10.J.1.a.xxvi** In all future narrative permit submittals, the Permittees will include HLW Vitrification sub-system names with the sub-system designation.

**III.10.J.1.a.xxvii** Modifications to approved design, plans, and specifications in Operating Unit Group 10 of this Permit for the HLW Vitrification System will be allowed only in accordance with Permit Conditions III.10.C.2.e and f, or III.10.C.2.g, III.10.C.9.d, e, and h.

**III.10.J.1.a.xxviii** For any portion of the HLW Vitrification System that has the potential for formation and accumulation of hydrogen gases, the Permittees will operate the portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

**III.10.J.1.a.xxix** For each HLW Vitrification System sub-system holding dangerous waste which are acutely or chronically toxic by inhalation, the Permittees will operate the system to prevent escape of vapors, fumes or other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e) in accordance with WAC 173-303-680].

**III.10.J.1.b** Performance Standards

**III.10.J.1.b.i** The HLW Vitrification System must achieve a DRE of 99.99% for the PODCs listed below [40 CFR §63.1203(c)(1) and 40-CFR 63.1203(c)(2), in accordance with WAC 173-303-680(2)].

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DRE in this Permit condition will be calculated in accordance with the formula given below:

DRE=[1-(Wout/Win)] x 100%

Where:

Win=mass feed rate of one PODC in a waste feed stream; and

Wout=mass emission rate of the same PODC present in exhaust emissions prior to release to the atmosphere.

**III.10.J.1.b.ii** Particulate matter emissions from the HLW Vitrification System will not exceed 34 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-303-680(2)]:

**III.10.J.1.b.iii** Hydrochloric acid and chlorine gas emissions from the HLW Vitrification System will not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC 173-303-680(2)]:

**III.10.J.1.b.iv** Dioxin and Furan TEQ emissions from the HLW Vitrification System will not exceed 0.2 nanograms (ng)/dscm [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-680(2)]:

**III.10.J.1.b.v** Mercury emissions from the HLW Vitrification System will not exceed 45 µg/dscm, [40 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)].

**III.10.J.1.b.vi** Lead and cadmium emissions from the HLW Vitrification System will not exceed 120 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)].

**III.10.J.1.b.vii** Arsenic, beryllium, and chromium emissions from the HLW Vitrification System will not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)].

**III.10.J.1.b.viii** Carbon monoxide (CO) emission from the HLW Vitrification System will not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the CMS), dry [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2)].

**III.10.J.1.b.ix** Hydrocarbon emission from the HLW Vitrification System will not exceed 10 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the CMS during demonstration testing required by this Permit), dry basis, and reported as propane [40 CFR §63.1203(b)(5)(ii), in accordance with WAC 173-303-680(2)]:

**III.10.J.1.b.x** If the emissions from the HLW Vitrification System exceed the emission rates listed in Permit Table III.10.J.E, as approved pursuant to Permit Condition III.10.C.11.b, the Permittees will notify Ecology, in accordance with Permit Condition III.10.J.3.d.vii [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

The emission limits specified in Permit Conditions III.10.J.1.b.i through III.10.J.1.b.ix above, will be met for the HLW Vitrification System by limiting feed rates as specified in Permit Tables III.10.J.D and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5, compliance with operating conditions specified in Permit Condition III.10.J.1.c (except as specified in Permit Condition III.10.J.1.b.xii), and compliance with Permit Condition III.10.J.1.b.xi.

**III.10.J.1.b.xi** Treatment effectiveness, feed-rates and operating rates for dangerous and mixed waste management units contained in the HLW Building, but not included in Permit Table III.10.J.A, as approved/modified pursuant to Permit Condition III.10.J.5, will be as specified in Permit Sections III.10.D, III.10.E, III.10.F and consistent with assumptions and basis which are reflected in Operating Unit Group 10, Appendix 6.3 of this Permit, as approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit condition, Operating Unit Group 10, Appendix 6.3 will be superseded by Appendix 6.4 upon its approval pursuant to either Permit Conditions III.10.C.11.c or III.10.C.11.d [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

**III.10.J.1.b.xii** Except during periods of HLW Vitrification System startup and shutdown, compliance with the operating conditions specified in Permit Condition III.10.J.1.c, will be regarded as compliance with the required performance standards identified in Permit Conditions III.10.J.1.b.i through x. However, if it is determined that during the effective period of this Permit that compliance with the operating conditions in Permit Condition III.10.J.1.c is not sufficient to ensure compliance with the performance standards specified in Permit Conditions III.10.J.1.b.i through x, the Permit may be modified, revoked, or reissued pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, or III.10.C.2.g.

**III.10.J.1.c** Operating Conditions [WAC-303-670(6), in accordance with WAC 173-303-680(2) and (3)].

The Permittees will operate the HLW Vitrification System in accordance with Operating Unit Group 10, Chapter 4 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi, and Operating Unit Group 10, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e, and Operating Unit Group 10, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f, except as modified pursuant to Permit Conditions III.10.J.1.b.xii, III.10.J.2, III.10.J.3, III.10.J.4, and in accordance with the following:

**III.10.J.1.c.i** The Permittees will operate the HLW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.J.C and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5, within the set-points specified in Permit Table III.10.J.F.

**III.10.J.1.c.ii** The Permittees will operate the AWFCO systems, specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5, to automatically cut-off and/or lock-out the dangerous and mixed waste feed to the HLW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.J.F.

**III.10.J.1.c.iii** The Permittees will operate the AWFCO systems, specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5, to automatically cut-off and/or lock-out the dangerous and mixed waste feed to the HLW Vitrification System when all instruments specified on Permit Table III.10.H.F for measuring the monitored parameters fails or exceeds its span value.

**III.10.J.1.c.iv** The Permittees will operate the AWFCO systems, specified in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5, to automatically cut-off and/or lock out the dangerous and/or mixed waste feed to the HLW Vitrification System when any portion of the HLW Vitrification System is bypassed. The terms "bypassed" and "bypass event" as used in Permit Sections III.10.J and III.10.K will mean if any portion of the HLW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.

**III.10.J.1.c.v** In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5, the Permittees will immediately, manually cut-off the dangerous and mixed waste feed to the HLW Vitrification System. The Permittees will not restart the dangerous and/or mixed waste feed until the problem causing the malfunction has been identified and corrected.

**III.10.J.1.c.vi** The Permittees will manually cut-off the dangerous and mixed waste feed to the HLW Vitrification System when the operating conditions deviate from the limits specified in Permit Condition III.10.J.1.c.i, unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.J.1.c.ii, III.10.J.1.c.iii, and/or III.10.J.1.c.iv.

**III.10.J.1.c.vii** If greater than thirty (30) dangerous and mixed waste feed cut-offs, combined, to the HLW Vitrification System occur due to deviations from Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5, within a sixty (60) day period, the Permittees will submit a written report to Ecology within five (5) calendar days of the thirty-first exceedance including the information specified below. These dangerous and mixed waste feed cut-offs to the HLW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous waste, mixed waste, and waste residues continue to be processed in the HLW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.J.F, from which the set-point is deviated:

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.J.F.
B. The magnitude, dates, and duration of the deviations.
C. Results of the investigation of the cause of the deviations.

D. Corrective measures taken to minimize future occurrences of the deviations.

**III.10.J.1.c.viii** If any portion of the HLW Vitrification System is bypassed while treating dangerous and/or mixed waste, it will be regarded as non-compliance with the operating conditions specified in Permit Condition III.10.J.1.c and the performance standards specified in Permit Condition III.10.J.1.b. After such a bypass event, the Permittees will perform the following actions:

A. Investigate the cause of the bypass event.

B. Take appropriate corrective measures to minimize future bypasses.

C. Record the investigation findings and corrective measures in the operating record.

D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

**III.10.J.1.c.ix** The Permittees will control fugitive emissions from the HLW Vitrification System by maintaining the melter under negative pressure.

**III.10.J.1.c.x** Except during periods of HLW Vitrification System startup and shutdown, compliance with the operating conditions specified in Permit Condition III.10.J.1.c will be regarded as compliance with the required performance standards identified in Permit Condition III.10.J.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, will justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e and III.10.C.2.f, or III.10.C.2.g.

**III.10.J.1.d** Inspection Requirements [WAC 173-303-680(3)].

**III.10.J.1.d.i** The Permittees will inspect the HLW Vitrification System in accordance with the Inspection Plan in Operating Unit Group 10, Chapter 6A of this Permit, as modified in accordance with Permit Condition III.10.C.5.c.

**III.10.J.1.d.ii** The inspection data for HLW Vitrification System will be recorded, and the records will be placed in the WTP Unit operating record for the HLW Vitrification System, in accordance with Permit Condition III.10.C.4.

**III.10.J.1.d.iii** The Permittees will comply with the inspection requirements specified in Operating Unit Group 10, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f, and as modified by Permit Conditions III.10.J.1.b.xii, III.10.J.2, III.10.J.3., and III.10.J.4.

**III.10.J.1.e** Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]

**III.10.J.1.e.i** Upon receipt of a written request from Ecology, the Permittees will perform sampling and analysis of the dangerous and mixed waste and exhaust emissions to verify that the operating requirements established in the Permit achieve the performance standards delineated in this Permit.

**III.10.J.1.e.ii** The Permittees will comply with the monitoring requirements specified in Operating Unit Group 10, Appendices 10.2, 10.3, 10.7, 10.13, 10.15, and 10.18 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.c, III.10.J.5.d, III.10.J.5.e, and III.10.J.5.f, as modified by Permit Conditions III.10.J.1.b.xii, III.10.J.2, III.10.J.3, and III.10.J.4.

**III.10.J.1.e.iii** The Permittees will operate, calibrate, and maintain the carbon monoxide CEMS as specified in this Permit in accordance with Performance Specifications found in 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Operating Unit Group 10 Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f, and as modified by Permit Conditions III.10.J.1.b.xii, III.10.J.2, III.10.J.3, and III.10.J.4.

**III.10.J.1.e.iv** The Permittees will operate, calibrate, and maintain the instruments specified on Permit Tables III.10.J.C and F, as approved/modified pursuant to Permit Condition III.10.J.5, in accordance with Operating Unit Group 10, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f, and as modified by Permit Conditions III.10.J.1.b.xii, III.10.J.2, III.10.J.3, and III.10.J.4.

**III.10.J.1.f** Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

**III.10.J.1.f.i** The Permittees will record and maintain in the WTP Unit operating record for the HLW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4 and III.10.C.5, as modified by Permit Conditions III.10.J.1.b.xii, III.10.J.2, III.10.J.3, and III.10.J.4.

**III.10.J.1.f.ii** The Permittees will record in the WTP Unit operating record the date, time, and duration of all automatic waste feed cut-offs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees will also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure.

**III.10.J.1.f.iii** The Permittees will submit to Ecology a report semi-annually the first calendar year, and annually thereafter each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and mixed waste feed processing time for the HLW Vitrification System.

B. Date/Time of all HLW Vitrification System startups and shutdown.

C. Date/Time/Duration/Cause/Corrective Action taken for all HLW Vitrification System shutdowns caused by malfunction of either process or control equipment.

D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous and/or mixed waste feed cut-off due to deviations from Permit Table III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5.

**III.10.J.1.f.iv** The Permittees will submit an annual report to Ecology each calendar year within ninety (90) days following the end of the year of all quarterly CEMS Calibration Error and Annual CEMS Performance Specification Tests conducted in accordance with Permit Condition III.10.J.1.e.iii.

**III.10.J.1.g** Closure

The Permittees will close the HLW Vitrification System in accordance with Operating Unit Group 10, Addendum H of this Permit, as approved pursuant to Permit Condition III.10.C.8.

**III.10.J.2 Shakedown Period [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].**

**III.10.J.2.a** The shakedown period for the HLW Vitrification System will be conducted in accordance with Permit Condition III.10.J.1, Operating Unit Group 10, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f, and as modified in accordance with Permit Conditions III.10.J.1.b.xii, III.10.J.2, and III.10.J.3.

**III.10.J.2.b** Duration of the Shakedown Period

**III.10.J.2.b.i** The shakedown period for the HLW Vitrification System will begin with the initial introduction of dangerous waste in the HLW Vitrification System following construction and will end with the start of the demonstration test.

**III.10.J.2.b.ii** The shakedown period will not exceed the following limits, as defined by hours of operation, when the HLW Vitrification System is processing dangerous waste. The Permittees may petition Ecology for one (1) extension of each shakedown phase for seven hundred and twenty (720) additional operating hours in accordance with permit modification procedures specified in Permit Conditions III.10.C.2.e and III.10.C.2.f.

Shakedown Phase 1: 720 hours

Shakedown Phase 2: 720 hours

**III.10.J.2.b.iii** Shakedown Phase 2 will not be commenced until documentation has been submitted to Ecology verifying that the HLW Vitrification System has operated at a minimum of 75% of the shakedown Phase 1 feed-rate limit for two (2) separate eight (8) consecutive hour periods with no AWFCOs.

**III.10.J.2.c** Allowable Waste Feed during the Shakedown Period

**III.10.J.2.c.i** The Permittees may feed the dangerous waste specified for the HLW Vitrification System on the Part A Forms (Operating Unit Group 10, Chapter 1 of this Permit), except for those waste outside the waste acceptance criteria specified in the WAP, Operating Unit Group 10, Chapter 3 of this Permit, as approved pursuant to Permit Condition III.10.C.3, except Permit Conditions III.10.J.2.c.ii through v also apply.

**III.10.J.2.c.ii** The Permittees will not feed the following waste to the HLW Vitrification System during Shakedown Phase 1:

A. Acutely toxic dangerous waste listed in WAC 173-303-081(a)(2)(a)(i).

B. Mixed waste.

**III.10.J.2.c.iii** The Permittees will not feed the following waste to the HLW Vitrification System during Shakedown Phase 2:

A. Mixed waste.

**III.10.J.2.c.iv** The feed-rates to the HLW Vitrification System will not exceed the limits in Permit Tables III.10.J.D and III.10.J.F, as approved/modified pursuant to Permit Condition III.10.J.5.

**III.10.J.2.c.v** The Permittees will conduct sufficient analysis of the dangerous waste treated in the HLW Vitrification System to verify that the waste feed is within the physical and chemical composition limits specified in this Permit.

**III.10.J.3 Demonstration Test Period [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)]**

**III.10.J.3.a** Demonstration Test Period

**III.10.J.3.a.i** The Permittees will operate, monitor, and maintain the HLW Vitrification System as specified in Permit Condition III.10.J.1, and Operating Unit Group 10, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f, except as modified in accordance with Permit Conditions III.10.J.1.b.xii and III.10.J.3.

**III.10.J.3.a.ii** Operating Unit Group 10, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f, will be re-submitted to Ecology for approval by the Permittees as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f at least one hundred and eighty (180) days prior to the start date of the demonstration test. The revised Demonstration Test Plan will include applicable EPA promulgated test methods and procedures in effect at the time of the re-submittal and projected commencement and completion dates for the Demonstration Test.

**III.10.J.3.a.iii** The Permittees will not commence the demonstration test period until documentation has been submitted to Ecology verifying that the HLW Vitrification System has operated at a minimum of 75% of the demonstration test period feed-rate limit for a minimum of an eight (8) consecutive hours period on two (2) consecutive days.

**III.10.J.3.b** Performance Standards

The Permittees will demonstrate compliance with the performance standards specified in Permit Condition III.10.J.1.b during the Demonstration Test Period.

**III.10.J.3.c** Allowable Waste Feed during the Demonstration Test Period

**III.10.J.3.c.i** The Permittees may feed the dangerous waste specified for the HLW Vitrification System in Part A Forms (Operating Unit Group 10, Chapter 1 of this Permit), except for those waste outside the waste acceptance criteria specified in the WAP, Operating Unit Group 10, Chapter 3 of this Permit, as approved pursuant to Permit Condition III.10.C.3, except Permit Conditions III.10.J.3.c.ii through iv also apply.

**III.10.J.3.c.ii** The Permittees will not feed mixed waste to the HLW Vitrification System.

**III.10.J.3.c.iv.** The dangerous waste feed-rates to the HLW Vitrification System will not exceed the limits in Permit Tables III.10.J.D and F, as approved/modified pursuant to Permit Condition III.10.J.5.

**III.10.J.3.c.v.** The Permittees will conduct sufficient analysis of the dangerous waste treated in the HLW Vitrification System to verify that the dangerous waste is within the physical and chemical composition limits specified in this Permit.

**III.10.J.3.d** Demonstration Data Submissions and Certifications

**III.10.J.3.d.i** The Permittees will submit to Ecology a complete demonstration test report within one hundred and eighty (180) calendar days of completion of the Demonstration Test including all data collected during the Demonstration Test and updated Permit Tables III.10.K.D, III.10.K.E, and III.10.K.F.

**III.10.J.3.d.ii** The Permittees must submit the following information to Ecology prior to receiving Ecology's approval to commence feed of dangerous waste and mixed waste to the HLW Vitrification System:

A. The Permittees will submit a summary of data collected as required during the Demonstration Test to Ecology upon completion of the Demonstration Test.

B. A certification that the Demonstration Test has been carried out in accordance with the approved Demonstration Test Plan and approved modifications within thirty (30) days of the completion of the Demonstration Test [WAC 173-303-807(8)].

C. Calculations and analytical data showing compliance with the performance standards specified in Permit Conditions III.10.J.1.b.i, III.10.J.1.b.iv, III.10.J.1.b.v, III.10.J.1.b.vi, and III.10.J.1.b.vii.

D. Laboratory data QA/QC summary for the information provided in III.10.J.3.d.ii.C.

**III.10.J.3.d.iii** After successful completion of the Demonstration Test and receipt of Ecology's approval, the Permittees will be authorized to commence feed of dangerous waste and mixed waste to the HLW Vitrification System for the post-demonstration test period indicated in Permit Tables III.10.J.D and F, as approved/modified pursuant to Permit Condition III.10.J.5, in compliance with the operating requirements specified in Permit Condition III.10.J.1.c and within the limitations specified in Permit Condition III.10.C.14.

**III.10.J.3.d.iv** RESERVED

**III.10.J.3.d.v** After successful completion of the Demonstration Test, Permittees submittal of the following to Ecology, and Permittees receipt of Ecology approval of the following in writing, the Permittees will be authorized to feed dangerous waste and mixed waste to the HLW Vitrification System pursuant to Permit Section III.10.K.

A. A complete Demonstration Test Report for the HLW Vitrification System and updated Permit Tables III.10.K.D, III.10.K.E, and III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.C.11.c or III.10.C.11.d, the test report will be certified in accordance with WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

B. A Final Risk Assessment Report completed pursuant to Permit Conditions III.10.C.11.c or III.10.C.11.d.

**III.10.J.3.d.vi** If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.J.1.b, with the exception of Permit Condition III.10.J.1.b.x, for the HLW Vitrification System were not met during the Demonstration Test, the Permittees will perform the following actions:

A. Immediately stop dangerous and mixed waste feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

B. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s) as specified in Permit Condition I.E.21.

C. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

D. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s), documentation supporting a mode of operation where all performance standards listed in Permit Condition III.10.J.1.b, with

the exception of Permit Condition III.10.J.1.b.x, for the HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

E. Based on the information provided to Ecology by the Permittees, pursuant to Permit Conditions III.10.J.3.d.vi.A through D above, and any additional information, Ecology may provide, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the LAW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of a compliance schedule and/or revised Demonstration Test Plan, pursuant to Permit Conditions III.10.J.3.d.vi.F and G.

F. If the performance standard listed in Permit Condition III.10.J.1.b.i was not met during the Demonstration Test, the Permittees will submit within one hundred and twenty (120) days of discovery of not meeting the performance standard, a revised Demonstration Test Plan (if appropriate) and a compliance schedule for Ecology approval to address this deficiency. If a revised Demonstration Test Plan is submitted, it will be accompanied by a request for approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f. The revised Demonstration Test Plan (if submitted) must include substantive changes to prevent failure from reoccurring.

G. If any of the performance standards listed in Permit Condition III.10.J.1.b, with the exception of Permit Conditions III.10.J.1.b.i or III.10.J.1.b.x, were not met during the Demonstration Test, the Permittees will submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s), a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

**III.10.J.3.d.vii** If any calculations or testing results show that any emission rate for any constituent listed in Permit Table III.10.J.E, as approved pursuant to Permit Condition III.10.C.11.b, is exceeded for HLW Vitrification System during the Demonstration Test, the Permittees will perform the following actions:

A. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21.

B. Submit to Ecology additional risk information to indicate that the increased emissions impact is offset by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of exceeding the emission rate(s).

C. Based on the notification and any additional information, Ecology may provide, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e and III.10.C.2.f, or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

**III.10.J.4 Post-Demonstration Test Period [WAC 173-303-670(5), WAC 173-303-670(6), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].**

**III.10.J.4.a** The Permittees will operate, monitor, and maintain the HLW Vitrification System as specified in Permit Condition III.10.J.1 and Operating Unit Group 10, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5, except as modified in accordance with Permit Conditions III.10.J.1.b.xii, III.10.J.3, and III.10.J.4.

**III.10.J.4.b** Allowable Waste Feed during the Post-Demonstration Test Period

**III.10.J.4.b.i** The Permittees may feed the dangerous and/or mixed waste specified for the HLW Vitrification System on the Part A Forms (Operating Unit Group 10, Chapter 1 of this Permit), except for those waste outside the waste acceptance criteria specified in the WAP, Operating Unit Group 10, Chapter 3 of this Permit, as approved pursuant to Permit Condition III.10.C.3, and except Permit Conditions III.10.J.4.b.ii and III.10.J.4.b.iii also apply.

**III.10.J.4.b.ii** The dangerous waste and mixed waste feed rates to the HLW Vitrification System will not exceed the limits in Permit Tables III.10.J.D and F, as approved/modified pursuant to Permit Condition III.10.J.5, or in Permit Condition III.10.J.3.

**III.10.J.4.b.iii** The Permittees will conduct sufficient analysis of the dangerous waste and mixed waste treated in HLW Vitrification System to verify that the waste feed is within the physical and chemical composition limits specified in this Permit.

**III.10.J.5 Compliance Schedules**

**III.10.J.5.a** All information identified for submittal to Ecology in a. through f. of this compliance schedule must be signed and certified in accordance with requirements in WAC 173-303-810(12), as modified in accordance with Permit Condition III.10.J.1.a.iii [WAC 173-303-806(4)].

**III.10.J.5.b** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to construction of each secondary containment and leak detection system for the HLW Vitrification System (per level) as identified in Permit Tables III.10.J.A and III.10.J.B, engineering information as specified below, for incorporation into Operating Unit Group 10, Appendices 10.2, 10.4, 10.5, 10.7, 10.8, 10.9, 10.11, and 10.12 of this Permit. At a minimum, engineering information specified below will show the following as described in WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings and information on sumps and floor drains):

**III.10.J.5.b.i** IQRPE Reports (specific to foundation, secondary containment, and leak detection system) will include review of design drawings, calculations, and other information on which the certification report is based and will include, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendix 10.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. IQRPE Reports will be consistent with the information separately provided in ii through ix below [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

**III.10.J.5.b.ii** Design drawings (General Arrangement Drawings, plan) and specifications for the foundation, secondary containment including liner installation details, and leak detection methodology. These items should show the dimensions, volume calculations, and location of the secondary containment system, and should include

items such as floor/pipe slopes to sumps, tanks, floor drains [WAC 173-303-640(4)(b) through (f) and WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

**III.10.J.5.b.iii** The Permittees will provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the secondary containment system. This information will demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

**III.10.J.5.b.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.J.5.b.v** Secondary containment/foundation, and leak detection system, materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials), as applicable [WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.J.5.b.vi** Detailed description of how the secondary containment for the HLW Vitrification System will be installed in compliance with WAC 173-303-640(3)(c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B);

**III.10.J.5.b.vii** Submit Permit Tables III.10.J.B and III.10.K.B completed to provide for all secondary containment sumps and floor drains the information, as specified in each column heading consistent with information to be provided in i through vi, above;

**III.10.J.5.b.viii** Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

**III.10.J.5.b.ix** A detailed description of how HLW Vitrification System design provides access for conducting future HLW Vitrification System integrity assessments [WAC 173-303-640(3)(b) and WAC 173-303-806(4)(i)(i)(B)].

**III.10.J.5.c** The Permittees will submit to Ecology pursuant to Permit Condition III.10.C.9.f, prior to installation of each sub-system as identified in Permit Table III.10.J.A, engineering information as specified below, for incorporation into Operating Unit Group 10, Appendices 10.1 through 10.14 and 10.17 of this Permit. At a minimum, engineering information specified below will show the following, as required pursuant to WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

**III.10.J.5.c.i** IQRPE Reports (specific to sub-system) will include review of design drawings, calculations, and other information on which the certification report is based and will include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendix 10.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports will be consistent with the information separately provided in ii. through xii. below and the

IQRPE Report specified in Permit Condition III.10.J.5.b [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

**III.10.J.5.c.ii** Design drawings [General Arrangement Drawings in plan, Process Flow Diagrams, Piping and Instrumentation Diagrams, (including pressure control systems), Mechanical Drawings, and specifications, and other information specific to subsystems (to show location and physical attributes of each subsystem specific to miscellaneous units)] [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

**III.10.J.5.c.iii** Sub-system design criteria (references to codes and, standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details to support the sub-systems. Structural support calculations specific to off-specification, non-standard, and field-fabricated subsystems will be submitted for incorporation into the Administrative Record. Documentation will include, but not be limited to, supporting specifications (test data, treatment effectiveness report, etc.), supporting projected operational capability (e.g., WESP projected removal efficiency for individual metals, halogens, particulates, etc.), and compliance with performance standards specified in Permit Condition III.10.J.1.b [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

**III.10.J.5.c.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.J.5.c.v** Sub-system materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

**III.10.J.5.c.vi** Sub-system vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, will be submitted for incorporation into the Administrative Record WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

**III.10.J.5.c.vii** System descriptions related to sub-system units will be submitted for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

**III.10.J.5.c.viii** Mass and energy balance for normal projected operating conditions used in developing the Piping and Instrumentation Diagrams and Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

**III.10.J.5.c.ix** Detailed description of all potential HLW Vitrification System bypass events including:

A. A report which includes an analysis of credible potential bypass events and recommendations for prevention/minimization of the potential, impact, and frequency of the bypass event to include at a minimum:

1. Operating procedures

2. Maintenance procedures
3. Redundant equipment
4. Redundant instrumentation
5. Alternate equipment
6. Alternate materials of construction

**III.10.J.5.c.x** A detailed description of how the sub-systems will be installed in compliance with WAC 173-303-640(3)(b), (c), (d), and (e), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

**III.10.J.5.c.xi** Sub-system design to prevent escape of vapors and emissions of acutely or chronically toxic (upon inhalation) EHW, for incorporation into the Administrative Record [WAC 173-303-640(5)(e), in accordance with WAC 173-303-680(2), and WAC 173-303-806(4)(i)(i)(B)];

**III.10.J.5.c.xii** Documentation that sub-systems are designed to prevent the accumulation of hydrogen gases levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

**III.10.J.5.d** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to installation of equipment for each sub-system as identified in Permit Tables III.10.J.A and III.10.J.B, not addressed in Permit Conditions III.10.J.5.b or III.10.J.5.c, engineering information as specified below, for incorporation into Operating Unit Group 10, Appendices 10.1 through 10.14 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to in WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

**III.10.J.5.d.i** IQRPE Reports (specific to sub-system equipment) will include a review of design drawings, calculations, and other information as applicable on which the certification report is based. The reports will include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendix 10.0 of this Permit, may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports will be consistent with the information provided separately in ii. through xiii. below and the IQRPE Reports specified in Permit Conditions III.10.J.5.b and III.10.J.5.c [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(I)(I)(A) through (B)];

**III.10.J.5.d.ii** Design drawings [Process Flow Diagrams, Piping and Instrumentation Diagrams (including pressure control systems), and specifications, and other information specific to equipment (these drawings should include all equipment such as pipes, valves, fittings, pumps, instruments, etc.)] [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.J.5.d.iii** Sub-system equipment design criteria (references to codes and standards, load definitions and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the sub-system equipment. [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(f), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

**III.10.J.5.d.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil and water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

**III.10.J.5.d.v** Materials selection documentation for equipment for each sub-system (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

**III.10.J.5.d.vi** Vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii. above, for sub-system equipment will be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(iv)];

**III.10.J.5.d.vii** Sub-system, sub-system equipment, and leak detection system instrument control logic narrative description (e.g., descriptions of fail-safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

**III.10.J.5.d.viii** System description related to sub-system equipment, and system descriptions related to leak detection systems, for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

**III.10.J.5.d.ix** A detailed description of how the sub-system equipment will be installed and tested [WAC 173-303-640(3)(c) through (e) and WAC 173-303-640(4)(b) and (c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

**III.10.J.5.d.x** For process monitoring, control, and leak detection system instrumentation for the HLW Vitrification System as identified in Permit Tables III.10.J.C and III.10.J.F, a detailed description of how the process monitoring, control, and leak detection system instrumentation will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi), and WAC 173-303-806(4)(i)(i)(B)];

**III.10.J.5.d.xi** Mass and energy balance for projected normal operating conditions used in developing the Piping and Instrumentation Diagrams and Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified, for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

**III.10.J.5.d.xii** Documentation that sub-systems equipment are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)] [WAC 173-303-815(2)(b)(ii)];

**III.10.J.5.d.xiii** Leak Detection system documentation (e.g. vendor information etc.) consistent with information submitted under Permit Condition III.10.J.5.c.ii and Permit Conditions III.10.J.5.d.ii, vii, viii, and x above, will be submitted for incorporation into the Administrative Record.

**III.10.J.5.e** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, the following as specified below for incorporation into Operating Unit Group 10, Appendix 10.18 of this

Permit, except Permit Condition III.10.J.5.e.i, which will be incorporated into Operating Unit Group 10, Addendum E of this Permit. All information provided under this permit condition must be consistent with information provided pursuant to Permit Conditions III.10.J.5.b, c, d, e, and f, III.10.C.3.e.v, and III.10.C.11.b, as approved by Ecology:

**III.10.J.5.e.i** Integrity assessment program and schedule for the HLW Vitrification System will address the conducting of periodic integrity assessments on the HLW Vitrification System over the life of the system, as specified in Permit Condition III.10.J.5.b.ix and as specified in WAC 173-303-640(3)(b), in accordance with WAC 173-303-680, and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past integrity assessments, age of the system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

**III.10.J.5.e.ii** Detailed plans and descriptions, demonstrating the leak detection system is operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of dangerous and/or mixed waste or accumulated liquid in the secondary containment system within twenty-four (24) hours [WAC 173-303-640(4)(c)(iii)]. ~~Detection of a leak of at least 0.1 gallons per hour within twenty-four (24) hours is defined as being able to detect a leak within twenty-four (24) hours.~~ Any exceptions to this criteria must be approved by Ecology in accordance with WAC 173-303-680, WAC 173-303-640(4)(c)(iii), and WAC 173-303-806(4)(i)(i)(b);

**III.10.J.5.e.iii** Detailed operational plans and descriptions, demonstrating that spilled or leaked waste and accumulated precipitation liquids can be removed from the secondary containment system within twenty-four (24) hours [WAC 173-303-806(4)(i)(i)(B)];

**III.10.J.5.e.iv** Descriptions of operational procedures demonstrating appropriate controls and practices are in place to prevent spills and overflows from the HLW Vitrification System or containment systems in compliance with WAC 173-303-640(5)(b)(i) through (iii), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

**III.10.J.5.e.v** Description of procedures for investigation and repair of the HLW Vitrification System [WAC 173-303–640(6) and WAC 173-303-640(7)(e) and (f), in accordance with WAC 173-303-680, WAC 173-303-320, WAC 173-303-806(4)(ia)(iv), and WAC 173-303-806(4)(a)(ii)(B)];

**III.10.J.5.e.vi** Updated Chapter 4, Narrative Description, Tables and Figures as identified in Permit Tables III.10.J.A and III.10.J.B, as modified pursuant to Permit Condition III.10.H.5.e.x and updated to identify routinely non-accessible LAW Vitrification sub-systems.

**III.10.J.5.e.vii** Description of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed waste as specified in accordance with WAC 173-303-640(9) and (10), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B).

**III.10.J.5.e.viii** A description of the tracking system used to track dangerous and/or mixed waste generated throughout the HLW Vitrification System, pursuant to WAC 173-303-380.

**III.10.J.5.e.ix** Permit Table III.10.J.C and III.10.K.C will be revised and/or completed for HLW Vitrification System process and leak detection system monitors and instruments (to include, but not be limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emissions) to provide the information as specified in each column heading. Process and leak detection system monitors and instruments for critical systems, as specified in Operating Unit Group 10, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii, will be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

**III.10.J.5.e.x** Permit Tables III.10.J.A and III.10.K.A amended as follows [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)]:

A. Under column 1, update and complete list of dangerous and mixed waste HLW Vitrification System sub-systems, including plant items that comprise each system (listed by item number).

B. Under column 2, update and complete system designations.

C. Under column 3, replace the 'Reserved' with Operating Unit Group 10, Appendix 10.0 sub-sections (e.g., 10.1, 10.2, etc.) designated in Permit Conditions III.10.J.5.b, c, and d specific to HLW Vitrification System sub-system, as listed in column 1.

D. Under column 4, update and complete list of narrative description, tables, and figures.

**III.10.J.5.f** One hundred and eighty (180) days prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will submit for review and receive approval for incorporation into Operating Unit Group 10, Appendix 10.15 of this Permit, a Demonstration Test Plan for the HLW Vitrification System to demonstrate that the HLW Vitrification Systems meets the performance standards specified in Permit Condition III.10.J.1.b. In order to incorporate the Demonstration Test Plan for the HLW Vitrification System into Operating Unit Group 10, Appendix 10.15, Permit Condition III.10.C.2.g process will be followed. The Demonstration Test Plan will include, but not be limited to, the following information. The Demonstration Test Plan will also be consistent with the information provided pursuant to Permit Conditions III.10.J.5.b, c, d and e, III.10.C.3.e.v and III.10.C.11.b, as approved by Ecology and consistent with the schedule described in Operating Unit Group 10, Appendix 1.0 of this Permit. The documentation required pursuant to Permit Condition III.10.J.5.f.xvi, in addition to being incorporated into Operating Unit Group 10, Appendix 10.15, will be incorporated by reference in Operating Unit Group 10, Addendum E of this Permit.

Notes: (1) The following should be consulted to prepare this Demonstration Test Plan: *"Guidance on Setting Permit Conditions and Reporting Trial Burn Results Volume II of the Hazardous Waste Incineration Guidance Series,"* and EPA/625/6-89/019 and *"Risk Burn Guidance For Hazardous Waste Combustion Facilities,"* EPA-R-01-001, July 2001, WAC 173-303-807(2), WAC 173-303-670(5), WAC-173-303-670(6), 40 CFR §63.1207(f)(2), 40 CFR §63.1209 and Appendix to 40 CFR Part 63 EEE.

(2) Cross-referencing to the information provided pursuant to permit Conditions III.H.5.b, c, d, e and III.10.C.3.e.v, as approved by Ecology, that are redundant to elements of the Demonstration Test Plan for the HLW Vitrification System is acceptable.

**III.10.J.5.f.i** Analysis of each feed-stream to be fed during the demonstration test, including dangerous waste, glass formers and reductants, process streams (e.g., control air, process air, steam, sparge bubbler air, air in-leakage from melter cave, and gases from HLW Vitrification Vessel Ventilation System, process water, etc.) that includes:

A. Levels of ash, levels of metals, total chlorine (organic and inorganic), other halogens and radionuclide surrogates.

B. Description of the physical form of the feed-streams;

C. An identification and quantification of organics that are present in the feed-stream, including constituents proposed for DRE demonstration;

A comparison of the proposed demonstration test feed streams to the mixed waste feed envelopes to be processed in the melter must be provided that documents that the proposed demonstration test feed streams will serve as worst case surrogates for organic destruction, formation of products of incomplete oxidation, and metals, total chlorine (organic and inorganic), other halogens, particulate formation, and radionuclides;

**III.10.J.5.f.ii** Specification of trial PODCs for which destruction and removal efficiencies are proposed to be calculated during the demonstration test and for inclusion in Permit Conditions III.10.J.1.b.i and III.10.K.1.b.i. These trial PODCs will be specified based on destructibility, concentration or mass in the waste and the dangerous waste constituents or constituents in WAC 173-303-9905;

**III.10.J.5.f.iii** A description of the blending procedures, prior to introducing the feed-streams into the melter, including analysis of the materials prior to blending, and blending ratios;

**III.10.J.5.f.iv** A description of how the surrogate feeds are to be introduced for the demonstration. This description should clearly identify the differences and justify how any of differences would impact the surrogate feed introduction as representative of how mixed waste feeds will be introduced;

**III.10.J.5.f.v** A detailed engineering description of the HLW Vitrification System, including:

A. Manufacturer's name and model number for each sub-system.

B. Design capacity of each sub-system including documentation (engineering calculations, manufacturer/vendor specifications, operating data, etc.) supporting projected operational efficiencies (e.g., WESP projected removal efficiency for individual metals, halogens, particulates, etc.) and compliance with performance standards specified in Permit Condition III.10.J.1.b.

C. Detailed scaled engineering drawings, including Process Flow Diagrams, Piping and Instrumentation Diagrams, Vessel Drawings (plan, and elevation with cross sections) and General Arrangement Drawings.

D. Process Engineering Descriptions.

E. Mass and energy balances for each projected operating condition and each demonstration test condition, including assumptions and formulas used to complete mass and energy balances so that they can be independently verified for incorporation into the Administrative Record.

F. Engineering Specifications/data sheets (materials of construction, physical and chemical tolerances of equipment, equipment performance warranties, and fan curves).

G. Detailed Description of Automatic Waste Feed Cut-off System addressing critical operating parameters for all performance standards specified in Permit Condition III.10.J.1.b.

H. Documentation to support compliance with performance standards specified in Permit Condition III.10.J.1.b, including engineering calculations, test data, and manufacturer/vendor's warranties, etc.

I. Detailed description of the design, operation and maintenance practices for air pollution control system.

J. Detailed description of the design, operation, and maintenance practices of any stack gas monitoring and pollution control monitoring system.

**III.10.J.5.f.vi** Detailed description of sampling and monitoring procedures including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis including, but not limited to:

A. A short summary narrative description of each stack sample method should be included within the main body of the demonstration test plan, which references an appendix to the plan that would include for each sampling train: (1) detailed sample method procedures, (2) sampling train configuration schematic, (3) sampling recovery flow sheet, (4) detailed analytical method procedures, and (5) sampling preparation and analysis flow sheet. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, enhancements to train to accommodate high moisture content in stack gas, etc.) and what is being proposed along with the basis for the decision.

B. A short summary narrative description of the feed and residue sampling methods should be included within the main body of the demonstration test plan, which references an appendix that would include for each sample type: (1) detailed sample method procedures, (2) sampling recovery/compositing procedures, and (3) detailed analytical method procedures. The detailed procedures should clearly flag where the method has provided decision points (e.g., choices of equipment materials of construction, choices of clean-up procedures or whether additional clean-up procedures will be incorporated, whether pretest surveys or laboratory validation work will be performed, etc.) and what is being proposed along with the basis for the decision.

**III.10.J.5.f.vii** A detailed test schedule for each condition for which the demonstration test is planned, including projected date(s), duration, quantity of dangerous waste to be fed, and other relevant factors;

**III.10.J.5.f.viii** A detailed test protocol including, for each test condition, the ranges of feed-rate for each feed system, and all other relevant parameters that may affect the ability of the HLW Vitrification System to meet performance standards specified in Permit Condition III.10.J.1.b;

**III.10.J.5.f.ix** A detailed description of planned operating conditions for each demonstration test condition, including operating conditions for shakedown, demonstration test, post-demonstration test and normal operations. This information will also include submittal of Permit Tables III.10.J.D, III.10.J.F, III.10.K.D, and III.10.K.F completed with the information as specified in each column heading for each HLW Vitrification System waste feed cut-off parameter and submittal of supporting documentation for Permit Tables III.10.J.D, III.10.J.F, III.10.K.D, and III.10.K.F set-point values.

**III.10.J.5.f.x** The test conditions proposed must demonstrate meeting the performance standards specified in Permit Condition III.10.J.1.b with the simultaneous operation of the melter at capacity and input from the HLW Vitrification Vessel Ventilation System at capacity to simulate maximum loading to the HLW Vitrification System off-gas treatment system and to establish the corresponding operating parameter ranges.

**III.10.J.5.f.xi** A detailed description of procedures for start-up and shutdown of waste feed and controlling emissions in the event of an equipment malfunction, including off-normal and emergency shutdown procedures;

**III.10.J.5.f.xii** A calculation of waste residence time;

**III.10.J.5.f.xiii** Any request to extrapolate metal feed-rate limits from Demonstration Test levels must include:

A. A description of the extrapolation methodology and rationale for how the approach ensures compliance with the performance standards, as specified in Permit Condition III.10.J.1.b.

B. Documentation of the historical range of normal metal feed-rates for each feed stream.

C. Documentation that the level of spiking recommended during the demonstration test will mask sampling and analysis imprecision and inaccuracy to the extent that extrapolation of feed-rates and emission rates from the Demonstration Test data will be as accurate and precise as if full spiking were used.

**III.10.J.5.f.xiv** Documentation of the expected levels of constituents in HLW Vitrification System input streams, including, but not limited to, waste feed, glass former and reactants, control air, process air, steam, sparge bubbler air, air in-leakage from melter cave, gases from HLW Vitrification Vessel Ventilation System, and process water.

**III.10.J.5.f.xv** Documentation justifying the duration of the conditioning required to ensure the HLW Vitrification System had achieved steady-state operations under Demonstration Test operating conditions.

**III.10.J.5.f.xvi** Documentation of HLW Vitrification System process and leak detection system instruments and monitors as listed on Permit Tables III.10.J.C, III.10.J.F, III.10.K.C, and III.10.K.F to include:

A. Procurement specifications.

B. Location used.

C. Range, precision, and accuracy.

D. Calibration/functionality test procedures (either method number ASTM) or provide a copy of manufacturer's recommended calibration procedures.

E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.).

F. Equipment instrument control logic narrative description (e.g., descriptions of failsafe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)]

**III.10.J.5.f.xvii** Outline of demonstration test report.

**Table III.10.J.A – HLW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables, and Figures |
|---|---|---|---|
| **HLW Melter Process System**<br><br>HMP-MLTR-00001 (HLW Melter 1)<br><br>HMP-MLTR-00002 (HLW Melter 2) | HMP | -M6-HMP-00001001<br>-M6-HMP-00001002<br>-M6-HMP-00003001<br>-M6-HMP-00004001<br>-M6-HMP-00006001<br>-M6-HMP-00006002<br>-M6-HMP-00007001<br>-M6-HMP-00008001<br>-M6-HMP-00013002<br>-M6-HMP-00013003<br>-M6-HMP-20001001<br>-M6-HMP-20001002<br>-M6-HMP-20003001<br>-M6-HMP-20004001<br>-M6-HMP-20006001<br>-M6-HMP-20008001<br>-M6-HMP-20013002<br>-M6-HMP-20013003<br>-M5-V17T-P0002<br>-M5-V17T-P20002<br>-M0D-HMP-00001<br>-M0D-HMP-00002<br>-MF-HMP-00001<br>-MF-HMP-00002<br>-MF-HMP-00003 | Section 4F.2.2; Table 4F-2; and Figures 4A-1, 4A-4 and 4A-27 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.J.A – HLW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables, and Figures |
|---|---|---|---|
| | | -N1D-HMP-P0001<br>-P1-P01T-00002<br>-3PS-AE00-T0001 | |
| **Melter Offgas Treatment Process System**<br><br>HOP-FCLR-00001 (Melter 1 Offgas Film Cooler)<br><br>HOP-FCLR-00002 (Melter 2 Offgas Film Cooler)<br><br>HOP-FCLR-00003 (Melter 1 Standby Offgas Insert)<br><br>HOP-FCLR-00004 (Melter 2 Standby Offgas Insert) | HOP | **24590-HLW**<br>-M5-V17T-P0002<br>-M5-V17T-P20002<br>-M6-HMP-00002001<br>-M6-HMP-00002002<br>-M6-HMP-20002001<br>-3YD-HOP-00001[a] | Section 4F.4.2; Table 4F-2; and Figures 4A-1, 4A-4 and 4A-27 in Operating Unit Group 10, Chapter 4 of this Permit. |
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HOP-SCB-00001 (Melter 1 Submerged Bed Scrubber, SBS)<br><br>HOP-SCB-00002 (Melter 2 Submerged Bed Scrubber, SBS) | HOP | **24590-HLW**<br>-M5-V17T-P0003<br>-M5-V17T-P20003<br>-M6-HOP-00001001<br>-M6-HOP-00001002<br>-M6-HOP-00001003<br>-M6-HOP-20001001<br>-M6-HOP-20001002<br>-M6-HOP-20001003 | Section 4F.4.2; Table 4F-2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.J.A – HLW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables, and Figures |
|---|---|---|---|
| | | -MKD-HOP-00016<br>-MK-HOP-P0001001<br>-MK-HOP-P0001002<br>-MK-HOP-P0001003<br>-MK-HOP-P0001004<br>-N1D-HOP-P0010<br>-P1-P01T-00002<br>-3YD-HOP-00001[a]<br><br>**24590-WTP**<br>-3PS-MV00-T0001<br>-3PS-MV00-T0002<br>-3PS-MV00-T0003 | |
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HOP-WESP-00001 (Melter 1 Wet Electrostatic Precipitator, WESP)<br><br>HOP-WESP-00002 (Melter 2 Wet Electrostatic Precipitator, WESP) | HOP | **24590-HLW**<br>-M5-V17T-P0003<br>-M5-V17T-P20003<br>-M6-HOP-00002<br>-M6-HOP-20002<br>-N1D-HOP-P0002<br>-P1-P01T-00004<br>-P1-P01T-00005<br>-3YD-HOP-00001[a]<br><br>**24590-WTP**<br>-3PS-MKE0-T0001 | Section 4F.4.2; Table 4F-2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.J.A – HLW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables, and Figures |
|---|---|---|---|
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HOP-HEPA-00001A (Melter 1 Primary Offgas HEPA Filter)<br><br>HOP-HEPA-00001B (Melter 1 Primary Offgas HEPA Filter)<br><br>HOP-HEPA-00002A (Melter 1 Secondary Offgas HEPA Filter)<br><br>HOP-HEPA-00002B (Melter 1 Secondary Offgas HEPA Filter)<br><br>HOP-HEPA-00007A (Melter 2 Primary Offgas HEPA Filter)<br><br>HOP-HEPA-00007B (Melter 2 Primary Offgas HEPA Filter)<br><br>HOP-HEPA-00008A (Melter 2 Secondary Offgas HEPA Filter)<br><br>HOP-HEPA-00008B (Melter 2 Secondary Offgas HEPA Filter) | HOP | **24590-HLW**<br>-M5-V17T-P0003<br>-M5-V17T-P20003<br>-M6-HOP-00010<br>-M6-HOP-20010<br>-MAD-HOP-00010<br>-MAD-HOP-00011<br>-MAD-HOP-00012<br>-MAD-HOP-00013<br>-MAD-HOP-00014<br>-MAD-HOP-00015<br>-MAD-HOP-00016<br>-MAD-HOP-00017<br>-P1-P01T-00002<br>-3YD-HOP-00001[a]<br><br>**24590-WTP**<br>-3PS-MKH0-T0002 | Section 4F.4.2; Table 4F-2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.J.A – HLW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables, and Figures |
|---|---|---|---|
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HOP-ADBR-00001A (Melter 1 Activated Carbon Adsorber – located on Activated Carbon Adsorber Skid HOP-ADBR-00001)<br><br>HOP-ADBR-00001B (Melter 1 Activated Carbon Adsorber – located on Activated Carbon Adsorber Skid HOP-ADBR-00001)<br><br>HOP-ADBR-00002A (Melter 2 Activated Carbon Adsorber – located on Activated Carbon Adsorber Skid HOP-ADBR-00002)<br><br>HOP-ADBR-00002B (Melter 2 Activated Carbon Adsorber – located on Activated Carbon Adsorber Skid HOP-ADBR-00002) | HOP | **24590-HLW**<br>-M5-V17T-00004<br>-M5-V17T-20004<br>-M6-HOP-00003001<br>-M6-HOP-00003002<br>-M6-HOP-20003001<br>-M6-HOP-20003002<br>-MVD-HOP-00015<br>-MVD-HOP-00016<br>-N1D-HOP-00003<br>-P1-P01T-00002<br><br>**24590-WTP**<br>-3PS-MWK0-T0001 | Section 4F.4.2; Table 4F-2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.J.A – HLW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables, and Figures |
|---|---|---|---|
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HOP-HEME-00001A (Melter 1 High Efficiency Mist Eliminator, HEME)<br><br>HOP-HEME-00001B (Melter 1 High Efficiency Mist Eliminator, HEME)<br><br>HOP-HEME-00002A (Melter 2 High Efficiency Mist Eliminator, HEME)<br><br>HOP-HEME-00002B (Melter 2 High Efficiency Mist Eliminator, HEME) | HOP | **24590-HLW**<br>-M5-V17T-P0003<br>-M5-V17T-P20003<br>-M6-HOP-00009001<br>-M6-HOP-00009002<br>-M6-HOP-20009001<br>-M6-HOP-20009002<br>-MVD-HOP-00007<br>-MV-HOP-P0002001<br>-MV-HOP-P0002002<br>-MV-HOP-P0002003<br>-N1D-HOP-P0001<br>-P1-P01T-00002<br>-3YD-HOP-00001[a] | Section 4F.4.2; Table 4F-2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HOP-SCO-00001 (Thermal Catalytic Oxidizer – located on Catalyst SkidHOP-SKID-00005)<br><br>HOP-SCO-00004 (Thermal Catalytic Oxidizer – located on Catalyst Skid HOP-SKID-00007) | HOP | **24590-HLW**<br>-M5-V17T-00004<br>-M5-V17T-20004<br>-M6-HOP-00008001<br>-M6-HOP-00008002<br>-M6-HOP-00008003<br>-M6-HOP-20008001<br>-M6-HOP-20008002<br>-M6-HOP-20008003 | Section 4F.4.2; Table 4F-2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.J.A – HLW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables, and Figures |
|---|---|---|---|
| | | -MKD-HOP-00019<br>-N1D-HOP-00004<br>-NID-HOP-00005<br>-P1-P01T-00002<br>-3PS-MBTV-T0002<br><br>**24590-LAW**<br>-3PS-MBTV-T0001 | |
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HOP-SCR-00001 (NOx Selective Catalytic Reducer – located on Catalyst Skid HOP-SKID-00005)<br><br>HOP-SCR-00002 (NOx Selective Catalytic Reducer – located on Catalyst Skid HOP-SKID-00007) | HOP | **24590-HLW**<br>-M5-V17T-00004<br>-M5-V17T-20004<br>-M6-HOP-00008001<br>-M6-HOP-00008002<br>-M6-HOP-00008003<br>-M6-HOP-20008001<br>-M6-HOP-20008002<br>-M6-HOP-20008003<br>-MKD-HOP-00019<br>-N1D-HOP-00004<br>-N1D-HOP-00005<br>-P1-P01T-00002<br>-3PS-MBTV-T0002<br><br>**24590-LAW**<br>-3PS-MBTV-T0001 | Section 4F.4.2; Table 4F-2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.J.A – HLW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables, and Figures |
|---|---|---|---|
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HOP-HX-00001 (Catalyst Skid Preheater – located on Catalyst Skid HOP-SKID-00005)<br><br>HOP-HX-00003 (Catalyst Skid Preheater – located on Catalyst Skid HOP-SKID-00007) | HOP | **24590-HLW**<br>-M5-V17T-00004<br>-M5-V17T-20004<br>-M6-HOP-00008001<br>-M6-HOP-00008002<br>-M6-HOP-00008003<br>-M6-HOP-20008001<br>-M6-HOP-20008002<br>-M6-HOP-20008003<br>-MKD-HOP-00019<br>-N1D-HOP-00008<br>-P1-P01T-P0002<br>-3PS-MBTV-T0002<br><br>**24590-LAW**<br>-3PS-MBTV-T0001 | Section 4F.4.2; Table 4F-2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HOP-HTR-00001 (Catalyst Skid Electric Heater – located on Catalyst Skid HOP-SKID-00005)<br><br>HOP-HTR-00007 (Catalyst Skid Electric Heaters – located on Catalyst Skid HOP-SKID-00007) | HOP | **24590-HLW**<br>-M5-V17T-00004<br>-M5-V17T-20004<br>-M6-HOP-00008001<br>-M6-HOP-00008002<br>-M6-HOP-00008003<br>-M6-HOP-20008001<br>-M6-HOP-20008002<br>-M6-HOP-20008003 | Section 4F.4.2; Table 4F-2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.J.A – HLW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables, and Figures |
|---|---|---|---|
| | | -MKD-HOP-00019<br>-P1-P01T-00002<br>-3PS-MBTV-T0002<br>-N1D-HOP-00011<br><br>**24590-LAW**<br>-3PS-MBTV-T0001 | |
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HOP-ABS-00002 (Silver Mordenite Column)<br><br>HOP-ABS-00003 (Silver Mordenite Column) | HOP | **24590-HLW**<br>-M5-V17T-00004<br>-M5-V17T-20004<br>-M6-HOP-00008001<br>-M6-HOP-00008002<br>-M6-HOP-00008003<br>-M6-HOP-20008001<br>-M6-HOP-20008002<br>-M6-HOP-20008003<br>-MKD-HOP-00014<br>-MKD-HOP-00017<br>-NID-HOP-P0006<br>-P1-P01T-00001<br>-3PS-MBT0-TP001 | Section 4F.4.2; Table 4F-2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.J.A – HLW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables, and Figures |
|---|---|---|---|
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HOP-HTR-00001B (HEPA Preheater)<br><br>HOP-HTR-00002A (HEPA Preheater)<br><br>HOP-HTR-00005A (HEPA Preheater)<br><br>HOP-HTR-00005B (HEPA Preheater) | HOP | **24590-HLW**<br>-M5-V17T-P0003<br>-M5-V17T-P20003<br>-M6-HOP-00010<br>-M6-HOP-20010<br>-MED-HOP-00013<br>-3PS-MEE0-T0001 | Section 4F.4.2; Table 4F-2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HOP-HX-00002 (Silver Mordenite Preheater)<br><br>HOP-HX-00004 (Silver Mordenite Preheater) | HOP | **24590-HLW**<br>-M5-V17T-00004<br>-M5-V17T-20004<br>-M6-HOP-00003001<br>-M6-HOP-00003002<br>-M6-HOP-20003001<br>-M6-HOP-20003002<br>-N1D-HOP-00007<br>-P1-P01T-00002 | Section 4F.4.2; Table 4F-2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.J.A – HLW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables, and Figures |
|---|---|---|---|
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HOP-FAN-00001A (Booster Extraction Fan)<br><br>HOP-FAN-00001B (Booster Extraction Fan)<br><br>HOP-FAN-00001C (Booster Extraction Fan)<br><br>HOP-FAN-00009A (Booster Extraction Fan)<br>HOP-FAN-00009B (Booster Extraction Fan)<br><br>HOP-FAN-00009C (Booster Extraction Fan) | HOP | **24590-HLW**<br>-M5-V17T-00004<br>-M5-V17T-20004<br>-M6-HOP-00003001<br>-M6-HOP-00003002<br>-M6-HOP-20003001<br>-M6-HOP-20003002<br>-MAD-HOP-00018<br>-P1-P01T-00001<br><br>**24590-WTP**<br>-3PS-MACS-T0004 | Section 4F.4.2; Table 4F-2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HOP-FAN-00008A (Stack Extraction Fan)<br><br>HOP-FAN-00008B (Stack Extraction Fan) | HOP | **24590-HLW**<br>-M5-V17T-00004<br>-M5-V17T-20004<br>-M6-HOP-00008001<br>-M6-HOP-00008002<br>-M6-HOP-00008003<br>-M6-HOP-20008001<br>-M6-HOP-20008002 | Section 4F.4.2; Table 4F-2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |

**Table III.10.J.A – HLW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables, and Figures |
|---|---|---|---|
| HOP-FAN-00008C (Stack Extraction Fan)<br><br>HOP-FAN-000010A (Stack Extraction Fan)<br><br>HOP-FAN-000010B (Stack Extraction Fan)<br><br>HOP-FAN-000010C (Stack Extraction Fan) | | -M6-HOP-20008003<br>-MAD-HOP-00038<br>-P1-P01T-00005<br><br>**24590-WTP**<br>-3PS-MACS-T0004 | |
| **Melter Offgas Treatment Process System (Cont.)**<br><br>HLW Stack | HOP | **24590-HLW**<br>-M5-V17T-00004<br>-M5-V17T-20004<br>-M6-HOP-00008001<br>-M6-HOP-00008002<br>-M6-HOP-00008003<br>-M6-HOP-20008001<br>-M6-HOP-20008002<br>-M6-HOP-20008003 | Section 4F.4.2; and Figures 4A-1 and 4A-4 in Operating Unit Group 10, Chapter 4 of this Permit. |
| **Pulse Jet Ventilation System**<br><br>PJV-HTR-00002 (Pulse Jet Ventilation HEPA Electric Preheater) | PJV | **24590-HLW**<br>-M6-PJV-00001001<br>-M6-PJV-00002001 | |

**Table III.10.J.A – HLW Plant Miscellaneous Unit System Description**

| Sub-system Description | Sub-system Designation | Engineering Description (Drawing Nos., Specification Nos., etc.) | Narrative Description, Tables, and Figures |
|---|---|---|---|
| PJV-HEPA-00004B (PJV System HEPA Filter (Standby Primary))<br><br>PJV-HEPA-00005B (PJV System HEPA Filter (Standby Secondary))<br><br>PJV-HEPA-00004A (PJV System HEPA Filter (Primary))<br><br>PJV-HEPA-00005A (PJV System HEPA Filter (Secondary))<br><br>PJV-FAN-00002A (Pulse Jet Vent Extraction Fan)<br><br>PJV-FAN-00002B (Pulse Jet Vent Extraction Fan) | | | |
| **Process Vessel Vent Extraction System**<br><br>PVV system contains ancillary equipment only. | PVV | **24590-HLW**<br>-M6-PVV-00001<br>-M6-PVV-20001 | |

[a] System Descriptions are maintained in the Administrative Record, and are listed here for information only.

**Table III.10.J.B – HLW Vitrification Systems Secondary Containment Systems Including Sumps and Floor Drains**

| Sump/Floor Drain I.D. # & Room Location | Maximum Sump Capacity (gallons) | Sump Dimensions[a] (feet) & Materials of Construction | Maximum Allowable Liquid Height (inches) | Secondary Containment Volume (gallons) | Engineering Description (Drawing Nos., Specification Nos., etc.) |
|---|---|---|---|---|---|
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |

[a] Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).

1

**Table III.10.J.C – HLW Vitrification System Process and Leak Detection System Instruments and Parameters**

| P&ID | Monitoring or Control Parameter | Type of Instrument or Control Device | Instrument or Control Device Tag No. | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|
| 24590-HLW-M6-HMP-00004001 | Melter 1 plenum temperature, 62” | TBD | (TE-0920A + TT-0920A + TI-0920A)* Or (TE-0920C + TT-0921A + TI-0921F)* | TBD | TBD | TBD | TBD | TBD |
| 24590-HLW-M6-HMP-00004001 | Melter 1 plenum temperature, 59” | TBD | (TE-0920B + TT-920A + TI-0920B)* Or (TE-920D + TT-0921A+ TI-0921E)* | TBD | TBD | TBD | TBD | TBD |

**Table III.10.J.C – HLW Vitrification System Process and Leak Detection System Instruments and Parameters**

| P&ID | Monitoring or Control Parameter | Type of Instrument or Control Device | Instrument or Control Device Tag No. | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|
| 24590-HLW-M6-HMP-20004001 | Melter 2 plenum temperature, 62” | TBD | (TE-2920A + TT-2920A + TI-2920A)* Or (TE-2920C + TT-2921A + TI-2920C)* | TBD | TBD | TBD | TBD | TBD |
| 24590-HLW-M6-HMP-20004001 | Melter 2 plenum temperature, 59” | TBD | (TE-2920B + TT-2920A + TI-2920B)* Or (TE-2920D + TT-2921A + TI-2920D)* | TBD | TBD | TBD | TBD | TBD |
| 24590-HLW-M6-HMP-0001300224590-HLW-M6-HMP-00013003 | Melter 1 glass pool density | TBD | DT-0132 DI-0132 | TBD | TBD | TBD | TBD | TBD |
| 24590-HLW-M6-HMP-0001300224590-HLW-M6-HMP-00013003 | Melter 1 glass pool level | TBD | LT-0131 LI-0131 | TBD | TBD | TBD | TBD | TBD |
| 24590-HLW-M6-HMP-2001300224590-HLW-M6-HMP-20013003 | Melter 2 glass pool density | TBD | DT-2132 DI-2132 | TBD | TBD | TBD | TBD | TBD |
| 24590-HLW-M6-HMP-2001300224590-HLW-M6-HMP-20013003 | Melter 2 glass pool level | TBD | LT-2131 LI-2131 | TBD | TBD | TBD | TBD | TBD |

**Table III.10.J.C – HLW Vitrification System Process and Leak Detection System Instruments and Parameters**

| P&ID | Monitoring or Control Parameter | Type of Instrument or Control Device | Instrument or Control Device Tag No. | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|
| 24590-HLW-M6-HMP-0001300224590-HLW-M6-HMP-00013003 | Melter 1 plenum pressure | TBD | (PDT-0139A + PDI-0139A)*<br>Or<br>(PDT-0139B + PDI-0139B)* | TBD | TBD | TBD | TBD | TBD |
| 24590-HLW-M6-HMP-2001300224590-HLW-M6-HMP-20013003 | Melter 2 plenum pressure | TBD | (PDT-2139A + PDI-2139A)*<br>Or<br>(PDT-2139B + PDI-2139B)* | TBD | TBD | TBD | TBD | TBD |
| 24590-HLW-M6-HMP-0000800124590-HLW-M6-HMP-00008002 | Melter 1 West canister level | TBD | LT-0816<br>(LI-0816A Or<br>LI-0816B)** | TBD | TBD | TBD | TBD | TBD |
| 24590-HLW-M6-HMP-00007001 | Melter 1 West Discharge Air Lift | TBD | YC-0761<br>YV-0761 | TBD | TBD | TBD | TBD | TBD |
| 24590-HLW-M6-HMP-0000800124590-HLW-M6-HMP-00008002 | Melter 1 East canister level | TBD | LT-0820<br>(LI-0820A Or<br>LI-0820B)** | TBD | TBD | TBD | TBD | TBD |
| 24590-HLW-M6-HMP-0000600124590-HLW-M6-HMP-00006002 | Melter 1 East Discharge Air Lift | TBD | YC-0664<br>YV-0664 | TBD | TBD | TBD | TBD | TBD |

**Table III.10.J.C – HLW Vitrification System Process and Leak Detection System Instruments and Parameters**

| P&ID | Monitoring or Control Parameter | Type of Instrument or Control Device | Instrument or Control Device Tag No. | Instrument Range | Expected Range | Fail States | Instrument Accuracy | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|
| 24590-HLW-M6-HMP-2000800124590-HLW-M6-HMP-20008002 | Melter 2 West canister level | TBD | LT-2816<br><br>(LI-2816A Or LI-2816B)** | TBD | TBD | TBD | TBD | TBD |
| 24590-HLW-M6-HMP-20007001 | Melter 2 West Discharge Air Lift | TBD | YC-2761<br><br>YV-2761 | TBD | TBD | TBD | TBD | TBD |
| 24590-HLW-M6-HMP-2000800124590-HLW-M6-HMP-20008002 | Melter 2 East canister level | TBD | LT-2820<br><br>(LI-2820A Or LI-2820B)** | TBD | TBD | TBD | TBD | TBD |
| 24590-HLW-M6-HMP-20006001 | Melter 2 East Discharge Air Lift | TBD | YC-2664<br><br>YV-2664 | TBD | TBD | TBD | TBD | TBD |
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |

*These instrument sets are duplicates. Only one instrument set is required to remain functioning during waste feed operations.

**These instruments are duplicates. Only one instrument is required to remain functioning during waste feed operations.

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**Table III.10.J.D – Maximum Feed-Rates to HLW Vitrification System (RESERVED)**

| Description of Waste | Shakedown 1 | Shakedown 2, Demonstration Test and Post Demonstration Test |
|---|---|---|
| Dangerous and Mixed Waste Feed Rate | RESERVED | RESERVED |
| Ash Feed Rate | RESERVED | RESERVED |
| Total Chlorine/Chloride Feed Rate | RESERVED | RESERVED |
| Total Metal Feedrates | RESERVED | RESERVED |

**Table III.10.J.E – HLW Vitrification System Estimated Emission Rates (RESERVED)**

| Chemicals | CAS Number | Emission Rates (grams/second) |
|---|---|---|
| RESERVED | RESERVED | RESERVED |

**Table III.10.J.F – HLW Vitrification System Waste Feed Cut-off Parameters* (RESERVED)**

| Subsystem Designation | Instrument Tag Number | Parameter Description | Setpoints During Shakedown 1 and Post Demonstration Test | Setpoints During Shakedown 2 and Demonstration Test |
|---|---|---|---|---|
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |

*A CMS will be used as defined in Permit Section III.10.C.1.

[1]Maximum Feed-rate will be set based on not exceeding any of the constituent (e.g., metals, ash, and chlorine/chloride) feed limits specified on Permit Table III.10.J.D of this Permit

## III.10.K HLW VITRIFICATION SYSTEM – LONG TERM MISCELLANEOUS THERMAL TREATMENT UNIT

For purposes of Permit Section III.10.K, where reference is made to WAC 173-303-640, the following substitutions apply: substitute the terms "HLW Vitrification System" for "tank system(s)," "sub-system(s)" for "tank(s)," "sub-system equipment" for "ancillary equipment," and "sub-system(s) or sub-system equipment of a HLW Vitrification System" for "component(s)," in accordance with WAC 173-303-680.

### III.10.K.1 Requirements For HLW Vitrification System Beginning Normal Operation

Prior to commencing normal operations provided in Permit Section III.10.K, all requirements in Permit Section III.10.J will have been met by the Permittees and approved by Ecology, including the following: The HLW Vitrification System Demonstration Test results and the revised Final Risk Assessment provided for in Permit Conditions III.10.C.11.c or d and Permit Section III.10.J, will have been evaluated and

approved by Ecology, Permit Tables III.10.K.D and F, as approved/modified pursuant to Permit Condition III.10.J.5, will have been completed, submitted and approved pursuant to Permit Condition III.10.J.3.d.v and Permit Table III.10.K.E, as approved/modified pursuant to Permit Condition III.10.J.5, will have been completed, submitted and approved pursuant to Permit Conditions III.10.C.11.c or d.

**III.10.K.1.a** Construction and Maintenance [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-340]

**III.10.K.1.a.i** The Permittees will maintain the design and construction of the HLW Vitrification System as specified in Permit Condition III.10.K.1, Operating Unit Group 10, Chapter 4 of this Permit, and Operating Unit Group 10, Appendices 10.1 through 10.17 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.a through d and III.10.J.5.f.

**III.10.K.1.a.ii** The Permittees will maintain the design and construction of all containment systems for the HLW Vitrification System as specified in Operating Unit Group 10, Chapter 4 of this Permit, and Operating Unit Group 10, Appendices 10.2 and 10.4 through 10.14 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.a through d.

**III.10.K.1.a.iii** Modifications to approved design, plans, and specifications in Operating Unit Group 10, of this Permit, for the HLW Vitrification System will be allowed only in accordance with Permit Conditions III.10.C.2.e and f, or III.10.C.2.g, III.10.C.9.d, e, and h.

**III.10.K.1.a.iv** The Permittees will ensure all certifications required by specialists (e.g., independent qualified registered professional engineer; registered, professional engineer; independent corrosion expert; independent qualified installation inspector; installation inspector; etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new HLW Vitrification system or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following HLW Vitrification system components (e.g., the venting piping, etc.), as required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs [i.e., (a) through (g)]), in accordance with WAC 173-303-680.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

**III.10.K.1.a.v** The Permittees will ensure periodic integrity assessments are conducted on the HLW Vitrification System listed in Permit Table III.10.I.A, as approved/modified pursuant to Permit Condition III.10.J.5, over the term of this Permit, in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(3)(b) following the description of the integrity assessment program and schedule in Operating Unit Group 10, Addendum E of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i and III.10.C.5.c. Results of the integrity assessments will be included in

the WTP Unit operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

**III.10.K.1.a.vi** The Permittees will address problems detected during the HLW Vitrification System integrity assessments specified in Permit Condition III.10.K.1.a.v following the description of the integrity assessment program in Operating Unit Group 10, Addendum E of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i and III.10.C.5.c.

**III.10.K.1.a.vii** All process monitors/instruments as specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Condition III.10.J.5 and III.10.J.3.d.v, will be equipped with operational alarms to warn of deviation, or imminent deviation from the limits specified in Permit Table III.10.K.F.

**III.10.K.1.a.viii** The Permittees will install and test all process and leak detection system monitors/instruments, as specified in Permit Tables III.10.K.C and III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.J.3.d.v, in accordance with Operating Unit Group 10, Appendices 10.1, 10.2, and 10.14 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.d.x and III.10.J.5.f.xvi.

**III.10.K.1.a.ix** No dangerous and/or mixed waste will be treated in the HLW Vitrification System unless the operating conditions, specified under Permit Condition III.10.K.1.c are complied with.

**III.10.K.1.a.x** The Permittees will not place dangerous and/or mixed waste, treatment reagents, or other materials in the HLW Vitrification System if these substances could cause the sub-system, sub-system equipment, or the containment system to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)]. This condition is not applicable to corrosion of HLW Vitrification System sub-system or sub-system equipment that are expected to be replaced as part of normal operations (e.g., melter).

**III.10.K.1.a.xi** The Permittees will operate the HLW Vitrification System to prevent spills and overflows using the description of controls and practices as required under WAC 173-303-640(5)(b), described in Permit Condition III.10.C.5, and Operating Unit Group 10, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3), WAC-173-303-806(4)(c)(ix)].

**III.10.K.1.a.xii** For routinely non-accessible HLW Vitrification System sub-systems, as specified in Operating Unit Group 10, Chapter 4 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi, the Permittees will mark all routinely non-accessible HLW Vitrification System sub-systems access points with labels or signs to identify the waste contained in each HLW Vitrification System sub-system. The label, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems. For the purposes of this permit condition, “routinely non-accessible” means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

**III.10.K.1.a.xiii** For all the HLW Vitrification System sub-systems not addressed in Permit Condition III.10.K.1.a.xii, the Permittees will mark all these HLW Vitrification System sub-systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the HLW Vitrification System sub-systems. The labels, or signs, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the HLW Vitrification System sub-systems [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

**III.10.K.1.a.xiv** The Permittees will ensure that the secondary containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.K.A and III.10.K.B, as approved/modified pursuant to Permit Condition III.10.J.5, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during the use of the HLW Vitrification System sub-systems. Any indication that a crack or gap may exist in the containment systems will be investigated and repaired in accordance with Operating Unit Group 10, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v [WAC 173-303–640(4)(b)(i), WAC 173-303-640(4)(e)(i)(C), and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

**III.10.K.1.a.xv** The Permittees must immediately and safely remove from service any HLW Vitrification System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Condition III.10.K.1.a.xvii.A through D, and F. The affected HLW Vitrification System or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.K.1.a.xvii.E [WAC 173-303-640(7)(e) and (f) and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

**III.10.K.1.a.xvi** An impermeable coating, as specified in Operating Unit Group 10, Appendices 10.4, 10.5, 10.7, 10.9, 10.11, and 10.12 of this Permit, as approved pursuant to Permit Condition III.10.J.5.b.v, will be maintained for all concrete containment systems and concrete portions of containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.K.A and III.10.K.B, as approved/modified pursuant to Permit Condition III.10.J.5 (concrete containment systems that do not have a liner, pursuant to WAC 173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, will meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2). The coating will prevent migration of any dangerous and/or mixed waste into the concrete. All coatings will meet the following performance standards:

A. The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

B. The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and/or mixed waste could migrate from the system; and

C. The coating must be compatible with the dangerous and/or mixed waste, treatment reagents, or other materials managed in the containment system

[WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-806(4)(i)(i)(A)].

**III.10.K.1.a.xvii** The Permittees will inspect all secondary containment systems for the HLW Vitrification System sub-systems listed in Permit Tables III.10.K.A and III.10.K.B, as approved/modified pursuant to Permit Condition III.10.J.5, in accordance with the Inspection Plan specified in Operating Unit Group 10, Chapter 6A of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e.i and III.10.C.5.c, and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-640(5)(c), WAC 173-303-640(6) in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)]:

A. Immediately, and safely, stop the flow of dangerous and/or mixed waste into the HLW Vitrification System sub-systems or secondary containment system.

B. Determine the source of the dangerous and/or mixed waste.

C. Remove the dangerous and/or mixed waste from the containment area in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed waste removed from containment areas of the HLW Vitrification System will be, at a minimum, managed as mixed waste.

D. If the cause of the release was a spill that has not damaged the integrity of the HLW Vitrification System sub-system, the Permittees may return the HLW Vitrification System sub-system to service in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(e)(ii). In such case, the Permittees will take action to ensure the incident that caused the dangerous and/or mixed waste to enter the containment system will not reoccur.

E. If the source of the dangerous and/or mixed waste is determined to be a leak in from the primary HLW Vitrification System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees will comply with the requirements of WAC 173-303-640(7) and take the following actions:

1. Close the HLW Vitrification System sub-system following procedures in WAC 173-303-640(7)(e)(i), in accordance with WAC 173-303-680, and Operating Unit Group 10, Addendum H of this Permit, as approved pursuant to Permit Condition III.10.C.8.

2. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.K.1.a.iii) the HLW Vitrification System, in accordance with Operating Unit Group 10, Appendix 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5.e.v, before the HLW Vitrification System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

F. The Permittees will document in the operating record actions/procedures taken to comply with A through E above, as specified in WAC 173-303-640(6)(d), in accordance with WAC 173-303-680(2) and (3).

G. In accordance with WAC 173-303-680(2) and (3), the Permittees will notify and report releases to the environment to Ecology as specified in WAC 173-303-640(7)(d).

**III.10.K.1.a.xviii** If liquids (e.g., dangerous and/or mixed waste, leaks and spills, precipitation, fire water, liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours; Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification will provide the information in A, B, and C, listed below. The Permittees will provide Ecology with a written demonstration within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

A. Reasons for delayed removal.

B. Measures implemented to ensure continued protection of human health and the environment.

C. Current actions being taken to remove liquids from secondary containment.

**III.10.K.1.a.xix** All air pollution control devices and capture systems in the HLW Vitrification System will be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring that the air pollution control devices and capture systems in the HLW Vitrification System are properly operated and maintained so as to minimize the emission of air contaminants and process upsets will be established.

**III.10.K.1.a.xx** In all future narrative permit submittals, the Permittees will include HLW Vitrification sub-system names with the sub-system designation.

**III.10.K.1.a.xxi** For any portion of the HLW Vitrification System which has the potential for formation and accumulation of hydrogen gases, the Permittees will operate the portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

**III.10.K.1.a.xxii** For each HLW Vitrification System sub-system holding dangerous waste which are acutely or chronically toxic by inhalation, the Permittees will operate the system to prevent escape of vapors, fumes, or other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-303-680].

**III.10.K.1.b** Performance Standards

**III.10.K.1.b.i** The HLW Vitrification System must achieve a DRE of 99.99% for the PODCs listed below [40 CFR §63.1203(c)(1) and 40CFR §63.1203(c)(2), in accordance with WAC 173-303-680(2)]:

RESERVED

DRE in this Permit Condition will be calculated in accordance with the formula given below:

$DRE=[1-(W_{out}/W_{in})] \times 100\%$

Where:

$W_{in}$=mass feed-rate of one PODC in a waste feed stream; and

$W_{out}$=mass emission rate of the same PODC present in exhaust emissions prior to release to the atmosphere.

**III.10.K.1.b.ii** Particulate matter emissions from the HLW Vitrification System will not exceed 34 mg/dscm (0.015 grains/dscf) [40 CFR §63.1203(b)(7), in accordance with WAC 173-303-680(2)];

**III.10.K.1.b.iii** Hydrochloric acid and chlorine gas emissions from the HLW Vitrification System will not exceed 21 ppmv, combined [40 CFR §63.1203(b)(6), in accordance with WAC 173-303-680(2)];

**III.10.K.1.b.iv** Dioxin and Furan TEQ emissions from the HLW Vitrification System will not exceed 0.2 nanograms (ng)/dscm [40 CFR §63.1203(b)(1), in accordance with WAC 173-303-680(2)];

**III.10.K.1.b.v** Mercury emissions from the HLW Vitrification System will not exceed 45 µg/dscm [40 CFR §63.1203(b)(2), in accordance with WAC 173-303-680(2)];

**III.10.K.1.b.vi** Lead and cadmium emissions from the HLW Vitrification System will not exceed 120 µg/dscm, combined [40 CFR §63.1203(b)(3), in accordance with WAC 173-303-680(2)];

**III.10.K.1.b.vii** Arsenic, beryllium, and chromium emissions from the HLW Vitrification System will not exceed 97 µg/dscm, combined [40 CFR §63.1203(b)(4), in accordance with WAC 173-303-680(2)];

**III.10.K.1.b.viii** Carbon monoxide (CO) emission from the HLW Vitrification System will not exceed 100 parts per million (ppm) by volume, over an hourly rolling average (as measured and recorded by the CMS), dry basis [40 CFR §63.1203(b)(5)(i), in accordance with WAC 173-303-680(2) and (3)];

**III.10.K.1.b.ix** RESERVED

**III.10.K.1.b.x** If the emissions from the HLW Vitrification System exceed the emission rates listed in Permit Table III.10.K.E, as approved pursuant to Permit Condition III.10.C.11.c or d, the Permittees will perform the following actions [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)]:

A. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21.

B. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of exceeding the emission rate(s).

C. Based on the notification and any additional information, Ecology may provide, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e and f, or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring.

The emission limits specified in Permit Conditions III.10.K.1.b.i through III.10.K.1.b.ix above, will be met for the HLW Vitrification System by limiting feed rates as specified in Permit Tables III.10.K.D and III.10.K.F, as approved/modified pursuant to Permit Condition III.10.J.5 and III.10.J.3.d.v, compliance with operating conditions specified in Permit Condition III.10.K.1.c (except as specified in Permit Condition III.10.K.1.b.xii), and compliance with Permit Condition III.10.K.1.b.xi.

**III.10.K.1.b.xi** Treatment effectiveness, feed-rates, and operating rates for dangerous and/or mixed waste management units contained in the HLW Building, but not included in Permit Table III.10.K.A, as approved/modified pursuant to Permit Condition III.10.J.5, will be as specified in Permit Sections III.10.D, III.10.E, III.10.F and consistent with the assumptions and basis which are reflected in Operating Unit Group 10, Appendix 6.3 of this Permit, as approved pursuant to Permit Condition III.10.C.11.b. For the purposes of this permit condition, Operating Unit Group 10, Appendix 6.3 will be superseded by Appendix 6.4 upon its approval pursuant to either Permit Conditions III.10.C.11.c or d [WAC 173-303-680(2) and (3), and WAC 173-303-815(2)(b)(ii)].

**III.10.K.1.b.xii** Compliance with the operating conditions specified in Permit Condition III.10.K.1.c, will be regarded as compliance with the required performance standards identified in Permit Conditions III.10.K.1.b.i through x. However, if it is determined that during the effective period of this Permit that compliance with the operating conditions in Permit Condition III.10.K.1.c is not sufficient to ensure compliance with the performance standards specified in Permit Conditions III.10.K.1.b.i through x, the Permit may be modified, revoked, or reissued pursuant to Permit Conditions III.10.C.2.e and f, or III.10.C.2.g.

**III.10.K.1.c** Operating Conditions [WAC 173-303-670(6), in accordance with WAC 173-303-680(2) and (3)]

The Permittees will operate the HLW Vitrification System in accordance with Operating Unit Group 10, Chapter 4 of this Permit, as updated pursuant to Permit Condition III.10.J.5.e.vi, Operating Unit Group 10, Appendix 10.18 of this Permit, as approved pursuant to Permit Conditions III.10.J.5.e and f, and Operating Unit Group 10, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f, except as modified pursuant to Permit Conditions III.10.J.3, III.10.K.1.b.x, III.10.K.1.b.xii, III.10.K.1.h, and in accordance with and the following:

**III.10.K.1.c.i** The Permittees will operate the HLW Vitrification System in order to maintain the systems and process parameters listed in Permit Tables III.10.K.C and III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v, within the set-points specified in Permit Table III.10.K.F.

**III.10.K.1.c.ii** The Permittees will operate the AWFCO systems, specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v, to automatically cut-off and/or lock-out the dangerous and/or mixed waste feed to HLW Vitrification System when the monitored operating conditions deviate from the set-points specified in Permit Table III.10.K.F.

**III.10.K.1.c.iii** The Permittees will operate the AWFCO systems, specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v, to automatically cut-off and/or lock-out the dangerous and/or mixed waste feed to HLW Vitrification System when all instruments specified on Permit Table III.10.I.F for measuring the monitored parameters fails or exceeds its span value.

**III.10.K.1.c.iv** The Permittees will operate the AWFCO systems, specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v, to automatically cut-off and/or lock out the dangerous and/or mixed waste feed to the HLW Vitrification System when any portion of the HLW Vitrification System is bypassed. The terms “bypassed” and “bypass event” as used in Permit Sections III.10.J and K will mean if any portion of the HLW Vitrification System is bypassed so that gases are not treated as during the Demonstration Test.

**III.10.K.1.c.v** In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v, the Permittees will immediately, manually, cut-off the dangerous and/or mixed waste feed to the HLW Vitrification System. The Permittees will not restart the dangerous and/or mixed waste feed until the problem causing the malfunction has been identified and corrected.

**III.10.K.1.c.vi** The Permittees will manually cut-off the dangerous and/or mixed waste feed to the HLW Vitrification System when the operating conditions deviate from the limits specified in Permit Condition III.10.K.1.c.i, unless the deviation automatically activates the waste feed cut-off sequence specified in Permit Conditions III.10.K.1.c.ii, iii, and/or iv.

**III.10.K.1.c.vii** If greater than thirty (30) dangerous and/or mixed waste feed cut-off, combined, to the HLW Vitrification System occur due to deviations from Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v, within a sixty (60) day period, the Permittees will submit a written report to Ecology within five (5) calendar days of the thirty-first (31) exceedance including the information specified below. These dangerous and/or mixed waste feed cut-offs to the HLW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous and/or mixed waste and waste residues continue to be processed in the HLW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.K.F, from which the set-point is deviated:

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.K.F;
B. The magnitude, dates, and duration of the deviations;
C. Results of the investigation of the cause of the deviations; and
D. Corrective measures taken to minimize future occurrences of the deviations.

**III.10.K.1.c.viii** If greater than thirty (30) dangerous and/or mixed waste feed cut-offs, combined, to the HLW Vitrification System occur due to deviations from Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v, within a thirty (30) day period, the Permittees will submit the written report required to be submitted pursuant to Permit Condition III.10.K.1.c.vii to Ecology, on the first business day following the thirty-first exceedance. These dangerous and/or mixed waste feed cut-offs to the HLW Vitrification System, whether automatically or manually activated, are counted if the specified set-points are deviated from while dangerous and/or mixed waste and waste residues continue to be processed in the HLW Vitrification System. A cascade event is counted at a frequency of one (1) towards the first waste feed cut-off parameter, specified on Permit Table III.10.K.F, from which the set-point is deviated:

In accordance with WAC 173-303-680(2) and (3), the Permittees may not resume dangerous and/or mixed waste feed to the HLW Vitrification System until this written report has been submitted; and

A. Ecology has authorized the Permittees, in writing, to resume dangerous and/or mixed waste feed, or
B. Ecology has not, within seven (7) days, notified the Permittees in writing of the following:

1. The Permittees written report does not document that the corrective measures taken will minimize future exceedances.
2. The Permittees must take further corrective measures and document that these further corrective measures will minimize future exceedances.

**III.10.K.1.c.ix** If any portion of the HLW Vitrification System is bypassed while treating dangerous and/or mixed waste, it will be regarded as non-compliance with the operating conditions specified in Permit Condition III.10.K.1.c and the performance standards specified in Permit Condition III.10.K.1.b. After such a bypass event, the Permittees will perform the following actions:

A. Investigate the cause of the bypass event.
B. Take appropriate corrective measures to minimize future bypasses.
C. Record the investigation findings and corrective measures in the operating record.
D. Submit a written report to Ecology within five (5) days of the bypass event documenting the result of the investigation and corrective measures.

**III.10.K.1.c.x** The Permittees will control fugitive emissions from the HLW Vitrification System by maintaining the melter under negative pressure.

**III.10.K.1.c.xi** Compliance with the operating conditions specified in Permit Condition III.10.K.1.c. will be regarded as compliance with the required performance standards identified in Permit Condition III.10.K.1.b. However, evidence that compliance with these operating conditions is insufficient to ensure compliance with the performance standards, will justify modification, revocation, or re-issuance of this Permit, in accordance with Permit Conditions III.10.C.2.e and f, or III.10.C.2.g.

**III.10.K.1.d** Inspection Requirements [WAC 173-303-680(3)]

**III.10.K.1.d.i** The Permittees will inspect the HLW Vitrification System in accordance with the Inspection Plan in Operating Unit Group 10, Chapter 6A of this Permit, as modified in accordance with Permit Condition III.10.C.5.c.

**III.10.K.1.d.ii** The inspection data for HLW Vitrification System will be recorded, and the records will be placed in the WTP Unit operating record for HLW Vitrification System, in accordance with Permit Condition III.10.C.4.

**III.10.K.1.d.iii** The Permittees will comply with the inspection requirements specified in Operating Unit Group 10, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f, and as modified by Permit Conditions III.10.J.3, III.10.K.1.b.x, III.10.K.1.b.xii, and III.10.K.1.h.

**III.10.K.1.e** Monitoring Requirements [WAC 173-303-670(5), WAC 173-303-670(6), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(3)]

**III.10.K.1.e.i** Upon receipt of a written request from Ecology, the Permittees will perform sampling and analysis of the dangerous and/or mixed waste and exhaust emissions to verify that the operating requirements established in the permit achieve the performance standards delineated in this Permit.

**III.10.K.1.e.ii** The Permittees will comply with the monitoring requirements specified in the Operating Unit Group 10, Appendices 10.2, 10.3, 10.7, 10.13, 10.15, and 10.18 of this Permit, as approved pursuant to Permit Condition III.10.J.5, and as modified by Permit Conditions III.10.J.3, III.10.K.1.h, and III.10.K.1.b.x and xii.

**III.10.K.1.e.iii** The Permittees will operate, calibrate, and maintain the carbon monoxide CEMS as specified in this Permit in accordance with Performance Specifications found in 40 CFR Part 60, Appendix B, in accordance with Appendix to Subpart EEE of 40 CFR Part 63, and Operating Unit Group 10 Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f, and as modified by Permit ConditionsIII.10.J.3, III.10.K.1.h, and III.10.K.1.b.x and xii.

**III.10.K.1.e.iv** The Permittees will operate, calibrate, and maintain the instruments specified on Permit Tables III.10.K.C and F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.J.3.d.v, in accordance with Operating Unit Group 10, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.5.f, and as modified by Permit Conditions III.10.J.3, III.10.K.1.h, and III.10.K.1.b.x and xii.

**III.10.K.1.e.v** The Permittees shall calibrate, inspect, and maintain or replace the following cooling water flow and temperature instruments: (Melter 1: FT/FI-0306, FT/FI-0316, FT/FI-0321, FT/FI-0326, FT/FI-0336, TE/TT/TI-0352; Melter 2: FT/FI-2306, FT/FI-2316, FT/FI-2321, FT/FI-2326, FT/FI-2336, TE/TT/TI-2352) in accordance with manufacturer's recommendations.

**III.10.K.1.f** Recordkeeping Requirements [WAC 173-303-380 and WAC 173-303-680(3)]

**III.10.K.1.f.i** The Permittees will record and maintain in the WTP Unit operating record for the HLW Vitrification System, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4 and 5 as modified by Permit Conditions III.10.J.3, III.10.K.1.h, and III.10.K.1.b.x and xii.

**III.10.K.1.f.ii** The Permittees will record in the WTP Unit operating record the date, time, and duration of all automatic waste feed cut-offs and/or lockouts, including the triggering parameters, reason for the deviation, and recurrence of the incident. The Permittees will also record all incidents of AWFCO system function failures, including the corrective measures taken to correct the condition that caused the failure.

**III.10.K.1.f.iii** The Permittees will submit to Ecology an annual report each calendar year within ninety (90) days following the end of the year. The report will include the following information:

A. Total dangerous and/or mixed waste feed processing time for the HLW Vitrification System.

B. Date/Time of all HLW Vitrification System startups and shutdowns.

C. Date/Time/Duration/Cause/Corrective Action taken for all HLW Vitrification System shutdowns caused by malfunction of either process or control equipment.

D. Date/Time/Duration/Cause/Corrective Action taken for all instances of dangerous and/or mixed waste feed cut-off due to deviations from Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10J.3.d.v.

**III.10.K.1.f.iv** The Permittees will submit an annual report to Ecology each calendar year within ninety (90) days following the end of the year of all quarterly CEMS Calibration Error and Annual CEMS Performance Specification Tests conducted in accordance with Permit Condition III.10.K.1.e.iii.

**III.10.K.1.f.v** The Permittees shall maintain operating and calibration/maintenance records for Ecology's inspection for the following cooling water flow and temperature instruments (Melter 1: FT/FI-0306, FT/FI-0316, FT/FI-0321, FT/FI-0326, FT/FI-0336, TE/TT/TI-0352; Melter 2: FT/FI-2306, FT/FI-2316, FT/FI-2321, FT/FI-2326, FT/FI-2336, TE/TT/TI-2352).

**III.10.K.1.f.vi** The Permittees shall maintain refractory thermocouple temperature data for Ecology inspection.

**III.10.K.1.g** Closure

The Permittees will close the HLW Vitrification System in accordance with Operating Unit Group 10, Addendum H of this Permit, as approved pursuant to Permit Condition III.10.C.8.

**III.10.K.1.h** Periodic Emission Re-testing Requirements [WAC 173-303-670(5), WAC 173-303-670(7), and WAC 173-303-807(2), in accordance with WAC 173-303-680(2) and (3)].

**III.10.K.1.h.i** Dioxin and Furan Emission Testing

A. Within eighteen (18) months of commencing operation pursuant to Permit Section III.10.K, the Permittees will submit to Ecology for approval, a Dioxin and Furan Emission Test Plan (DFETP) for the performance of emission testing of the HLW Vitrification System gases for dioxin and furans during "Normal Operating Conditions" as a permit modification in accordance with Permit Conditions III.10.C.2.e and f. The DFETP will include all elements applicable to dioxin and furan emission testing included in the "Previously Approved Demonstration Test Plan," applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for dioxin and furan emission test. "Normal Operating Conditions" will be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified on Permit Table III.10.K.F (as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.J.3.d.v), that were established to maintain compliance with Permit Condition III.10.K.1.b.iv, as specified in Operating Unit Group 10, Appendix 10.15 of this Permit (as approved pursuant to Permit Condition III.10.J.3.d and in accordance with III.10.K.1.b.xii and III.10.K.1.c.xi), are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value will not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed waste.
2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.D (as approved/modified pursuant to Permit Conditions III.10.J.5 and III.10.J.3.d.v). Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is

defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value will not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit Condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.J.5.f.

B. Within sixty (60) days of Ecology's approval of the DFETP, or within thirty-one (31) months of commencing operation pursuant to Permit Section III.10.K, whichever is later, the Permittees will implement the DFETP approved, pursuant to Permit Condition III.10.K.1.h.i.A.

C. The Permittees will resubmit the DFETP, approved pursuant to Permit Condition III.10.K.1.h.i.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for dioxin and furan emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e and f at twenty-four (24) months from the implementation date of the testing required pursuant to Permit Condition III.10.K.1.h.i.A and at reoccurring eighteen (18) month intervals from the implementation date of the previously approved DFETP. The Permittees will implement these newly approved revised DFETPs every thirty-one (31) months from the previous approved DFETP implementation date or within sixty (60) days of the newly Ecology approved revised DFETP, whichever is later, for the duration of this Permit.

D. The Permittees will submit a summary of operating data collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.i.A and C to Ecology upon completion of the tests. The Permittees will submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports will be certified as specified in WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

E. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.i.A and C show that one or more of the performance standards listed in Permit Condition III.10.K.1.b, with the exception of Permit Condition III.10.K.1.b.x, for the HLW Vitrification System were not met during the emission test, the Permittees will perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).
2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s) as specified in Permit Condition I.E.21.
3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).
4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.K.1.b, with the exception of Permit Condition III.10.K.1.b.x, for the

HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

5. Based on the information provided to Ecology by the Permittees, pursuant to Permit Conditions III.10.K.1.h.i.E.1 through 4 above, and any additional information, Ecology may provide, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan pursuant to Permit Condition III.10.K.1.h.i.E.6.

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e and f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

F. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.i.A and C show that any emission rate for any constituent listed in Permit Table III.10.K.E, as approved/modified pursuant to Permit Conditions III.10.C.11.c or d, is exceeded for HLW Vitrification System during the emission test, the Permittees will perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21;

2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance and submit a report of the investigation findings to Ecology within fifteen (15) days of this discovery of exceeding the emission rate(s); and

3. Based on the notification and any additional information, Ecology may provide, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e and f, or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

**III.10.K.1.h.ii** Non-organic Emission Testing

A. Within forty-eight (48) months of commencing operation pursuant to Permit Section III.10.K, the Permittees will resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e and f. The revised Demonstration Test Plan (RDTP) will include applicable EPA promulgated test methods and procedures in effect at the time of the

submittal, projected commencement and completion dates for emission testing to demonstrate performance standards specified in Permit Conditions III.10.K.1.b.ii, iii, v, vi, and vii, and non-organic emissions as specified in Permit Table III.10.K.E, as approved/modified pursuant to Permit Conditions III.10.J.3.d and III.10.C.11.c or d, under "Normal Operating Conditions." "Normal Operating Conditions" will be defined for the purposes of this permit condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified in Permit Table III.10.K.F, as approved/modified pursuant to Permit Conditions III.10.J.3.d and III.10.C.11.c or d, that were established to maintain compliance with Permit Conditions III.10.K.1.b.ii, iii, v, vi, and vii, and non-organic emissions, as specified in Permit Table III.10.K.E, as specified in Operating Unit Group 10, Appendix 10.15 of this Permit (as approved pursuant to Permit Conditions III.10.J.3.d and III.10.C.11.c or d), are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.F. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value will not include calibration data, malfunction data, and data obtained when not processing dangerous and/or mixed waste; and
2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.D, as approved/modified pursuant to Permit Conditions III.10.J.3.d and III.10.C.11.c or d. The average value is defined as the sum of all rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value will not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit Condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.J.5.f.

B. Within sixty (60) days of Ecology's approval of the RDTP, or within sixty (60) months of commencing operation pursuant to Permit Section III.10.K, whichever is later, the Permittees will implement the RDTP approved pursuant to Permit Condition III.10.K.1.h.ii.A.

C. The Permittees will resubmit the RDTP, approved pursuant to Permit Condition III.10.K.1.h.ii.A, revised to include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, and projected commencement and completion dates for emission test as a permit modification in accordance with Permit Conditions III.10.C.2.e and f at forty-eight (48) months from the implementation date of the testing required pursuant to Permit Condition III.10.K.1.h.ii.A and at reoccurring forty-eight (48) month intervals from the implementation date of the previously approved RDTP. The Permittees will implement these newly approved revised RDTP, every sixty (60) months from the previous approved RDTP implementation date or within sixty (60) days of the newly Ecology approved revised RDTP, whichever is later, for the duration of this Permit.

D. The Permittees will submit a summary of operating data collected pursuant to the RDTPs in accordance with Permit Conditions III.10.K.1.h.ii.A and C to Ecology upon completion of the tests. The Permittees will submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports will be certified pursuant to WAC 173-303-807(8), in accordance with WAC 173-303-680(2) and (3).

E. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.ii.A and C show that any emission rate for any constituent listed in Permit Table III.10.K.E, as approved/modified pursuant to Permit Conditions III.10.J.3.d and III.10.C.11.c or d, is exceeded for HLW Vitrification System during the emission test, the Permittees will perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21.
2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance and submit a report of the investigation findings to Ecology within fifteen (15) days of this discovery of exceeding the emission rate(s).
3. Based on the notification and any additional information, Ecology may provide, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e and f, or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and III.10.K.F.

F. If any calculations or testing results collected pursuant to the DFETPs in accordance with Permit Conditions III.10.K.1.h.ii.A and C show that one or more of the performance standards listed in Permit Condition III.10.K.1.b, with the exception of Permit Condition III.10.K.1.b.x, for the HLW Vitrification System were not met during the emission test, the Permittees will perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).
2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified in Permit Condition I.E.21.
3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).
4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.K.1.b, with the exception of Permit Condition III.10.K.1.b.x, for the

HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.K.1.h.ii.F.1 through 4 above, and any additional information, Ecology may provide, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan pursuant to Permit Condition III.10.K.1.h.ii.F.6.

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions III.10.C.2.e and f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

**III.10.K.1.h.iii** Other Emission Testing

A. Within seventy-eight (78) months of commencing operation pursuant to Permit Section III.10.K, the Permittees will resubmit to Ecology for approval the "Previously Approved Demonstration Test Plan" revised as a permit modification in accordance with Permit Conditions III.10.C.2.e and f. The revised Demonstration Test Plan (RDTP) will include applicable EPA promulgated test methods and procedures in effect at the time of the submittal, projected commencement and completion dates for emission testing to demonstrate performance standards as specified in Permit Conditions III.10.K.1.b.viii and ix, and emissions as specified on Permit Table III.10.K.E, as approved/modified pursuant to Permit Conditions III.10.J.3.d and III.10.C.11.c or d, not addressed under Permit Conditions III.10.K.1.h.i or ii under "Normal Operating Conditions." "Normal Operating Conditions" will be defined for the purposes of this permit Condition as follows:

1. Carbon monoxide emissions, dangerous and/or mixed waste feed-rate, and automatic waste feed cut-off parameters specified on Permit Table III.10.K.F, as approved/modified pursuant to Permit Condition III.10.J.3.d and III.10.C.11.c or d, that were established to maintain compliance with Permit Conditions III.10.K.1.b.viii and ix, and emissions as specified on Permit Table III.10.K.E, not addressed under Permit Conditions III.10.K.1.h.i or ii as specified in Operating Unit Group 10, Appendix 10.15 of this Permit, as approved pursuant to Permit Condition III.10.J.3.d, and in accordance with Permit Conditions III.10.K.1.b.xii and III.10.K.1.c.xi are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.F. The average value is defined as the sum of all rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value will not include calibration data,

malfunction data, and data obtained when not processing dangerous and/or mixed waste; and

2. Feed-rate of metals, ash, and chlorine/chloride are held within the range of the average value over the previous twelve (12) months and the set-point value specified on Permit Table III.10.K.D, as approved/modified pursuant to Permit Conditions III.10.J.3.d and III.10.C.11.c or d. Feed-rate of organics as measured by TOC are held within the range of the average value over the previous twelve (12) months. The average value is defined as the sum of the rolling average values recorded over the previous twelve (12) months divided by the number of rolling averages recorded during that time. The average value will not include data obtained when not processing dangerous and/or mixed waste.

For purposes of this permit Condition, the "Previously Approved Demonstration Test Plan" is defined to include the Demonstration Test Plan approved pursuant to Permit Condition III.10.J.5.f.

B. Within sixty (60) days of Ecology's approval of the RDTP, or within ninety-one (91) months of commencing operation pursuant to Permit Section III.10.K, whichever is later, the Permittees will implement the RDTP approved pursuant to Permit Condition III.10.K.1.h.iii.A.

C. The Permittees will submit a summary of operating data collected pursuant to the RDTPs in accordance with Permit Condition III.10.K.1.h.iii.A to Ecology upon completion of the tests. The Permittees will submit to Ecology the complete test report within ninety (90) calendar days of completion of the testing. The test reports will be certified as specified in WAC 173-303-807(8), in accordance with Permit Condition WAC 173-303-680(2) and (3).

D. If any calculations or testing results show that one or more of the performance standards listed in Permit Condition III.10.K.1.b, with the exception of Permit Condition III.10.K.1.b.x, for the HLW Vitrification System were not met during the emission test, the Permittees will perform the following actions:

1. Immediately stop dangerous and/or mixed waste feed to the HLW Vitrification System under the mode of operation that resulted in not meeting the performance standard(s).

2. Verbally notify Ecology within twenty-four (24) hours of discovery of not meeting the performance standard(s), as specified Permit Condition I.E.21.

3. Investigate the cause of the failure and submit a report of the investigation findings to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s).

4. Submit to Ecology within fifteen (15) days of discovery of not meeting the performance standard(s) documentation supporting a mode of operation where all performance standards listed in Permit Condition III.10.K.1.b, with the exception of Permit Condition III.10.K.1.b.x, for the HLW Vitrification System were met during the demonstration test, if any such mode was demonstrated.

5. Based on the information provided to Ecology by the Permittees pursuant to Permit Conditions III.10.K.1.h.iii.D.1 through 4 above, and any additional information, Ecology may provide, in writing, direction to the

Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or amend the mode of operation the Permittees are allowed to continue operations prior to Ecology approval of the revised Demonstration Test Plan, pursuant to Permit Condition III.10.K.1.h.iii.D.6.

6. Submit to Ecology within one hundred and twenty (120) days of discovery of not meeting the performance standard(s) a revised Demonstration Test Plan requesting approval to retest as a permit modification pursuant to Permit Conditions II.10.C.2.e and f. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

E. If any calculations or testing results show that any emission rate for any constituent listed in Permit Table III.10.K.E, as approved/modified pursuant to Permit Condition III.10.C.11.c or d, is exceeded for HLW Vitrification System during the emission test, the Permittees will perform the following actions:

1. Verbally notify Ecology within twenty-four (24) hours of the discovery of exceeding the emission rate(s) as specified in Permit Condition I.E.21;
2. Submit to Ecology additional risk information to indicate that the increased emissions impact is off-set by decreased emission impact from one or more constituents expected to be emitted at the same time, and/or investigate the cause and impact of the exceedance of the emission rate(s) and submit a report of the investigation findings to Ecology within fifteen (15) days of the discovery of the exceedance of the emission rate(s); and
3. Based on the notification and any additional information, Ecology may provide, in writing, direction to the Permittees to stop dangerous and/or mixed waste feed to the HLW Vitrification System and/or to submit a revised Demonstration Test Plan as a permit modification pursuant to Permit Conditions III.10.C.2.e and f, or III.10.C.2.g. The revised Demonstration Test Plan must include substantive changes to prevent failure from reoccurring reflecting performance under operating conditions representative of the extreme range of normal conditions, and include revisions to Permit Tables III.10.K.D and F.

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**Table III.10.K.A – HLW Vitrification System Description**

| Sub-system Description | Sub-System Designation | Engineering Description (Drawing Nos., etc.) | Narrative Description, Tables, and Figures |
|---|---|---|---|
| RESERVED | RESERVED | RESERVED | RESERVED |

[a] Permit Table III.10.K.A will be completed in accordance with Permit Condition III.10.J.5.e.x, prior to initiating Permit Condition III.10.K.1. See Permit Table III.10.J.A for the current HLW Vitrification System Description.

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**Table III.10.K.B – HLW Vitrification System Secondary Containment Systems Including Sumps and Floor Drains**

| Sump/Floor Drain I.D. # & Room Location | Maximum Sump Capacity (gallons) | Sump Dimensions[b] (feet) & Materials of Construction | Engineering Description (Drawing Nos., Specification Nos., etc.) |
|---|---|---|---|
| RESERVED | RESERVED | RESERVED | RESERVED |

[a] Permit Table III.10.K.B will be completed in accordance with Permit Condition III.10.J.5.b.vii, prior to initiating Permit Condition III.10.K.1. See Permit Table III.10.J.B for the current HLW Vitrification System Secondary Containment Systems Including Sumps and Floor Drains.

[b] Dimensions listed are based on permitted design. Actual dimensions may vary within plus or minus (TBD).

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**Table III.10.K.C – HLW Vitrification System Process and Leak Detection System Instruments and Parameters**

| Sub-system Locator and Name (including P&ID) | Control Parameter | Type of Measuring or Leak Detection Instrument | Location of Measuring Instrument (Tag No.) | Instrument Range | Failure State | Expected Range | Instrument Accuracy | Instrument Calibration Method No. and Range |
|---|---|---|---|---|---|---|---|---|
| RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED | RESERVED |

[a] Permit Table III.10.K.C will be completed in accordance with Permit Condition III.10.J.5.e.ix, prior to initiating Permit Condition III.10.K.1. See Permit Table III.10.J.C for the current HLW Vitrification System Process and Leak Detection System Instruments and Parameters.

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**Table III.10.K.D – Maximum Feed-rates to HLW Vitrification System (RESERVED)**

| Description of Waste | Normal Operation |
|---|---|
| Dangerous and/or mixed waste Feed Rate | RESERVED |
| Ash Feed Rate | RESERVED |
| Total Chlorine/Chloride Feed Rate | RESERVED |
| Total Metal Feed Rates | RESERVED |

**Table III.10.K.E – HLW Vitrification System Estimated Emission Rates (RESERVED)**

| Chemicals | CAS Number | Emission Rates (grams/second) |
|---|---|---|
| RESERVED | RESERVED | RESERVED |

**TABLE III.10.K.F – HLW Vitrification System Waste Feed Cut-off Parameters* [1] (RESERVED)**

| Sub-system Designation | Instrument Tag Number | Parameter Description | Set-points During Normal Operation |
|---|---|---|---|
| RESERVED | RESERVED | RESERVED | RESERVED |

*A CMS will be used as defined in Permit Section III.10.C.1.

[1]Maximum Feed-rate will be set based on not exceeding any of the constituent (e.g., metals, ash, and chlorine/chloride) feed limits specified on Table III.10.K.D of this Permit

## III.10.L ANALYTICAL LABORATORY SPECIFIC OPERATING CONDITIONS

### Unit Description

The Analytical Laboratory is one of the six major facilities within the WTP Operating Unit Group. The LAB will operate to ensure efficient WTP operations by performing analysis of samples to meet permitting, process control, authorization basis, and waste form qualification requirements.

The LAB consists of analytical laboratory rooms, hotcells, and a waste management area for storage of secondary waste generated for analytical activities. The LAB also contains a Radioactive Liquid Waste Disposal (RLD) Tank System (tanks and ancillary equipment) which will be used to store and manage liquid waste generated in the LAB. Under the DFLAW configuration, the contents of the laboratory area sink drain collection vessel are transferred to the EMF Direct Feed Effluent Transfer (DEP) System for evaporation and treatment prior to being returned to the LAW vitrification process, or sent to be treated at the Liquid Effluent Retention Facility/Effluent Treatment Facility (LERF/ETF). Construction of the LAB was completed in 2014 and operations are expected to begin 2023.

This Chapter provides unit-specific Permit conditions applicable to the dangerous waste management units for the WTP LAB.

### III.10.L.1 Compliance With Unit-Specific Permit Conditions

**III.10.L.1.a** The Permittees will comply with all permit conditions and corresponding Chapters for the WTP Operating Unit Group with respect to dangerous waste management and dangerous waste management units in Operating Unit Group 10, in addition to applicable requirements in Part I and II.

### III.10.L.2 General Waste Management

**III.10.L.2.a** The Permittees are authorized to accept, according to the requirements of Permit Condition III.10.C.2 and Chapter 3, Waste Analysis Plan, dangerous/mixed waste for management in Operating Unit Group 10 dangerous waste management units.

**III.10.L.2.b** The Permittees will manage wastes at the facility in accordance with the requirements of this Permit, including the performance standard requirements in WAC 173-303-283, incorporated by reference.

**III.10.L.2.c** The Permittees will maintain the physical structure of the Analytical Laboratory as documented in the applicable sections of Permit Chapter 4H, Analytical Laboratory. [WAC 173-303-640(2), WAC 173-303-640(3), WAC 173-303-640(4)]

### III.10.L.3 Waste Analysis

**III.10.L.3.a** The Permittees will comply with requirements in Permit Condition III.10.C.3 and Chapter 3/3A, Waste Analysis Plan, for all dangerous and/or mixed waste managed at the WTP Operating Unit Group. [WAC 173-303-300(5)]

**III.10.L.3.b** The Permittees will comply with the requirements of WAC 173-303-395(1), (2), and (6).

**III.10.L.3.c** The Permittees will have an accurate and complete waste profile as described in Chapter 3/3A, Waste Analysis Plan, Section 3A.3.1.1, for every waste stream accepted by the Analytical Laboratory. [WAC 173-303-380(1)(a)(b)]

**III.10.L.3.d** Inaccurate or incomplete waste analysis information is not a defense for noncompliance by the Permittees with the waste management requirements and conditions in this Permit, or the LDR specified in the requirements of WAC 173-303-140, incorporated by reference.

### III.10.L.4 Recordkeeping and Reporting

**III.10.L.4.a** The Permittees will keep and maintain records in the Hanford Facility Operating Record, Analytical Laboratory, as required by WAC 173-303-380, as specified in the corresponding chapters and Permit Condition II.I.

**III.10.L.4.b** The Permittees will place a copy of each waste profile required by Permit Condition III.10.C.3.d, in the Hanford Facility Operating Record, Analytical Laboratory file required by Permit Condition II.I. [WAC 173-303-380(1)(a)]

**III.10.L.4.c** Records and results of waste analysis required by Permit Condition III.10.C.4 and Chapter 3, Waste Analysis Plan, will be maintained in the Hanford Facility Operating Record, WTP analytical laboratory as required by Permit Condition II.I. [WAC 173-303-380(1)(a)]

**III.10.L.4.d** The Permittees will place updates to engineering drawings listed in Appendix 11 into the Hanford Facility Operating Record for the Analytical Laboratory.

**III.10.L.4.e** The Permittees will keep summary reports and details of all incidents that require implementation of the Contingency Plan in the Hanford Facility Operating Record, Analytical Laboratory, according to the requirements of Permit Condition II.A.1. [WAC 173-303-380(1)(d)]

### III.10.L.5 Security

**III.10.L.5.a** The Permittees will maintain in accordance with Permit Condition III.10.C.13 that onsite, unrestricted, twenty-four (24) hour access to key WTP Unit operating data and emissions monitoring data will be provided to Ecology. This onsite, unrestricted access will include providing and maintaining for Ecology only use a computer terminal and printer with access to key WTP Unit operating data bases and emissions monitoring data bases. This terminal will be equipped with all necessary software and hardware to monitor, retrieve, and trend this data. Additional remote access will be provided on Ecology request if security concerns can be addressed.

**III.10.L.5.b** The Permittees will implement and maintain the practices described in Chapter 6, Procedures to Prevent Hazards, as required by Permit Condition II.M at the WTP Operating Unit Group. [WAC 173-303-310]

### III.10.L.6 Preparedness and Prevention

**III.10.L.6.a** The Permittees will comply with the Preparedness and Prevention requirements, procedures and practices described in Chapter 6, Procedures to Prevent Hazards, in addition to WAC 173-303-340.

**III.10.L.6.b** The Permittees will operate and maintain the runoff controls, interlock systems and other systems described in Chapter 6, Procedures to Prevent Hazards, in accordance with the requirements of WAC 173-303-640(5), incorporated by reference.

### III.10.L.7 Contingency Plan

**III.10.L.7.a** The Permittees will comply with Chapter 7, Contingency Plan in addition to the requirements of Permit Condition II.A when applicable. [WAC 173-303-350]

**III.10.L.7.b** The Permittees will implement the emergency procedures specified in Chapter 7, Contingency Plan in the event of a fire, explosion, or release that could threaten human health or the environment, in accordance with the requirements of WAC 173-303-340 and WAC-173-303-360, incorporated by reference.

### III.10.L.8 Inspections

**III.10.L.8.a** The Permittees will implement the practices specific to the WTP Operating Unit Group as described in Chapter 6A, Inspection Plan, and include the inspection requirements of Chapter 6A in the inspection schedule required by Permit Condition II.O. [WAC 173-303-320]

**III.10.L.8.b** The Permittees will keep a copy of the elements of the inspection log or summary required by WAC 173-303-380(1)(e); -380(3) and -320.

**III.10.L.8.c** The Permittees will remedy any problem revealed by inspections on a schedule which prevents hazards to the public health and environment per the requirements of WAC 173-303-320(3), incorporated by reference.

**III.10.L.8.d** Where an inspection reveals a problem that creates a hazard that is imminent or has already occurred, the Permittees will take remedial action immediately per the requirements of WAC 173-303-320(3), incorporated by reference.

**III.10.L.9 Training**

**III.10.L.9.a** The Permittees will include the training requirements described in Chapter 8, Personnel Training, in the training program required by Permit Condition II.C. [WAC 173-303-330]

**III.10.L.10 Other General Requirements – Reserved**

**III.10.L.11 Closure**

**III.10.L.11.a** The Permittees will close the WTP Analytical Laboratory Dangerous Waste Management Unit in Operating Unit Group 10 in accordance with Chapter 11, Closure Plan. [WAC 173-303-610]

**III.10.L.11.b** The Permittees will provide prior written notice to Ecology of the date they expect to begin closure of any dangerous waste management unit subject to the requirements of this Permit in accordance with Permit Condition II.J.3. The notice of closure may apply to closure of any dangerous waste management units in the WTP Operating Unit Group, or final closure of the remaining Operating Unit Group 10. [WAC 173-303-610(3)(c)]

**III.10.L.12 Post-Closure – Reserved**

**III.10.L.13 Critical Systems**

**III.10.L.13.a** The RLD is a critical system within the LAB. The RLD in the LAB will comply with III.10.C.9, Critical Systems.

**III.10.L.14 Reserved**

**III.10.L.15 Containers**

**III.10.L.15.a Container Storage and Treatment Unit Standards**

**III.10.L.15.b** The Permittees will ensure that all containers remain in good condition. If a container holding mixed and dangerous waste is not in good condition (e.g., severe rusting or corrosion, or apparent structural defects), or if it begins to leak, the Permittees must transfer the waste from the container to a container that is in good condition or place the leaking container in an appropriate over-pack container. [WAC 173-303-630(2)]

**III.10.L.15.c Container Management Standards**

**III.10.L.15.d** The Permittees will maintain and manage wastes in accordance with the requirements, procedures, and practices described in Chapter 4H, Analytical Laboratory in addition to WAC 173-303-630.

**III.10.L.15.e** The contents of any leaking container will be transferred as soon as possible considering safety of the work force to a compatible container which is in good condition or to an over pack container. Any waste residue remaining in the damaged container will be managed as a dangerous waste unless the container is empty pursuant to WAC 173-303-160(2).

**III.10.L.15.f** The Permittees will label containers in accordance with the requirements of Chapter 4H, Analytical Laboratory [WAC 173-303-630(3)]

**III.10.L.15.g** The Permittees will ensure wastes will not be ignitable, reactive or incompatible with containers and with other wastes stored or treated in containers within the Container Storage Area for the Analytical Laboratory, and if such wastes are managed in any container storage area, the containers of incompatible waste or chemicals will not be stored in close proximity to each other; according to the requirements of Chapter 4H, Analytical Laboratory [WAC 173-303-630(4), WAC 173-303-630(9)]

**III.10.L.15.i** The Permittees will remove any accumulated liquids from container storage areas in according with the requirements of Chapter 4H, Analytical Laboratory to ensure containers are not in contact with free liquids and to prevent overflow of the container storage area secondary containment.

**III.10.L.15.j** The Permittees will comply with the requirements for air emissions from containers in Chapter 4H, Analytical Laboratory [WAC 173-303-692].

## III.10.L.16 Tank Systems

### III.10.L.16.a Tank System Management Requirements

**III.10.L.16.a.i** The Permittees will comply with the schedule for conducting integrity assessments for the WTP analytical laboratory tank systems as described in Chapter 4H, Analytical Laboratory and the requirements in WAC 173-303-640(3)(b).

**III.10.L.16.a.ii** If the findings of an integrity assessment indicate that a WTP analytical laboratory tank has structural deficiencies or lacks integrity such that it may collapse, rupture, or fail, the Permittees will at a minimum do the following:

**III.10.L.16.a.ii.A** Evaluate and review the waste acceptance criteria in Chapter 3, Waste Analysis Plan;

**III.10.L.16.a.ii.B** Evaluate and review the applicable tank design and/or operating requirements in Chapter 4H, Analytical Laboratory;

**III.10.L.16.a.ii.C** Evaluate and review any other permit requirements, which may reasonably influence the integrity of the tank in question;

**III.10.L.16.a.ii.D** Based on this evaluation and review, the Permittees will request the required permit modifications in accordance with WAC 173-303-830. [WAC 173-303-640(3)(b), WAC 173-303-815(2)(b)]

**III.10.L.16.a.iii** The Permittees will submit a permit change notification to the Part A (Chapter 1) for the Analytical Laboratory in accordance with Permit Condition I.C if the capacity decreases or increases for the Analytical Laboratory tank systems.

### III.10.L.16.b Tank System Operating Requirements

**III.10.L.16.b.i** The Permittees will not place dangerous wastes or treatment reagents in the tank system if they could cause the tank, ancillary equipment, or the containment system to rupture, leak, corrode or fail. [WAC 173-303-640(5)(a)]

**III.10.L.16.b.ii** The Permittees will operate the Analytical Laboratory Tank System to prevent spills and overflows using the controls and practices as required under WAC 173-303-640(5)(b) described in Permit Condition III.10.C.5, and Operating Unit Group 10, Appendix 13.18 of this Permit. [WAC 173-303-640(5)(b), WAC 173-303-806(4)(c)(ix)]

**III.10.L.16.b.iii** The Permittees will comply with the requirements of WAC 173-303-640(7), in response to spills or leaks from the Tank System. [WAC173-303-640(5)(c)]

**III.10.L.16.b.iv** For all Analytical Laboratory Unit Systems the Permittees will mark all the unit systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the unit. The labels or sign must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the unit system(s). [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

**III.10.L.16.b.v** For each Analytical Laboratory Unit System holding dangerous waste which are acutely or chronically toxic by inhalation, the Permittees will operate the system to prevent escape of vapors, fumes, or other emissions into the air. [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-303-680]

**III.10.L.16.b.vi** The Permittees will ensure that incompatible wastes/material are not placed in the same tank system, unless WAC 173-303-395(1)(b) is complied with. [WAC 173-303-640(10)(a)]

**III.10.L.16.b.vii** The Permittees will not place dangerous waste in a tank system that has not been previously decontaminated and that previously held an incompatible waste/material, unless WAC 173-303-395(1)(b) is complied with. [WAC 173-303-640(10)(b)]

**III.10.L.16.b.viii** If there is indication that a tank system is leaking or unfit for use, the Permittees will comply with WAC 173-303-640(7).

**III.10.L.16.b.ix** The Permittees will not transfer waste into the analytical laboratory tank systems in excess of the maximum capacity of the tanks as listed in Table III.10.E.D.

**III.10.L.16.b.x** The Permittees will comply with the requirements of Chapter 4H, Analytical Laboratory, in response to spills or leaks from tank systems at the Analytical Laboratory [WAC 173-303-640(5)(c), WAC 173-303-640(7)].

**III.10.L.16.b.xi** The Permittees will comply with the requirements of WAC 173-303-640(9) incorporated by reference. [WAC 173-303-640(9)]

**III.10.L.16.b.xii** The Permittees will comply with the requirements of WAC 173-303-640(10), incorporated by reference.

## III.10.M EMF MISCELLANEOUS UNIT SYSTEMS

Unless otherwise noted in Permit Table III.10.M.A, for purposes of Permit Section III.10.M., where reference is made to WAC 173-303-640, the following substitutions apply: substitute the terms “EMF Miscellaneous Unit System(s)” for “tank system(s),” “miscellaneous unit(s)” for “tank(s),” “equipment” for “ancillary equipment,” and “miscellaneous unit(s) or equipment of a EMF Miscellaneous Unit System” for “component(s)” in accordance with WAC 173-303-680. Miscellaneous unit systems, exempt from the WAC-173-303-640 requirements in Permit Section III.10.M are noted as exempt in Table III.10.M.A.

### III.10.M.1 Waste and Storage Limits

**III.10.M.1.a** The Permittees may process, in the EMF Miscellaneous Unit Systems listed in Permit Table III.10.M.A, as approved/modified pursuant to Permit Condition III.10.M.9, all dangerous and mixed waste listed in the Part A Forms, Operating Unit Group 10, Chapter 1 of this Permit, and in accordance with in the WAP, Operating Unit Group 10, Chapter 3/Chapter 3A of this Permit, as approved pursuant to Permit Condition III.10.C.3. Total EMF Miscellaneous Unit dangerous and mixed waste storage at the Facility will not exceed the limits specified in Permit Table III.10.M.A.

**III.10.M.1.b** The Permittees may process dangerous and mixed waste only in approved EMF Miscellaneous Unit Systems listed in Permit Table III.10.M.A in accordance with Permit Section III.10.M and in accordance with Operating Unit Group 10, Chapters 1.0 and 4.0 of this Permit, and Operating Unit Group 10, Appendices 13.1 through 13.14 of this Permit, as approved pursuant to Permit Conditions III.10.M.9.b through e. The Permittees will limit the total volume of wastes to quantities specified for the individual miscellaneous units listed in Permit Table III.10.M.A.

**III.10.M.1.c** RESERVED

**III.10.M.1.d** The Permittees will ensure all certifications required by specialists (e.g., independent qualified registered professional engineer; independent corrosion expert; independent qualified installation inspector; etc.) use the following statement or equivalent pursuant to Permit Condition III.10.C.10:

"I, (Insert Name) have (choose one or more of the following: overseen, supervised, reviewed, and/or certified) a portion of the design or installation of a new miscellaneous unit system or component located at (address), and owned/operated by (name(s)). My duties were: (e.g., installation inspector, testing for tightness, etc.), for the following miscellaneous unit system components (e.g., the venting piping, etc.), as required by the Dangerous Waste Regulations, namely, WAC 173-303-640(3) (applicable paragraphs (i.e., (a) through (g)) in accordance with WAC 173-303-680).

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

**III.10.M.1.e** In all future narrative permit submittals, the Permittees will include Miscellaneous Unit System names with the unit designation (e.g., Evaporator Separator Vessel; DEP-EVAP-00001).

**III.10.M.2** **Miscellaneous Unit Systems Design and Construction [WAC 173-303-640, in accordance with WAC 173-303-680(2) and WAC 173-303-340].**

**III.10.M.2.a** The Permittees will construct the EMF Miscellaneous Unit Systems identified in Permit Table III.10.M.A, as specified in Operating Unit Group 10, Appendices 13.1 through 13.14 of this Permit, as approved pursuant to Permit Conditions III.10.M.9.b, III.10.M.9.c, and III.10.M.9.d.

**III.10.M.2.b** The Permittees will construct secondary containment systems for the EMF Miscellaneous Unit Systems identified in Permit Tables III.10.M.A, as specified in Operating Unit Group 10, Appendices 13.2, 13.4 through 13.14 of this Permit, as approved pursuant to Permit Conditions III.10.M.9.b, III.10.M.9.c, and III.10.M.9.d.

**III.10.M.2.c** Modifications to approved design, plans, and specifications in Operating Unit Group 10 of this Permit for the EMF Miscellaneous Unit Systems will be allowed only in accordance with Permit Conditions III.10.C.2.e and f, or III.10.C.2.g, III.10.C.9.d, e, and h.

**III.10.M.3** **Miscellaneous Unit System Installation and Certification [WAC 173-303-640, in accordance with WAC 173-303-680(2) and (3), and WAC 173-303-340].**

**III.10.M.3.a** The Permittees must ensure that proper handling procedures are adhered to in order to prevent damage to EMF Miscellaneous Unit Systems during installation. Prior to covering, enclosing, or placing a new EMF Miscellaneous Unit System(s) or component(s) in use, an independent qualified installation inspector or an independent qualified registered professional engineer, either of whom is trained and experienced in the proper installation of similar systems or components, must inspect the system for the presence of any of the following items:

**III.10.M.3.a.i** Weld breaks;

**III.10.M.3.a.ii** Punctures;

**III.10.M.3.a.iii** Scrapes of protective coatings;

**III.10.M.3.a.iv** Cracks;

**III.10.M.3.a.v** Corrosion;

**III.10.M.3.a.vi** Other structural damage or inadequate construction/installation;

**III.10.M.3.a.vii** All discrepancies must be remedied before the EMF Miscellaneous Unit Systems are covered, enclosed, or placed in use [WAC 173-303-640(3)(c) in accordance with WAC 173-303-680(2) and (3)].

**III.10.M.3.b** For EMF Miscellaneous Unit Systems or components that are placed underground and that are back-filled, the Permittees must provide a backfill material that is a non-corrosive porous, homogeneous substance. The backfill must be installed so that it is placed completely around the miscellaneous unit and compacted to ensure that the miscellaneous unit and piping are fully and uniformly supported [WAC 173-303 640(3)(d), in accordance with WAC 173-303-680(2) and (3)].

**III.10.M.3.c** The Permittees must test for tightness all new EMF miscellaneous units and equipment, prior to being covered, enclosed, or placed into use. If the EMF Miscellaneous Unit Systems are found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the EMF Miscellaneous Units Systems being covered, enclosed, or placed in use [WAC 173-303-640(3)(e), in accordance with WAC 173-303-680(2) and (3)].

**III.10.M.3.d** The Permittees must ensure EMF Miscellaneous Unit Systems equipment is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction [WAC 173-303-640(3)(f), in accordance with WAC 173-303-680(2) and (3)].

**III.10.M.3.e** The Permittees must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in Operating Unit Group 10, Appendices 13.9 and 13.11 as approved pursuant to Permit Conditions III.10.M.9.b.i., III.10.M.9.b.iv, III.10.M.9.b.v, III.10.M.9.c.i, III.10.M.9.c.iv, III.10.M.9.c.v, and III.10.M.9.d.i, III.10.M.9.d.iv, III.10.M.9.d.v, or other corrosion protection if Ecology believes other corrosion protection is necessary to ensure the integrity of the EMF Miscellaneous Unit Systems during use of the EMF Miscellaneous Unit Systems. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation [WAC 173-303-640(3)(g), in accordance with WAC 173-303-680(2) and (3)].

**III.10.M.3.f** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will obtain, and keep on file in the WTP Unit operating record, written statements by those persons required to certify the design of the EMF Miscellaneous Unit Systems and supervise the installation of the EMF Miscellaneous Unit Systems, as specified in WAC 173-303-640(3)(b), (c), (d), (e), (f), and (g), in accordance with WAC 173-303-680, attesting that each EMF Miscellaneous Unit System and corresponding containment system listed in Permit Table III.10.M.A, as approved/modified pursuant to Permit Condition III.10.M.9, were properly designed and installed, and that repairs, in accordance with WAC 173-303-640(3)(c) and (e), were performed [WAC 173-303-640(3)(a), WAC 173-303-640(3)(h), in accordance with WAC 173-303-680(3)].

**III.10.M.3.g** The independent EMF Miscellaneous Unit System installation inspection and subsequent written statements will be certified in accordance with WAC 173-303-810(13)(a) as modified pursuant to Permit Condition III.10.M.1.d, comply with all requirements of WAC 173-303-640(3)(h), in accordance with WAC 173-303-680, and will consider, but not be limited to, the following miscellaneous unit system installation documentation:

**III.10.M.3.g.i** Field installation report with date of installation;

**III.10.M.3.g.ii** Approved welding procedures;

**III.10.M.3.g.iii** Welder qualifications and certification;

**III.10.M.3.g.iv** Hydro-test reports, as applicable, in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section VIII, Division 1, American Petroleum Institute (API) Standard 620, or Standard 650 as applicable;

**III.10.M.3.g.v** Tester credentials;

**III.10.M.3.g.vi** Field inspector credentials;

**III.10.M.3.g.vii** Field inspector reports;

**III.10.M.3.g.viii** Field waiver reports; and

**III.10.M.3.g.ix** Non-compliance reports and corrective action (including field waiver reports) and repair reports.

**III.10.M.4 Integrity Assessments [WAC 173-303-340 and WAC 173-303-640, in accordance with WAC173-303-680(2) and (3)].**

**III.10.M.4.a** The Permittees will ensure periodic integrity assessments are conducted on the EMF Miscellaneous Unit Systems listed in Permit Table III.10.M.A, as approved/modified pursuant to Permit Condition III.10.M.9, over the term of this Permit in accordance with WAC 173-303-680(2) and (3) as specified in WAC 173-303-640(3)(b), following the description of the integrity assessment program and schedule in Operating Unit Group 10, Chapter 6 of this Permit, as approved pursuant to Permit Conditions III.10.M.9.e.i and III.10.M.4.c. Results of the integrity assessments will be included in the WTP Unit operating record until ten (10) years after post-closure, or corrective action is complete and certified, whichever is later.

**III.10.M.4.b** The Permittees will address problems detected during EMF Miscellaneous Unit Systems integrity assessments specified in Permit Condition III.10.M.4.a following the integrity assessment program in Operating Unit Group 10, Chapter 6 of this Permit, as approved pursuant to Permit Conditions III.10.M.9.e.i and III.10.M.4.c.

**III.10.M.4.c** The Permittees must immediately and safely remove from service any EMF Miscellaneous Unit System or secondary containment system which through an integrity assessment is found to be "unfit for use" as defined in WAC 173-303-040, following Permit Condition III.10.M.5.i.i through iv, and vi. The affected EMF Miscellaneous Unit or secondary containment system must be either repaired or closed in accordance with Permit Condition III.10.M.5.i.v [WAC 173-303-640(7)(e) and (f) and WAC 173-303-640(8), in accordance with WAC 173-303-680(3)].

**III.10.M.5 Miscellaneous Unit Management Practices**

**III.10.M.5.a** No dangerous and/or mixed waste will be managed in the EMF Miscellaneous Unit Systems unless the operating conditions, specified under Permit Condition III.10.M.5, are complied with.

**III.10.M.5.b** The Permittees will install and test all process and leak detection system monitoring/instrumentation, as specified in Permit Table III.10.M.A, as approved/modified pursuant to Permit Condition III.10.M.9, in accordance with Operating Unit Group 10, Appendices 13.1, 13.2, and 13.14 of this Permit, as approved pursuant to Permit Condition III.10.M.9.d.x.

**III.10.M.5.c** The Permittees will not place dangerous and/or mixed waste, treatment reagents, or other materials in the EMF Miscellaneous Unit Systems if these substances could cause the systems to rupture, leak, corrode, or otherwise fail [WAC 173-303-640(5)(a), in accordance with WAC 173-303-680(2)].

**III.10.M.5.d** The Permittees will operate the EMF Miscellaneous Unit Systems to prevent spills and overflows using the description of controls and practices, as required under WAC 173-303-640(5)(b), described in Permit Condition III.10.M.5, and Operating Unit Group 10, Appendix 13.13 of this Permit, as approved pursuant to Permit Condition III.10.M.9.e.iv [WAC 173-303-640(5)(b), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-806 (4)(c)(ix)].

**III.10.M.5.e** For routinely non-accessible EMF Miscellaneous Unit Systems, as specified in Operating Unit Group 10, Chapter 4 of this Permit, as updated pursuant to Permit Condition III.10.M.9.e.vi, the Permittees will mark all routinely non-accessible EMF Miscellaneous Unit System access points with labels or signs to identify the waste contained in the units. The label, or sign, must be legible at a distance of at least fifty (50) feet and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the miscellaneous unit system(s). For the purposes of this Permit condition, "routinely non-accessible" means personnel are unable to enter these areas while waste is being managed in them [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

**III.10.M.5.f** For all EMF Miscellaneous Unit Systems not addressed in Permit Condition III.10.M.5.e, the Permittees will mark all these miscellaneous unit systems holding dangerous and/or mixed waste with labels or signs to identify the waste contained in the unit. The labels, or sign, must be legible at a distance of at least fifty (50) feet, and must bear a legend which identifies the waste in a manner which adequately warns employees, emergency response personnel, and the public of the major risk(s) associated with the waste being stored or treated in the miscellaneous unit system(s) [WAC 173-303-640(5)(d), in accordance with WAC 173-303-680(2)].

**III.10.M.5.g** The Permittees will ensure that the secondary containment systems for EMF Miscellaneous Unit Systems listed in Permit Table III.10.M.A, as approved/modified pursuant to Permit Condition III.10.M.9, are free of cracks or gaps to prevent any migration of dangerous and/or mixed waste or accumulated liquid out of the system to the soil, ground water, or surface water at any time waste is in the EMF Miscellaneous Units System. Any indication that a crack or gap may exist in the containment systems will be investigated and repaired in accordance with Operating Unit Group 10, Appendix 13.18 of this Permit, as approved pursuant to Permit Condition III.10.M.9.e.v. [WAC 173-303-640(4)(b)(i), WAC 173-303–640(4)(e)(i)(C), and WAC 173-303-640(6) in accordance with WAC 173-303-680(2) and (3), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-320].

**III.10.M.5.h** An impermeable coating, as specified in Operating Unit Group 10, Appendices 13.4, 13.5, 13.7, 13.9, 13.11, and 13.12 of this Permit, as approved pursuant to Permit Condition III.10.M.9.b.v of this Permit, will be maintained for all concrete containment systems and concrete portions of containment systems for each EMF Miscellaneous Unit System listed in Permit Table III.10.M.A, as approved/modified pursuant to Permit Condition III.10.M.9 [concrete containment systems that do not have a liner pursuant to WAC-173-303-640(4)(e)(i), in accordance with WAC 173-303-680(2), and have construction joints, will meet the requirements of WAC 173-303-640(4)(e)(ii)(C), in accordance with WAC 173-303-680(2)]. The coating will prevent migration of any dangerous and mixed waste into the concrete. All coatings will meet the following performance standards:

**III.10.M.5.h.i** The coating must seal the containment surface such that no cracks, seams, or other avenues through which liquid could migrate are present;

**III.10.M.5.h.ii** The coating must be of adequate thickness and strength to withstand the normal operation of equipment and personnel within the given area such that degradation or physical damage to the coating or lining can be identified and remedied before dangerous and mixed waste could migrate from the system; and

**III.10.M.5.h.iii** The coating must be compatible with the dangerous and mixed waste, treatment reagents, or other materials managed in the containment system [WAC 173-303-640(4)(e)(ii)(D), in accordance with WAC 173-303-680(2) and (3) and WAC 173-303-806(4)(i)(i)(A)].

**III.10.M.5.i** The Permittees will inspect all secondary containment systems for the EMF Miscellaneous Unit Systems listed in Permit Table III.10.M.A, as approved/modified pursuant to Permit Condition III.10.M.9, in accordance with the Inspection Plan specified in Operating Unit Group 10, Chapter 6/Chapter 6A of this Permit, as approved pursuant to Permit Conditions III.10.M.9.e.ii, and take the following actions if a leak or spill of dangerous and/or mixed waste is detected in these containment systems [WAC 173-303-640(5)(c) and WAC 173-303-640(6), in accordance with WAC 173-303-680(2) and (3), WAC 173-303-320, and WAC 173-303-806(4)(i)(i)(B)]:

**III.10.M.5.i.i** Immediately and safely stop the flow of dangerous and/or mixed waste into the miscellaneous unit system or secondary containment system;

**III.10.M.5.i.ii** Determine the source of the dangerous and/or mixed waste;

**III.10.M.5.i.iii** Remove the waste from the containment area in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(b). The dangerous and/or mixed waste removed from containment areas of miscellaneous unit systems will be, as a minimum, managed as dangerous and/or mixed waste;

**III.10.M.5.i.iv** If the cause of the release was a spill that has not damaged the integrity of the miscellaneous unit system, the Permittees may return the miscellaneous unit system to service in accordance with WAC 173-303-680(2) and (3), as specified in WAC 173-303-640(7)(e)(ii). In such a case, the Permittees will take action to ensure the incident that caused liquid to enter the containment system will not reoccur [WAC 173-303-320(3)];

**III.10.M.5.i.v** If the source of the dangerous and/or mixed waste is determined to be a leak from the primary EMF Miscellaneous Unit System into the secondary containment system, or the system is unfit for use as determined through an integrity assessment or other inspection, the Permittees must comply with the requirements of WAC 173-303-640(7), and take the following actions:

A. Close the EMF Miscellaneous Unit System following procedures in WAC 173-303-640(7)(e)(i) and in accordance with WAC 173-303-680, and Operating Unit Group 10, Chapter 11 of this Permit, as approved pursuant to Permit Condition III.10.C.8; or

B. Repair and re-certify (in accordance with WAC 173-303-810(13)(a), as modified pursuant to Permit Condition III.10.M.1.d) the EMF Miscellaneous Unit System in accordance with Operating Unit Group 10, Appendix 13.11 of this Permit, as approved pursuant to Permit Condition III.10.M.9.e.v before the EMF Miscellaneous Unit System is placed back into service [WAC 173-303-640(7)(e)(iii) and WAC 173-303-640(7)(f), in accordance with WAC 173-303-680].

**III.10.M.5.i.vi** The Permittees will document, in the operating record, actions/procedures taken to comply with III.10.M.5.i through v above, as specified in WAC 173-303-640(6)(d) and in accordance with WAC 173-303-680(2) and (3).

**III.10.M.5.i.vii** In accordance with WAC 173-303-680(2) and (3), the Permittees will notify and report releases to the environment to Ecology as specified in WAC 173-303-640(7)(d).

**III.10.M.5.j** If liquids (e.g., Dangerous and/or mixed waste leaks and spills, precipitation, fire water, liquids from damaged or broken pipes) cannot be removed from the secondary containment system within twenty-four (24) hours, Ecology will be verbally notified within twenty-four (24) hours of discovery. The notification will provide the information in A., B., and C. listed below. The Permittees will provide Ecology with a written demonstration, within seven (7) business days, identifying at a minimum [WAC 173-303-640(4)(c)(iv) and WAC 173-303-640(7)(b)(ii), in accordance with WAC 173-303-680(3) and WAC 173-303-806(4)(i)(i)(B)]:

A. Reasons for delayed removal.

B. Measures implemented to ensure continued protection of human health and the environment.

C. Current actions being taken to remove liquids from secondary containment.

**III.10.M.5.k** The Permittees will operate the EMF Miscellaneous Unit Systems in accordance with Operating Unit Group 10, Chapter 4 as updated pursuant to Permit Condition III.10.M.9.e.vi and Appendix 13.18 of this Permit, as approved pursuant to Permit Condition III.10.M.9.e, and the following:

**III.10.M.5.k.i** The Permittees will operate the EMF Miscellaneous Unit Systems in order to maintain the systems and process parameters listed in Permit Table III.10.M.A as approved/modified pursuant to Permit Condition III.10.M.9, within the operating trips and operating ranges specified in Permit Table III.10.M.A, and consistent with assumptions and basis which are reflected in Operating Unit Group 10, Appendix 6.3, as approved pursuant to Permit Condition III.10.M.9.b. [WAC 173-303-815(2)(b)(ii) and WAC 173-303-680(2) and (3)]. For the purposes of this Permit Condition, Operating Unit Group 10, Appendix 6.3. will be superseded by Appendix 6.4. upon its approval pursuant to either Permit Conditions III.10.M.9.c or III.10.M.9.d.

**III.10.M.5.k.ii** The Permittees will calibrate/function test the instruments listed in Permit Table III.10.M.A, in accordance with Operating Unit Group 10, Appendix 13.18, as approved pursuant to Permit Condition III.10.M.9.e.xii.

**III.10.M.5.l** For any portion of the EMF Miscellaneous Unit Systems which have the potential for formation and accumulation of hydrogen gases, the Permittees will operate the portion to maintain hydrogen levels below the lower explosive limit [WAC 173-303-815(2)(b)(ii)].

**III.10.M.5.m** For each miscellaneous unit holding dangerous waste which are acutely or chronically toxic by inhalation, the Permittees will operate the system to prevent escape of vapors, fumes, or other emissions into the air [WAC 173-303-806(4)(i)(i)(B) and WAC 173-303-640(5)(e), in accordance with WAC 173-303-680].

**III.10.M.6 Inspections [WAC 173-303-680(3)]**

**III.10.M.6.a** The Permittees will inspect the EMF Miscellaneous Unit Systems in accordance with the Inspection Plan in Operating Unit Group 10, Chapter 6/Chapter 6A of this Permit, as modified in accordance with Permit Condition III.10.C.5.c.

**III.10.M.6.b** The inspection data for EMF Miscellaneous Unit Systems will be recorded, and the records will be placed in the WTP Unit operating record for the EMF Miscellaneous Unit Systems, in accordance with Permit Condition III.10.C.4.

**III.10.M.7 Recordkeeping**

The Permittees will record and maintain in the WTP Unit operating record for the EMF Miscellaneous Unit Systems, all monitoring, calibration, maintenance, test data, and inspection data compiled under the conditions of this Permit, in accordance with Permit Conditions III.10.C.4 and III.10.C.5.

**III.10.M.8 Closure**

The Permittees will close the EMF Miscellaneous Unit Systems in accordance with Operating Unit Group 10, Chapter 11, as approved pursuant to Permit Condition III.10.C.8.

**III.10.M.9 Compliance Schedule**

**III.10.M.9.a** All information identified for submittal to Ecology in a. through e. of this compliance schedule must be signed and certified in accordance with requirements in WAC 173-303-810(12), as modified in accordance with Permit Condition III.10.M.1.d. [WAC 173-303-806(4)].

**III.10.M.9.b** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to construction of each secondary containment and leak detection system for the EMF Miscellaneous Unit Systems (per level) as identified in Permit Tables III.10.M.A, engineering information as specified below, for incorporation into Operating Unit Group 10, Appendices 13.2, 13.4, 13.5, 13.7, 13.8, 13.9, 13.11, and 13.12 of this Permit. At a minimum, engineering information specified below will show the following as described in WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings and information on sumps and floor drains):

**III.10.M.9.b.i** IQRPE Reports (specific to foundation, secondary containment, and leak detection system) will include review of design drawings, calculations, and other information on which the certification report is based and will include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendix 13.0 of

this Permit may be included in the report by reference and should include drawing and document numbers. IQRPE Reports will be consistent with the information separately provided in III.10.M.9.b ii through ix below [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

**III.10.M.9.b.ii** Design drawings (General Arrangement Drawings, in plan) and specifications for the foundation, secondary containment, including, liner installation details, and leak detection methodology [Note: leak detection systems for areas where daily, direct, or remote visual inspection is not feasible, will be continuous in accordance with WAC 173-303-640(4)(e)(iii)(C)]. These items should show the dimensions, volume calculations, and location of the secondary containment system, and should include items such as floor/pipe slopes to sumps, tanks, floor drains [WAC 173-303-640(4)(b) through (f) and WAC 173-303-640(3)(a), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)];

**III.10.M.9.b.iii** The Permittees will provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the secondary containment system. This information will demonstrate the foundation will be capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift [WAC 173-303-640(4)(c)(ii), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

**III.10.M.9.b.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.M.9.b.v** Secondary containment/foundation and leak detection systems materials selection documentation (including, but not limited to, concrete coatings and water stops, and liner materials), as applicable [WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.M.9.b.vi** Detailed description of how the secondary containment for each miscellaneous unit system will be installed in compliance with WAC 173-303-640(3)(c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B);

**III.10.M.9.b.vii** Submit Permit Table III.10.E.S completed to provide for all secondary containment sumps and floor drains, the information as specified in each column heading, consistent with information to be provided in III.10.M.9.b i through vi above;

**III.10.M.9.b.viii** Documentation that secondary containment and leak detection systems will not accumulate hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

**III.10.M.9.b.ix** A detailed description of how miscellaneous unit design provides access for conducting future miscellaneous unit integrity assessments [WAC 173-303-640(3)(b) and WAC 173-303-806(4)(i)(i)(B)].

**III.10.M.9.c** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.M.9, prior to installation of each EMF Miscellaneous Unit System as identified in Permit Table III.10.M.A, engineering information as specified below, for incorporation into Operating Unit Group 10, Appendix 13.1 through 13.18 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640 and in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

**III.10.M.9.c.i** IQRPE Reports (specific to miscellaneous unit) will include review of design drawings, calculations, and other information on which the certification report is based and will include as applicable, but not limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendix 8.0 of this Permit may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports will be consistent with the information separately provided in III.10.M.9.c.ii through xi below and the IQRPE Report specified in Permit Condition III.10.M.9.b.i [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

**III.10.M.9.c.ii** Design drawings (General Arrangement Drawings in plan, Process Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control systems], and Mechanical Drawings) and specifications, and other information specific to miscellaneous units (to show location and physical attributes of each miscellaneous unit), [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)];

**III.10.M.9.c.iii** Miscellaneous unit design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the miscellaneous unit(s). Structural support calculations specific to off-specification, non-standard, and field fabricated miscellaneous units will be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

**III.10.M.9.c.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.M.9.c.v** Miscellaneous unit materials selection documentation (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

**III.10.M.9.c.vi** Miscellaneous unit vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii above, will be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

**III.10.M.9.c.vii** System Description related to miscellaneous units will be submitted for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303 806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)].

**III.10.M.9.c.viii** Mass and energy balance for normal projected operating conditions used in developing the Piping and Instrumentation Diagrams and the Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

**III.10.M.9.c.ix** A detailed description of how the miscellaneous unit will be installed in compliance with WAC 173-303-640(3)(c), (d), and (e), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B);

**III.10.M.9.c.x** Documentation that miscellaneous units are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)];

**III.10.M.9.c.xi** Documentation that miscellaneous units are designed to prevent escape of vapors and emissions of acutely or chronically toxic (upon inhalation) EHW, for incorporation into the Administrative Record [WAC 173-303-640(5)(e), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(B)];

**III.10.M.9.d** The Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, prior to installation of equipment as identified in Permit Table III.10.M.A, not addressed in Permit Condition III.10.M.9.c, engineering information as specified below for incorporation into Operating Unit Group 10, Appendices 13.1 through 13.14 of this Permit. At a minimum, engineering information specified below will show the following as required pursuant to WAC 173-303-640, in accordance with WAC 173-303-680 (the information specified below will include dimensioned engineering drawings):

**III.10.M.9.d.i** IQRPE Reports (specific to equipment) will include a review of design drawings, calculations, and other information as applicable, on which the certification report is based. The reports will include, but not be limited to, review of such information described below. Information (drawings, specifications, etc.) already included in Operating Unit Group 10, Appendix 13.0 of this Permit may be included in the report by reference and should include drawing and document numbers. The IQRPE Reports will be consistent with the information provided separately in ii. through xiii. below and the IQRPE Reports specified in Permit Conditions III.10.M.9.b and III.10.M.9.c [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.M.9.d.ii** Design drawings (Process Flow Diagrams, Piping and Instrumentation Diagrams [including pressure control systems]) specifications and other information specific to equipment (these drawings should include all equipment such as pipe, valves, fittings, pumps, instruments, etc.) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.M.9.d.iii** The Permittees will provide the design criteria (references to codes and standards, load definitions, and load combinations, materials of construction, and analysis/design methodology) and typical design details for the support of the equipment [WAC 173-303-640(3)(a) and WAC 173-303-640(3)(f), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

**III.10.M.9.d.iv** A description of materials and equipment used to provide corrosion protection for external metal components in contact with soil and water, including factors affecting the potential for corrosion [WAC 173-303-640(3)(a)(iii)(B), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

**III.10.M.9.d.v** Materials selection documentation for equipment (e.g., physical and chemical tolerances) [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2) and WAC 173-303-806(4)(i)(i)(A)];

**III.10.M.9.d.vi** Vendor information (including, but not limited to, required performance warranties, as available), consistent with information submitted under ii above, for equipment will be submitted for incorporation into the Administrative Record [WAC 173-303-640(3)(a), in accordance with WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(iv)];

**III.10.M.9.d.vii** Miscellaneous unit, equipment, and leak detection system instrument control logic narrative description (e.g., descriptions of fail-safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)].

**III.10.M.9.d.viii** System Descriptions related to equipment and system descriptions related to leak detection systems, for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

**III.10.M.9.d.ix** A detailed description of how the equipment will be installed and tested [WAC 173-303-640(3)(c) through (e) and WAC 173-303-640(4)(b) and (c), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

**III.10.M.9.d.x** For process monitoring, control, and leak detection system instrumentation for the WTP Unit Miscellaneous Unit Systems as identified in Permit Table III.10.M.A, a detailed description of how the process monitoring, control, and leak detection system instrumentation will be installed and tested [WAC 173-303-640(3)(c) through (e), WAC 173-303-640(4)(b) and (c), WAC 173-303-806(4)(c)(vi), and WAC 173-303-806(4)(i)(i)(B)];

**III.10.M.9.d.xi** Mass and energy balance for projected normal operating conditions, used in developing the Piping and Instrumentation Diagrams and Process Flow Diagrams, including assumptions and formulas used to complete the mass and energy balance, so that they can be independently verified, for incorporation into the Administrative Record [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)];

**III.10.M.9.d.xii** Documentation that miscellaneous units are designed to prevent the accumulation of hydrogen gas levels above the lower explosive limit for incorporation into the Administrative Record [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A), and WAC 173-303-806(4)(i)(v)].

**III.10.M.9.d.xiii** Leak detection system documentation (e.g. vendor information, etc.) consistent with information submitted under Permit Condition III.10.M.9.c.ii and Permit Conditions III.10.M.9.d.ii, vii, viii, and x above, will be submitted for incorporation into the Administrative Record.

**III.10.M.9.e** Prior to initial receipt of dangerous and/or mixed waste in the WTP Unit, the Permittees will submit to Ecology, pursuant to Permit Condition III.10.C.9.f, the following as specified below for incorporation into Operating Unit Group 10, Appendix 13.18, except Permit Condition III.10.M.9.e.i, which will be incorporated into Operating Unit Group 10, Chapter 6, of this Permit. All information provided under this permit condition must be consistent with information provided pursuant to Permit Conditions III.10.M.9.b, c, d, and e, III.10.M.3.e, and III.10.C.11.b, as approved by Ecology.

**III.10.M.9.e.i** Integrity assessment program and schedule for the EMF Miscellaneous Unit Systems will address the conducting of periodic integrity assessments on the EMF Miscellaneous Unit Systems over the life of the systems, as specified in Permit Condition III.10.M.9.b.ix and WAC 173-303-640(3)(b), in accordance with WAC 173-303-680, and descriptions of procedures for addressing problems detected during integrity assessments. The schedule must be based on past integrity assessments, age of the system, materials of construction, characteristics of the waste, and any other relevant factors [WAC 173-303-640(3)(b), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B)];

**III.10.M.9.e.ii** Detailed plans and descriptions, demonstrating the leak detection system is operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of dangerous and/or mixed waste or accumulated liquid in the secondary containment system within twenty-four (24) hours WAC 173-303-640(4)(c)(iii). ~~Detection of a leak of at least 0.1 gallons per hour within twenty-four (24) hours is defined as being able to detect a leak within twenty-four (24) hours.~~ Any exceptions to this criteria must be approved by Ecology in accordance with WAC 173-303-680, WAC 173-303-640(4)(c)(iii), and WAC 173-303-806(4)(i)(i)(B)];

**III.10.M.9.e.iii** Detailed operational plans and descriptions, demonstrating that spilled or leaked waste and accumulated liquids can be removed from the secondary containment system within twenty-four (24) hours [WAC 173-303-806(4)(i)(i)(B)];

**III.10.M.9.e.iv** Descriptions of operational procedures demonstrating appropriate controls and practices are in place to prevent spills and overflows from the EMF Miscellaneous Unit Systems, or containment systems, in compliance with WAC 173-303-640(5)(b)(i) through in accordance with WAC 173-303-680 [WAC 173-303-806(4)(i)(i)(B)];

**III.10.M.9.e.v** Description of procedures for investigation and repair of the EMF Miscellaneous Unit Systems [WAC 173-303–640(6) and WAC 173-303-640(7)(e) and (f), in accordance with WAC 173-303-680, WAC 173-303-320, WAC 173-303-806(4)(a)(v), and WAC 173-303-806(4)(i)(i)(B)];

**III.10.M.9.e.vi** Updated Chapter 4, Narrative Descriptions, Tables and Figures as identified in Permit Table III.10.M.A, as modified pursuant to Permit Condition III.10.M.9.e.ix, and updated to identify routinely non-accessible EMF Miscellaneous Unit Systems [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)];

**III.10.M.9.e.vii** Descriptions of procedures for management of ignitable and reactive, and incompatible dangerous and/or mixed waste, in accordance with WAC 173-303-640(9) and (10), in accordance with WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(B).

**III.10.M.9.e.viii** A description of the tracking system used to track dangerous and/or mixed waste generated throughout the EMF Miscellaneous Unit Systems, pursuant to WAC 173-303-380.

**III.10.M.9.e.ix** Permit Table III.10.M.A, amended as follows [WAC 173-303-680 and WAC 173-303-806(4)(i)(i)(A) through (B)]:

A. Under column 1, update and complete list of dangerous and mixed waste EMF Miscellaneous Unit Systems, including plant items which comprise each system (listed by item number).

B. Under column 2, update and complete system designations.

C. Under column 3, replace the 'Reserved' with the Operating Unit Group 10, Appendix 13.0 subsections specific to miscellaneous unit systems as listed in column 1.

D. Under column 4, update and complete list of narrative description tables and figures.

E. Under column 5, update and complete maximum operating volume for each miscellaneous unit, as applicable.

F. Permit Table III.10.M.A, amended as follows:

1. Under column 1, update and complete list of plant items that comprise the EMF Vessel Vent System (listed by item number).
2. Under column 2, update and complete designations.
3. Under column 3, replace the 'Reserved' with the Operating Unit Group 10, Appendix 13.0, subsections (e.g., 13.1, 13.2, etc.) specific to systems as listed in column 1.
4. Under column 4, update and complete list of narrative description tables and figures.

**III.10.M.9.e.x** Permit Table III.10.M.A will be completed for EMF Miscellaneous Unit System process and leak detection system monitors and instruments (to include, but not be limited to: instruments and monitors measuring and/or controlling flow, pressure, temperature, density, pH, level, humidity, and emissions) to provide the information as specified in each column heading. Process and leak detection system monitors and instruments for critical systems as specified in Operating Unit Group 10, Appendix 2.0 and as updated pursuant to Permit Condition III.10.C.9.b and for operating parameters as required to comply with Permit Condition III.10.C.3.e.iii will be addressed. Process monitors and instruments for non-waste management operations (e.g., utilities, raw chemical storage, non-contact cooling waters, etc.) are excluded from this permit condition [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(A) through (B), and WAC 173-303-806(4)(i)(v)];

**III.10.M.9.e.xi** Supporting documentation for operating trips and expected operating range as specified in Permit Table III.10.M.A, as approved pursuant to Permit Condition III.10.M.9.e.x [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(B), WAC 173-303-806(4)(i)(iv), and WAC 173-303-806(4)(i)(v)];

**III.10.M.9.e.xii** Documentation of process and leak detection instruments and monitors (as listed in Permit Table III.10.M.A) for the EMF Miscellaneous Unit Systems to include, but not be limited to, the following [WAC 173-303-680, WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)]:

A. Procurement Specifications.

B. Location used.

C. Range, precision, and accuracy.

D. Detailed descriptions of calibration/functionality test procedures (e.g., method number [ASTM]) or provide a copy of manufacturer's recommended calibration procedures.

E. Calibration/functionality test, inspection, and routine maintenance schedules and checklists, including justification for calibration, inspection and maintenance frequencies, criteria for identifying instruments found to be significantly out of calibration, and corrective action to be taken for instruments found to be significantly out of calibration (e.g., increasing frequency of calibration, instrument replacement, etc.).

F. Equipment instrument control logic narrative description (e.g., descriptions of fail-safe conditions, etc.) [WAC 173-303-680(2), WAC 173-303-806(4)(i)(i)(B), and WAC 173-303-806(4)(i)(v)].

**Table III.10.M.A – EMF Plant Miscellaneous Unit System Description**

| Miscellaneous Unit System Description/Location | Miscellaneous Unit System Designation | Description Drawings | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| DEP-COND-00001 (Evaporator Primary Condenser)<br>E-0102 | DEP | **24590-BOF**<br>-M5-V17T-00012<br>-M6-DEP-00003004<br>-MED-DEP-00004<br>-N1D-DEP-00007<br>-P1-25-00001<br>-3PS-MEVV-T0001<br>24590-CM-POA-MEVV-00003-05-00001<br>(Sheet 2 of 3, Sheet 3 of 3) | 4G.3.2; Table 4G-2 | NA |
| DEP-COND-00002 (Evaporator Inter-Condenser)<br>E-0102 | DEP | **24590-BOF**<br>-M5-V17T-00012<br>-M6-DEP-00003004<br>-MED-DEP-00005<br>-N1D-DEP-00007<br>-P1-25-00001<br>24590-CM-POA-ME00-00003-04-00004<br>(Sheet 2 of 3, Sheet 3 of 3) | 4G.3.3; Table 4G-2 | NA |

**Table III.10.M.A – EMF Plant Miscellaneous Unit System Description**

| Miscellaneous Unit System Description/Location | Miscellaneous Unit System Designation | Description Drawings | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| DEP-COND-00003 (Evaporator After-Condenser)<br>E-0102 | DEP | **24590-BOF**<br>-M5-V17T-00012<br>-M6-DEP-00003004<br>-MED-DEP-00006<br>-N1D-DEP-00007<br>-P1-25-00001<br>24590-CM-POA-ME00-00003-04-00001<br>(Sheet 2 of 3, Sheet 3 of 3) | 4G.3.4; Table 4G-2 | NA |
| DEP-EVAP-00001 (Evaporator Separator Vessel)<br>E-0103 | DEP | **24590-BOF**<br>-M5-V17T-00012<br>-M6-DEP-00003001<br>-MVD-DEP-00009<br>-N1D-DEP-00010<br>-P1-25-00001<br>-3PS-MEVV-T0001<br>24590-CM-POA-MEVV-00003-05-00002<br>(Sheet 2 of 6, Sheet 5 of 6) | 4G.3.4; Table 4G-2 | 3,544 |
| DVP-HTR-00001A (Process Ventilation Preheater)<br>E-0102 | DEP | Reserved | 4G; Table 4G-2 | NA |
| DVP-HTR-00001B (Process Ventilation Preheater)<br>E-0102 | DEP | Reserved | 4G; Table 4G-2 | NA |

**Table III.10.M.A – EMF Plant Miscellaneous Unit System Description**

| Miscellaneous Unit System Description/Location | Miscellaneous Unit System Designation | Description Drawings | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| DVP-HEPA-00003A (Process Ventilation Primary HEPA Filter)<br>E-0102A | DEP | Reserved | 4G; Table 4G-2 | NA |
| DVP-HEPA-00003B (Process Ventilation Primary HEPA Filter)<br>E-0102A | DEP | Reserved | 4G; Table 4G-2 | NA |
| DVP-HEPA-00004A (Process Ventilation Secondary HEPA Filters)<br>E-0102A | DEP | Reserved | 4G; Table 4G-2 | NA |
| DVP-HEPA-00004B (Process Ventilation Secondary HEPA Filters)<br>E-0102A | DEP | Reserved | 4G; Table 4G-2 | NA |
| DEP-HX-00001 (Evaporator Concentrate/Feed Vessels LAW Effluent Cooler)<br>E-0103 | DEP | **24590-BOF**<br>-M5-V17T-00013<br>-M6-DEP-00002006<br>-MED-DEP-00001<br>-N1D-DEP-00008<br>-P1-25-00001<br>-3PS-MEP0-T0001<br>24590-CM-POA-MEP0-00006-04-00004<br>(Sheet D3334) | 4G.3.8; Table 4G-2 | NA |

**Table III.10.M.A – EMF Plant Miscellaneous Unit System Description**

| Miscellaneous Unit System Description/Location | Miscellaneous Unit System Designation | Description Drawings | Narrative Description, Tables & Figures | Maximum Capacity (gallons) |
|---|---|---|---|---|
| DEP-RBLR-00001 (Evaporator Reboiler)<br>E-0103 | DEP | **24590-BOF**<br>-M5-V17T-00012<br>-M6-DEP-00003002<br>-MBD-DEP-00001<br>-N1D-DEP-00009<br>-P1-25-00001<br>-3PS-MEVV-T0001<br>24590-CM-POA-MEVV-00003-05-00003<br>(Sheet 2 of 4, Sheet 3 of 4) | 4G.3.9; Table 4G-2 | NA |
| DVP-EXHR-00001A (Process Ventilation Exhausters)<br>E-0102 | DEP | Reserved | 4G; Table 4G-2 | NA |
| DVP-EXHR-00001B (Process Ventilation Exhausters)<br>E-0102 | DEP | Reserved | 4G; Table 4G-2 | NA |

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