STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
3100 Port of Benton Blvd • Richland, WA 99354 • (509) 372-7950
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July 1, 2019 19-NWP-088

Brian T. Vance, Manager
Office of River Protection
United States Department of Energy
PO Box 450, MSIN: H6-60
Richland, Washington 99352

Valerie McCain, Project Manager
Bechtel National, Inc.
2435 Stevens Center Place, MSIN: H4-02
Richland, Washington 99354

Re: Approval of the Proposed Class 2 Permit Modification 8C.2019.2F to the *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste*, Part III, Operating Unit Group 10, Waste Treatment and Immobilization Plant, WA7890008967

Reference: See page 3

Dear Brian T. Vance and Valerie McCain:

The Department of Ecology (Ecology) approves your request for a Class 2 Modification 8C.2019.2F to the Waste Treatment and Immobilization Plant (Reference) in accordance with Washington Administrative Code (WAC) 173-303-830(4)(b)(vi)(A)(I). Also, in accordance with WAC 173-303-840(8)(b), the Waste Treatment Plant (WTP) Permit is effective July 31, 2019.

With this Class 2 Modification, a new Waste Storage Area and Transportation Staging Area is described in the permit conditions, Part A, Chapter 4, and Chapter 4I. The Waste Storage Area will replace the Non-Radioactive Dangerous Waste Container Storage Area to support operations of the WTP facilities. In addition, Engineering Specification 24590-WTP-3PS-DB01-T0001 was added into Appendix 7.7.

Ecology included additional changes to the permit modification as follows:

- "Failed Melter Storage Facility" was corrected to read "HLW Failed Melter Storage Facility" throughout Chapter 4I.
- Chapter 4I, Section 4I.1.4.5 was revised to explain the control of run-on.
- Additional revisions were made to delete "Non-Radioactive Dangerous Waste Container Storage Area" and replace it with "WTP Waste Storage Area."

In the Part A, there is an error in Section XII, Process Codes and Design Capacities. The S01 Process Code still has six units instead of seven. Ecology expects the Permittees—The United States Department of Energy (USDOE) Office of River Protection and Bechtel National, Inc. to provide an updated Part A in a future permit modification. There is also the expectation that the permittees will transmit the updated Part A after the effective date of this 8C.2019.2F Class 2 permit modification.

USDOE held a public comment period regarding the Class 2 Permit Modification request for the WTP Permit from April 1, 2019 through May 30, 2019. USDOE also held a public meeting on May 8, 2019, at the Richland Public Library.

Ecology received four public comment submittals from USDOE's comment period. The agency reviewed the comments and wrote a *Response to Comments* document. The *Response to Comments* document is included in the enclosed DVD (Ecology Publication 19-05-008) and on Ecology's website at: https://fortress.wa.gov/ecy/publications/SummaryPages/1905008.html.

The permit modification is on the enclosed DVD. This DVD is also at the Hanford Public Information Repositories in Richland, Spokane, and Seattle, Washington, as well as Portland, Oregon. A hard copy is on file at the locations listed below:

Department of Ecology Nuclear Waste Program 3100 Port of Benton Boulevard Richland, Washington 99354	United States Department of Energy Administrative Record 2440 Stevens Center Place Richland, Washington 99354

Individuals can request copies of the DVD by contacting Ecology's Resource Center at (509) 372-7950.

In accordance with WAC 173-303-830(4)(f)(ii), Ecology's decision to grant or deny a Class 2 Permit Modification request under this section may be appealed under the permit appeal procedures of WAC 173-303-845.

Your Right to Appeal

You have a right to appeal this permit modification to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this Permit. The appeal process is governed by Chapter 43.21B of the Revised Code of Washington (RCW) and Chapter 371-08 of the WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do all of the following within 30 days of the date of receipt of this Permit:

- File your appeal and a copy of this Permit with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Permit to Ecology in paper form – by mail or in person (see addresses below). E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B of the RCW and Chapter 371-08 of the WAC.

1. **To file your appeal with the Pollution Control Hearings Board:**

Mail Appeal to:	**OR**	**Deliver Appeal to:**
The Pollution Control Hearings Board PO Box 40903 Olympia, Washington 98504-0903		The Pollution Control Hearing Board 1111 Israel Road, Southwest, Suite 301 Tumwater, Washington 98501

2. **To serve your appeal to the Department of Ecology:**

Mail Appeal to:	**OR**	**Deliver Appeal in person to:**
The Department of Ecology Appeals Processor PO Box 47608 Olympia, Washington 98504-7608		The Department of Ecology Appeals Processor 300 Desmond Drive Southeast Lacey, Washington 98503

3. **Send a copy of your Appeal to:**

   Dan McDonald
   Department of Ecology
   Nuclear Waste Program
   3100 Port of Benton Boulevard
   Richland, Washington 99354

If there are any questions, please contact Yoana Lucatero, Permit Lead, at (509) 372-7917 or yoana.lucatero.@ecy.wa.gov, or Annette Carlson, Permit Coordinator, at (509) 372-7897 or annette.carlson@ecy.wa.gov.

Sincerely,

Suzanne Dahl
Dangerous Waste Permit Manager
Nuclear Waste Program

acs/sh
Enclosure

Reference: Letter 19-ECD-0023, received March 26, 2019, "Submittal of Hanford Facility Resource Conversation and Recovery Act Permit Modification Notification Form 24590-BOF-PCN-ENV-18-002, Dangerous Waste Permit Class 2 Modification"

cc: See page 4

cc electronic w/o enc:

Dave Bartus, EPA
David Einan, EPA
Mary Beth Burandt, USDOE
Duane Carter, USDOE
Joe Franco, USDOE
Rob Hastings, USDOE
Lori Huffman, USDOE
Mostafa Kamal, USDOE
Christopher Kemp, USDOE
Tony McKarns, USDOE
Jean Dunkirk, BNI
Lori Fritz, BNI
Brian Ponte, BNI
Felice Presti, BNI
Donna Yasek, BNI
Laura Cusack, CHPRC
Moussa Jaraysi, CHPRC
Curt Clement, MSA
Jon Perry, MSA
Darci Teel, MSA
Michael Stephenson, PNNL
Lucinda Borneman, WRPS
ERWM Staff, YN
Debra Alexander, Ecology
Jennifer Cantu, Ecology
Annette Carlson, Ecology
Suzanne Dahl, Ecology
Mandy Jones, Ecology
Mark Pakula, Ecology
Nancy Ware, Ecology

cc w/enc, DVD:

Tim Hamlin, EPA
Tony McKarns, USDOE
Matt Johnson, CTUIR
Jack Bell, NPT
Alyssa Buck, Wanapum
Laurene Contreras, YN
Susan Leckband, HAB
Ken Niles, ODOE
John Fowler, ACHP
Robin Priddy, BCAA
Donald Redman, USACE
Trevor Fox, USFW
Mike Livingston, WDFW
John Martell, WDOH
John Wiesman, WDOH
Sonia Soelter, WSDA
Allyson Brooks, WSDAHP
Cindy Preston, WSDNR
BNI Correspondence Control
CHPRC Correspondence Control
Environmental Portal
Gonzaga University Foley Center Library
Hanford Facility Operating Record
MSA Correspondence Control
PNNL Correspondence Control
Portland State University Library, Government Information
University of Washington Suzzallo Library, Government Publications
USDOE-ORP Correspondence Control
USDOE Public Reading Room, CIC
USDOE-RL Correspondence Control
USEPA Region 10 Hanford Field Office Correspondence Control
WRPS Correspondence Control

cc w/enc, DVD and hard copy:

Hanford Administrative Record: Hanford Site-wide Permit
NWP Central File

cc w/enc, hard copy:

NWP Library: Hanford Site-wide Permit

Quarter Ending June 30, 2019 24590-BOF-PCN-ENV-18-002

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

Index

Page 2 of 3: Hanford Facility RCRA Permit, Part III, Operating Unit 10, Waste Treatment and Immobilization Plant
Update Permit Tables, Part A, Chapter 4, and Chapter 4I to support installation of a concrete pad for a new Waste Treatment Plant (WTP) permitted Waste Storage Area and a Transportation Staging Area.

Submitted by Co-Operator:

Roger J. Landon 3/4/19
Roger J. Landon Date

Reviewed by ORP Program Office:

3/22/19
Thomas W. Fletcher Date

Quarter Ending June 30, 2019

24590-BOF-PCN-ENV-18-002

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 2 modification is to update Permit Condition Tables, DWP Part A, Chapter 4 and Chapter 4I narratives to describe a new WTP Waste Storage Area and Transportation Staging Area. This container storage area will replace the non-radioactive dangerous waste container storage area to support operations of WTP facilities (LAW, Lab, EMF and BOF).

The following redline changes were made to permit tables in Permit Condition III.10.D., Containers (see redlines attached to this PCN):

- Update entry for WTP Waste Storage Area in Table III.10.D.A
- Update entry for Transportation Staging Area in Table III.10.D.A

Part A Application Form was updated to include expanded storage capacity for the WTP Waste Storage Area and the Transportation Staging Area in Sections XI and XII. The Map in Section XV was also updated to show the WTP waste storage area and Transportation Staging Area. The aerial photograph of the WTP site was also updated with a 2018 photo.

Chapter 4 Section 4.1 under Balance of Facilities has two minor edits to include EMF and change non-radioactive dangerous waste storage area to the WTP waste storage area.

Chapter 4I Section 4I.1.2, Container Management Practices, was updated to explain the WTP Waste Storage Area. The waste storage area will be suitable for managing the secondary dangerous and mixed waste generated during DFLAW configuration. Section 4I.1.1, Description of Containers, was updated to explain the Transportation Staging Area. It is permitted for the staging (storage) of ILAW transporters with full ILAW containers ready to ship to the Integrated Disposal Facility for disposal. See the complete Section redlines attached to this PCN form.

24590-WTP-3PS-DB01-T0001, Engineering Specification for Furnishing and Delivering Ready-Mix Concrete, will be added to Appendix 7.7 of the Permit.

In accordance with Permit Condition III.10.C.2.e, this permit modification sent to Ecology includes page changes to the Permit Chapter 4 and 4I, attachments, and permit application supporting documentation (see attached redlines).

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: F(1)(b)

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

Modification or addition of container units...resulting in up to 25% increase in the facility's container storage capacity, except as provided in F(1)(c) and F(4)(a) below.

Modification Approved/Concur: ☑ Yes ☐ Denied (state reason below)

Reason for denial:

Reviewed by Ecology:

S. Dahl July 12 2019 Date

DANGEROUS WASTE PORTION OF THE RESOURCE CONSERVATION AND RECOVERY ACT PERMIT FOR THE TREATMENT, STORAGE, AND DISPOSAL OF DANGEROUS WASTE

SIGNATURE PAGE FOR 8C.2019.2F

The enclosed portions of the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, Revision 8c for the Treatment, Storage, and Disposal of Dangerous Waste were modified on July 1, 2019, and effective on July 31, 2019. These portions are the legal and current version of the permit. It will remain in effect unless modified, revoked and reissued under Washington Administrative Code (WAC) 173-303-830(3), terminated under WAC 173-303-830(5), or continued in accordance with WAC 173-303-806(7). All other portions of the permit remain unchanged.

ISSUED BY:
WASHINGTON STATE DEPARTMENT OF ECOLOGY

Date: July 1 2019

Suzanne Dahl, Dangerous Waste Permit Manager
Nuclear Waste Program, Department of Ecology

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DEPARTMENT OF
ECOLOGY
State of Washington

Response to Comments

WTP Waste Storage and Transportation Staging Areas

April 1 to May 30, 2019

Summary of a public comment period and responses to comments

July 2019

Publication no. 19-05-008

Publication and Contact Information

This publication is available on the Department of Ecology's (Ecology) website at https://fortress.wa.gov/ecy/publications/SummaryPages/1905008.html

For more information contact:

Annette Carlson
Nuclear Waste Program
3100 Port of Benton Boulevard
Richland, WA 99354
Phone: 509-372-7950

Email: Hanford@ecy.wa.gov

Washington State Department of Ecology – www.ecology.wa.gov

- Headquarters, Lacey 360-407-6000
- Northwest Regional Office, Bellevue 425-649-7000
- Southwest Regional Office, Lacey 360-407-6300
- Central Regional Office, Yakima 509-575-2490
- Eastern Regional Office, Spokane 509-329-3400

Ecology publishes this document to meet the requirements of Washington Administrative Code 173-303-840 (9).

To request ADA accommodation including materials in a format for the visually impaired, call Ecology at 360-407-6831 or visit https://ecology.wa.gov/accessibility. People with impaired hearing may call Washington Relay Service at 711. People with speech disability may call TTY at 877-833-6341.

Response to Comments

WTP Waste Storage and Transportation Staging Areas

April 1 to May 30, 2019

Nuclear Waste Program
Washington State Department of Ecology
Richland, Washington

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Introduction

The Washington State Department of Ecology's Nuclear Waste Program (Ecology) manages dangerous waste within the state by writing permits to regulate its treatment, storage, and disposal.

When a new permit or a significant modification to an existing permit is proposed, Ecology holds a public comment period to allow the public to review the change and provide formal feedback. (See Washington Administrative Code [WAC] 173-303-830 for types of permit changes.)

The Response to Comments is the last step before issuing the final permit, and its purpose is to:

- Specify which provisions, if any, of a permit will become effective upon issuance of the final permit, providing reasons for those changes.
- Describe and document public involvement actions.
- List and respond to all significant comments received during the public comment period and any related public meetings.

This Response to Comments is prepared for:

Comment period:	WTP Waste Storage and Transportation Staging Areas, April 1 through May 30, 2019
Permit:	*Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit for the Treatment, Storage, and Disposal of Dangerous Waste, Part III, Operating Unit Group 10 (WA7890008967), Waste Treatmen and Immobilization Plant*
Permittee(s):	U.S. Department of Energy (DOE) Office of River Protection and Bechtel National, Inc. (BNI)
Original issuance date:	September 27, 1994
Effective date:	July 31, 2019

To see more information related to the Hanford Site and nuclear waste in Washington, please visit our website: https://www.ecology.wa.gov/Hanford.

Reasons for issuing the permit

The purpose of this Class 2 permit modification is to add a Waste Treatment Plant (WTP) Waste Storage Area and a Transportation Staging Area. The WTP Waste Storage Area replaces the non-radioactive dangerous waste storage area to store secondary waste from WTP operations. The Transportation Staging Area is permitted to stage Immobilized Low Activity Waste (ILAW) transporters at the WTP after the ILAW containers have been loaded prior to shipment to the Integrated Disposal Facility on the Hanford Site.

The Dangerous Waste Permit Application Part A Form has been revised to identify both the WTP Waste Storage and Transportation Staging Areas as Container Storage Areas.

Redline changes were made to the following sections of the permit:

- Dangerous Waste Permit Application Part A Form
- Chapter 4 Process Information
- Chapter 4I Balance of Facilities Process Information
- Permit Condition Tables

Also, the engineering specification for the concrete used for the WTP Waste Storage Area was added to Appendix 7.7 of the WTP Permit.

Public involvement actions

The Permittees and Ecology encouraged public comment on this Class 2 permit modification during a 60-day public comment period held April 1 through May 30, 2019.

The following actions were taken to notify the public:

- Mailed a public notice announcing the comment period to 1,282 members of the public.
- Distributed copies of the public notice to members of the public at Hanford Advisory Board meetings.
- Placed a public announcement display advertisement in the *Tri-City Herald* on March 31, 2019.
- Emailed a notice announcing the start of the comment period to the Hanford-Info email list, which has 1,347 recipients.
- Posted the comment period as an event on the Washington Department of Ecology – Hanford's Facebook page.

The United States Department of Energy Office of River Protection held a public meeting on May 8, 2019, at 5:30 p.m. at the Richland Public Library. Two members of the public attended the meeting, and one member joined through webinar.

The Hanford information repositories located in Richland, Spokane, and Seattle, Washington, and Portland, Oregon, received the following documents for public review:

- Public notice (Fact Sheet).
- Transmittal letter.
- Draft WTP Waste Storage and Transportation Staging Areas Permit Modification.

The following public notices for this comment period are in Appendix A of this document:

- Public notice (Fact Sheet).
- Classified advertisement in the *Tri-City Herald.*
- Notices sent to the Hanford-Info email list.
- Event posted on the Washington Department of Ecology - Hanford Facebook page.

List of Commenters

The table below lists the names of organizations or individuals who submitted a comment on the WTP Waste Storage and Transportation Staging Areas Permit modification. The comments and responses are in Attachment 1.

Commenter	Organization
Bruce Grimm	Citizen
Anonymous	Citizen
Mike Conlan	Citizen
Confederated Tribes of the Umatilla Indian Reservation	Tribal

Attachment 1: Comments and responses

Description of comments:

Ecology accepted comments from April 1 through May 30, 2019. This section provides summary of comments that we received during the public comment period and our responses, as required by RCW 34.05.325(6)(a)(iii). Comments are grouped by individual and each comment is addressed separately.

LETTER I-1: BRUCE GRIMM, 4/06/19 12:40 PM PT

Comment I-1-1

Many of the provisions of WAC 173-30 have been carried down since at least 1982 and some sections appear as ancient concepts today. It should be viewed as that since the regulations have been amended and added to from time to time during that long time span the chapters run in danger of becoming an uncorrelated hodgepodge that is confusing not only to industry professionals but the general public.

It is suggested that in defining the terms and establishing the requirements to ensure waste management activities are protective of human health and the environment that they are uniformly used to depict the concept set out in its definition. That is one of the most important skills in efficient drafting of regulations. The draftspersons must first have very definite concepts and then must manifest an ability to employ proper words, phrases, clauses and sentences which clearly convey the scope and limitations of such concepts. Then, these well-delimited concepts, by means of appropriate nomenclature and phraseology, must be uniformly applied throughout the administrative code.

The agency should carefully consider revisions so that they do not create further duplicities, conflicts and ambiguities.

Ecology Response to I-1-1

Thank you for your suggestions, however this comment better applies to changes to the Washington Administrative Code (WAC) regulations and is outside the purview of this modification. This Class 2 modification to the Waste Treatment and Immobilization Plant (WTP) Permit focuses on the permitting and construction of the WTP Waste Storage and Transportation Staging Areas.

LETTER I-2: ANONYMOUS CITIZEN, 4/17/19 12:00 PM PT

Comment I-2-1

The Fact Sheet says that Ecology's approval of this modification "would authorize construction of the WTP Waste Storage Area and Transportation Staging Area. Yet, the fact sheet also says that operations of these container storage areas will be described at some future time in a Class 3 permit modification for the Low Activity Waste and Effluent Management Facility - scheduled to be submitted for public comment later this year. Without an understanding of operations, including doses and chemical compositions, it is impossible for Ecology or the public to determine whether the bases for the design, capacity, and health protections of each area are reasonable.

This disconnect between construction now versus learning the health and safety bases later appears to be an example of wasteful construction executed ahead of having the requirements. It is another artifact of "fast track design-build," which is a violation of DOE Order 413.3B. Even "Dilbert" understands this. Please see the enclosed cartoon from Friday, May 9, 1997, which demonstrates the likely reason for fast track design build.

Ecology Response to I-2-1

The permittees have chosen to follow the WTP phased permitting approach with agreement from the Department of Ecology (Ecology), for addition of the permitted waste storage area. Miscellaneous mixed and dangerous waste managed in the WTP Waste Storage Area is from Low Activity Waste (LAW) operations. These secondary wastes may include but are not limited to spent or failed equipment, high efficiency particulate air filters, and melter consumables. Operating details will be provided in the Class 3 permit modification as stated in the Fact Sheet, as this modification focuses on the permitting of the construction of the storage pad. Doses and chemical compositions were determined in the following reports:

- 24590-WTP-RPT-ENS-10-003, Rev 1, Evaluations of WTP Secondary Mixed Wastes for Dangerous Waste Treatment and Disposal
- 24590-WTP-RPT-ENV-14-006, Rev 0, Updated Evaluation of Secondary Dangerous Waste Treatment and Disposal for 2015 DWP Submittal

Comment I-2-2

For both new facilities, an ALARA study is needed to show whether the long-term storage of waste drums and ILAW containers creates doses that are "as low as reasonably achievable." This should be done before there is any construction. The State of Washington has established enhanced requirements for workers compensation, due to doses to Hanford workers, and therefore has an obligation to help reduce personnel exposures. Interim undefined storage can lead to accumulation of degrading drums and can lead to arguments, as have occurred at the Central Waste Complex regarding labeling and definition of multiple "major" risks that first responders would have to sort through. The administration of additional storage locations is expensive, and the more waste located there, and the longer the waste ages, the more expensive it will be.

Ecology Response to I-2-2

Ecology regulates management of dangerous waste under WAC 173-303. Ecology does not have regulatory authority for management of nuclear operations or the radiological fraction of mixed waste. This authority is maintained by the Department of Energy under the Atomic Energy Act.

The WTP Waste Storage Area will be inspected at least weekly ensuring that all containers are closed and storage area is free of liquid and debris.

Comment I-2-3

Looking at the ILAW Transportation Staging Area (TSA), Table 4I-1 shows that the maximum waste volume in the TSA is 18,095 gallons. System Plans show that approximately 594 gallons of glass occupies each ILAW canister (max before it cools). As a result, it appears that 18,095/594 = 30 ILAW canisters (10 trailers?) is the actual storage capacity. This capacity is stated to be based on having interim storage prior to shipment to the Intermediate Disposal Facility (IDF) which is adjacent to WTP.

Why is storage needed for 30 canisters (about 6 days of production)? The only need for lag storage is to cool the canisters to the extent needed to install them in the bottom layer in the trench. Can you provide the basis? How does this provide for uninterrupted WTP operations? Can you verify that no other waste type (other than ILAW) will be staged in this area for "transportation"?

Ecology Response to I-2-3

This permit modification is specifically for WTP and does not include scope for the Integrated Disposal Facility (IDF). During a WTP outage, it may be necessary to stage large pieces of failed equipment loaded on transporters in the Transportation Staging Area. Assumptions for the Transportation Staging Area are as follows:

- 3 trailer limit
- ILAW container dimensions: 7.5 ft (90 in.) high by 4 ft (48 in.) diameter. Internal Volume = 86.4 ft3 (646 gal)
- Full drum shipment = 88 drums on trailer for 4,840 gal (647 ft3); x3 trailers = 14,520 (1,941 ft3)
- Full load of 5x5x9 boxes (1,683 gal [225 ft3]) = 8,415 gal (1,125 ft3); x3 trailers= 25,245 gal (3,375 ft3)
- Full ILAW trailer, 3 containers = 1,939 gal (259 ft3); x3 trailers = 5,817 gal (778 ft3)
- 1 box shipment (8415 gal) + 2 drum shipments (9,680 gal) = 18,095 gal (2,419 ft3)

Comment I-2-4

Previous WTP dangerous waste permit applications featured an ILAW "Buffer Storage" area to ensure uninterrupted operations (same purpose). See 24590-WTP-DWPA-ENV- 01-001, Rev 1, sheet 4-49. Table 4-2 shows the old ILAW Buffer Storage Area was 89,099 gallons. At one time there was even a Bechtel ILAW buffer storage containment building, per WA 7890008967, Attachment 51, 2/2004. 89,099 gallons translates to 150 ILAW canisters. But I believe this capacity was removed from the WTP baseline. Bechtel may have received fee/payment from DOE for designing it (an inflated need?) and may also have received payment from DOE for deleting it from the project scope to reduce costs. As a result, DOE should be reminded that no fee or incentive should be paid for adding back the ILAW Transportation Staging Area, because its buffer storage function is rework. This is another artifact of fast-track design build, and it causes phased permitting chum as well as design chum.

Ecology Response to I-2-4

Ecology maintains oversight of WTP activities associated with the Dangerous Waste Permit. Ecology is not involved in the oversight of the WTP contract, nor contractual negotiations between the U. S. Department of Energy (DOE) and Bechtel National, Inc. (BNI). In addition, Ecology is not responsible for the decisions that DOE makes as they move forward on projects. If DOE makes decisions that directly affect permitting, Ecology will ensure that necessary details and information are evaluated and appropriately incorporated into the Dangerous Waste Permit.

Comment I-2-5

GAO recently published a report, GAO-189-207, "DOE Should Take Action on Milestone Oversight." This report indicates that DOE has not tracked multiple "renegotiations" and delays of TPA and consent decree milestones, and as a result, those milestones have been ineffective. Ecology should consider tracking DW Permit changes and delays from project inception in the same manner. Comment 4 above is just one example. How many other features of the permit have experienced the same costly chum due to the fast track design-build (in an out of the permit, and scope creep, resulting in costly repeated effort)?

Ecology Response to I-2-5

Ecology regulates management of dangerous waste under WAC 173-303, changes to the Dangerous Waste Permit are tracked through permit modifications. Ecology expects the permittees to meet the Consent Decree dates that they committed to in 2016. In addition, Ecology is not open to extending the Interim Compliance dates that correlate with the Consent Decree for the construction and operation of the Waste Treatment and Immobilization Plant.

The permittees demonstrate their commitment to tank treatment by working with Ecology to regularly monitor progress in the field and working to prepare the facility for compliant operations.

Comment I-2-6

The renamed and expanded WTP Waste Storage Area appears to be intended to be permitted for both radioactive waste and non-radioactive dangerous waste. This looks like an error precursor that could lead to radioactive containers being stored in a wrong location and shipped to an off-site non-radioactive waste disposal vendor/landfill, exposing the public. Ecology should ensure that radioactive and non-radioactive wastes cannot be mingled, to avoid such accidents. Was a hazards analysis conducted to underpin this design? What was the maximum inventory used to determine the hazard category and rigor of safety analysis? Will the BOF or the LAW hazard category be updated? How much Tc-99 will be stored at any one time?

Ecology Response to I-2-6

Separate storage areas within the unit will be clearly marked with signs indicating the appropriate waste to be stored in each area. All containers will be labeled with the accumulation or generation start date, as appropriate, the major risk(s) associated with the waste, and the words “hazardous waste” or “dangerous waste.” A waste tracking and inventory system will also be implemented and labels will be positioned so that required information is visible. The waste storage area is intended to be permitted to store mixed waste per the following reports:

- 24590-WTP-RPT-ENS-10-003, Rev 1, Evaluations of WTP Secondary Mixed Wastes for Dangerous Waste Treatment and Disposal
- 24590-WTP-RPT-ENV-14-006, Rev 0, Updated Evaluation of Secondary Dangerous Waste Treatment and Disposal for 2015 DWP Submittal

In addition, determination of the hazard category for the facilities is the responsibility of the DOE and BNI as a function of their contract and DOE regulations, including the Atomic Energy Act.

Comment I-2-7

Per page 12 of the proposed modification, the WTP waste storage area is not limited to 90 days, but can accumulate waste indefinitely. Page 42 states that this area has a capacity of 4,608 drum equivalents, stacked two high. At 55 gallons per drum, the capacity is 253,440 gallons. The new area is 16 times larger than the nonradioactive dangerous waste area it replaces. And the new capacity is 4.5 times the old capacity. Is there a basis for the increased capacity? Can Ecology provide to the public the mass balance and flow sheet to show the rate of accumulation of drums on this pad? Is there an operations research model? Has the increase cost for construction, permitting and operations been added to the life cycle data?

Ecology Response to I-2-7

The overall intent is not to accumulate waste indefinitely but to stay compliant with regulations for storage of mixed waste. The majority of secondary waste generation will occur with the melter change-outs, which accounts for the increase in size capacity. The focus of this modification is to establish permitted storage for WTP operations per the following reports:

- 24590-WTP-RPT-ENS-10-003, Rev 1, Evaluations of WTP Secondary Mixed Wastes for Dangerous Waste Treatment and Disposal
- 24590-WTP-RPT-ENV-14-006, Rev 0, Updated Evaluation of Secondary Dangerous Waste Treatment and Disposal for 2015 DWP Submittal

Comment I-2-8

What will the dose rates in the ILAW Staging Area and WTP Waste Storage Area be?

Ecology Response to I-2-8

The Department of Energy will maintain dose rates at levels that are protective of human health and the environment. Ecology regulates management of dangerous waste under WAC 173-303. Ecology does not have regulatory authority for management of nuclear operations or the radiological fraction of mixed waste. This authority is maintained by the Department of Energy under the Atomic Energy Act.

Comment I-2-9

DOE and Ecology should not allow the new facilities to become an attractive nuisance, subject to speculative accumulation, including for the potential EMF evaporator bottoms (should they be found to corrode the LAW melters). If received, EMF bottoms should be solidified before receipt for IDF disposal on this pad (and not shipped as liquid as suggested by Ecology in System Plan 8 from WTP to inside the Richland City Limits for treatment). EMF bottoms created by DFLAW create an additional 2 million gallons of liquid waste, per System Plan 8. The Tank Closure and Waste Management EIS requires all of the tank farm low level and low-level mixed waste to be disposed to the IDF, not held for any future purpose. Radioactive waste should be disposed of immediately. The Hanford Site's isolation and elevation over the groundwater was selected for that purpose.

Ecology Response to I-2-9

The Integrated Disposal Facility's (IDF) waste management and the Environmental Impact Statement are not within the scope of this comment period. This comment period is focused on the permitting and construction of the WTP Waste Storage and Transportation Staging Areas.

Comment I-2-10

Hanford seems averse to actual disposal of tank waste, and this culture should stop. Long term interim "storage" adds expense and personnel exposures. No drums of Low-Level waste should be staged for off-site transport. All radioactive waste on the pad should meet the criteria for acceptance in the IDF (including no liquids) as informed by the Performance Assessment. DOE should inform the public and update the EIS if there is any plan to generate or store orphan waste at, or as a result of, WTP or tank farm operations.

Ecology Response to I-2-10

In accordance with the Tank Closure and Waste Management EIS, the secondary waste from WTP will be disposed of at the IDF.

Comment I-2-11

I noticed that the permit modification uses gallons in some places and cubic meters in others. It would help if the units were consistent and if the number of ILAW containers was specified, as that would make it easier to verify compliance.

Ecology Response to I-2-11

Generally the volume of liquid waste is measured in gallons, whereas the volume of solid waste is measured in cubic feet. As a result, the permit modification uses both gallons and cubic meters to define the volumes being managed at the facility. Tank Waste treated at the WTP is measured in gallons of waste and generated ILAW containers are measured for disposal in cubic meters. The conversion factor used to convert from cubic feet to gallons is 7.4805 gal/ft3.

LETTER I-3: MIKE CONLAN, 4/19/19 1:52 PM PT

Comment I-3-1

1. Remove all nuclear waste,
2. Do not allow anymore nuclear waste into the facility,
3. Replace all the single storage tanks,
4. Stop all the nuclear leakage entering the Columbia River

Ecology Response to I-3-1

Ecology is working to ensure that long-term storage, treatment and disposal of the waste is protective of human health and the environment.

The proposed permit changes are not to allow new waste, but to better manage the waste already at Hanford.

Single-shell tanks are not in the scope of this comment period. Ecology does agree the tanks pose a threat. We believe a better approach to addressing it is to remove the waste from the single-shell tanks and put it in the compliant double-shell tanks to prepare for eventual treatment in the

Waste Treatment Plant now being built. The operation of the Low-Activity Waste Facility is a positive step to eventual treatment of tank waste currently stored at Hanford.

Stopping any potential nuclear waste from impacting the Columbia River is not within the scope of the WTP Dangerous Waste Permit. Prevention of groundwater and surface water impacts are addressed in operations associated with other units.

LETTER T-1: CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION, 5/24/19 11:15 AM PT

Comment T-1-1

4I. 1.2.1 Misc. Mixed Waste and Misc. Non-RAD dangerous waste container
Comment: The proposed WTP Waste Storage Area concrete pad is described as being sloped to drain or remove liquid. In the event of a spill or accident, will the drain lead to an area where the waste can be removed before reaching the sewer system? Since a forklift is said to be routinely moving pallets of material staked two high we believe this will increase the likelihood of a possible spill beyond the portable secondary containment units.

Request: Please verify the drain final collection point and if in the event of a spill the liquid can be isolated. If the drain can't be separated a requirement for this room to be engineered with secondary containment beyond the portable containment is requested.

Ecology Response to T-1-1

The waste storage area is not designed nor intended to provide secondary containment. The majority of wastes managed on the WTP Waste Storage pad are solids not requiring secondary containment. In the rare case that waste requiring secondary containment is stored on the pad, it will be in portable secondary containment meeting requirements of WAC 173-303-630(7), sufficient to hold 10% of all containers in the portable containment or 100% of the largest container, whichever is greater (see Section 4I.1.4.1). The WTP Waste Storage Area will be inspected, at a minimum, on a weekly basis. This inspection will include a check for the presence of liquid in portable secondary containment (Chapter 6A) and if present the liquid will be visually inspected for signs of containment (e.g., oily sheen, color, etc.), pH tested, and survey for radiological contamination. Timely removal of liquids in portable secondary containment to prevent overflow will be completed using hand pumps or similar devices as identified in Section 4I.1.4.6. Disposal decisions will be completed on a case-by-case basis depending on testing results.

Comment T-1-2

4I.1.4.1 Secondary containment system design
Comment: The WTP Storage Area waste secondary containment will only capture 10% of the volume of all containers or the entire volume of the largest container. This means that if a spill occurs that includes two large containers, for instance a forklift accident, then the only containment beyond that point will be the drain. See comment 1.

Request: Please increase the size of the containment structure to exceed the requirements in WAC 173-303-630 or ensure the facility is engineered to isolate possible waste that reaches the drainage point.

Ecology Response to T-1-2

The waste storage area is not designed nor intended to provide secondary containment. The majority of wastes managed on the WTP Waste Storage pad are solids not requiring secondary containment. In the rare case that waste requiring secondary containment is stored on the pad, it will be in portable secondary containment meeting requirements of WAC 173-303-630(7), sufficient to hold 10% of all containers in the portable containment or 100% of the largest container, whichever is greater (see Section 4I.1.4.1). The WTP Waste Storage Area will be inspected, at a minimum, on a weekly basis. This inspection will include a check for the presence of liquid in portable secondary containment (Chapter 6A) and if present the liquid will be visually inspected for signs of containment (e.g., oily sheen, color, etc.), pH tested, and survey for radiological contamination. Timely removal of liquids in portable secondary containment to prevent overflow will be completed using hand pumps or similar devices as identified in Section 4I.1.4.6. Disposal decisions will be completed on a case-by-case basis depending on testing results.

Comment T-1-3

4I.1.4.3 Structural Integrity of the Base
Comment: The base construction states that the base will be free of gaps, cracks, and sufficiently impervious to contain leaks. The area of the storage is designated to be 145'x100x10'. Will this area have a liner placed under the concrete?

Request: Please indicate if a liner will be used under the concrete pad. Also include a description of how this slab will be crack/gap free considering a concrete pad of this size will undoubtedly crack without properly placed control joints. If control joints are used, describe how they will be sealed to prevent leaks.

Ecology Response to T-1-3

The installation of the WTP Waste Storage Area will be verified as compliant with WAC 173-303-630(7)(a), (b), and (c) by a qualified, installation inspector or a qualified registered, professional engineer in accordance with Permit Condition III.10.D.3.b. It will also be inspected weekly when waste is being stored in the area. The WTP Inspection Plan, Chapter 6A, will require that weekly inspections be performed to check that containers are free of liquid and debris. The area will be checked for cracks, gaps, and other signs of deterioration. Problems revealed by inspections will be corrected on a schedule that prevents hazards to public health and the environment.

Appendix A: Copies of all public notices

Public notices for this comment period:

- Public notice (Fact Sheet).
- Classified advertisement in the *Tri-City Herald.*
- Notices sent to the Hanford-Info email list.
- Event posted on the Washington Department of Ecology – Hanford's Facebook page.

THE HANFORD SITE

FACT SHEET

PUBLIC COMMENT PERIOD

Waste Treatment and Immobilization Plant (WTP) Project
Proposed Construction of New Waste Storage and Transportation Staging Areas

The U.S. Department of Energy (DOE) Office of River Protection (ORP) and Bechtel National, Inc. (BNI) are holding a 60-day public comment period on proposed modifications to the Hanford WTP Dangerous Waste Permit (Permit). The proposed permit change would add a small container storage pad and a Transportation Staging area for the transporters to ship the Immobilized Low Activity Waste (ILAW) containers to the Integrated Disposal Facility (IDF).

PUBLIC COMMENT PERIOD: April 1 to May 30, 2019

Background

The Hanford Site is located in southeastern Washington along the Columbia River. The 580 square-mile site was created in 1943 as part of the Manhattan Project to produce plutonium for the nation's defense program. Today, waste management and environmental cleanup are the main missions at Hanford.

The DOE-ORP and BNI, as co-Permittees, are requesting a Class 2 Modification to the Hanford Facility RCRA Permit; WTP Permit (Operating Unit Group 10).

Overview

The Permit establishes requirements to ensure waste management activities are protective of human health and the environment. DOE is proposing a Class 2 permit modification pursuant to Washington Administrative Code WAC 173-303-830, which requires a 60-day public review process that includes a public meeting, a newspaper advertisement announcing the meeting, and this fact sheet.

Summary of Changes

The purpose of the proposed modification is to add language into the WTP Permit describing a WTP Waste Storage Area and a Transportation Staging Area. The WTP Waste Storage Area will replace the non-radioactive dangerous waste storage area to support operations. Redline changes are proposed to the following sections of the permit; Dangerous Waste Permit Application Part A Form, Chapter 4 Process Information, and Chapter 4I Balance of Facilities Process Information, and updates to the Permit Condition Tables. The engineering specification for the concrete being used for the WTP Waste Storage Area will be added to Appendix 7.7 of the WTP Permit.

PUBLIC COMMENT PERIOD

April 1 to May 30, 2019

GET INVOLVED STAY INFORMED

Public Meeting:

May 8, 2019, 5:30 p.m.
Richland Public Library
955 Northgate Dr.
Richland, WA 99352

Contact Information:

Paula Call, DOE
509-376-2048
Paula.Call@orp.doe.gov

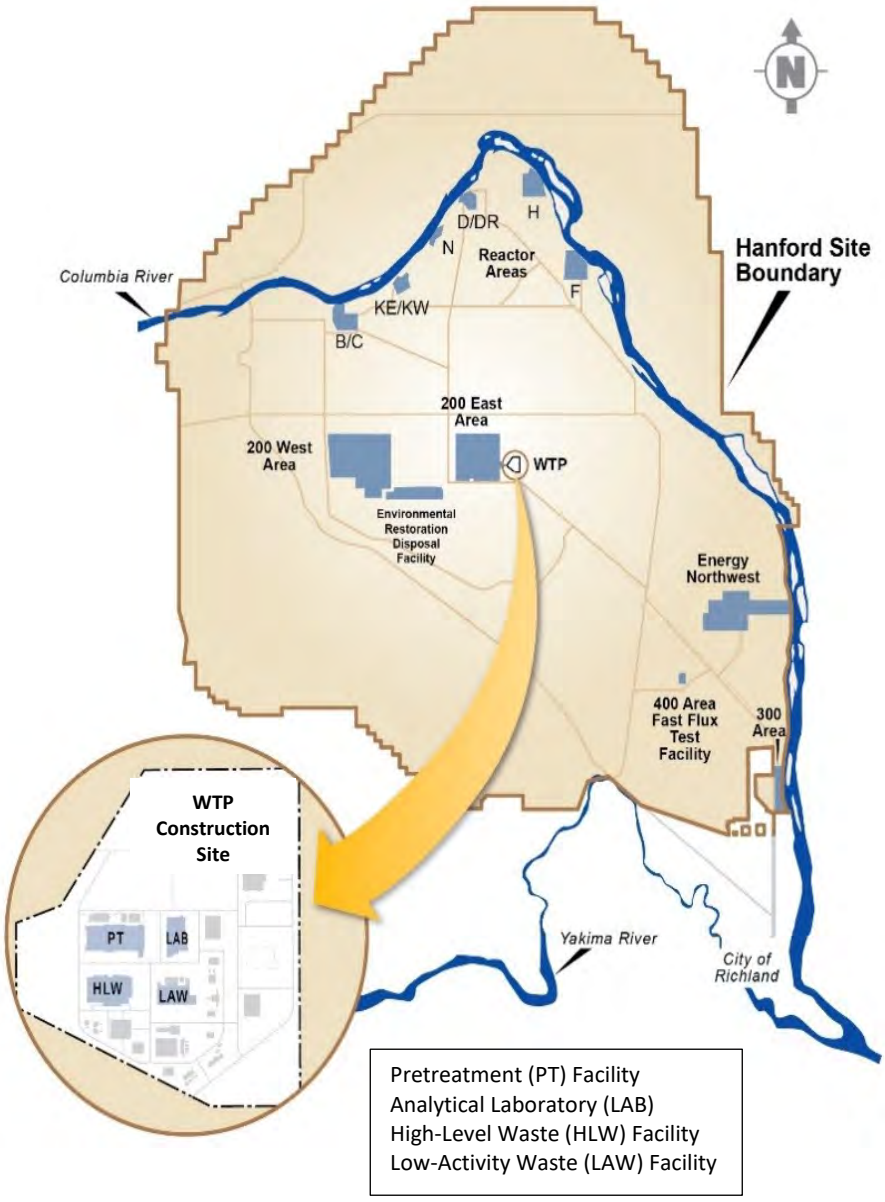
Annette Carlson, Ecology
509-372-7950
anca461@ecy.wa.gov

Administrative Record:
https://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=0063755H

Submit Comments:
http://wt.ecology.commentinput.com/?id=NSTBg

Ecology approval of this modification would authorize construction of the WTP Waste Storage Area and Transportation Staging Area. Operations of these container storage areas will be described in the Class 3 permit modification for the Low Activity Waste and Effluent Management Facility operations scheduled to be submitted for public comment later this year.

The Dangerous Waste Permit Application Part A Form has been revised to identify the WTP Waste Storage and Transportation Staging Areas as Container Storage Areas. The WTP Transportation Staging Area is being permitted to stage ILAW transporters at the WTP after the ILAW containers have been loaded prior to shipment to the IDF on the Hanford Site.



THE HANFORD SITE

FACT SHEET

How To Get Involved

A 60-day public comment period is scheduled to begin April 1 and continue through May 30, 2019. A public meeting will be held on May 8, 2019, 5:30 p.m., Richland Public Library, 955 Northgate Dr., Richland, WA 99352.

To request disability accommodation, please contact Jennifer Colborn, Jennifer_M_Colborn@rl.gov, 509-376-5840 at least 10 working days prior to the event.

All comments need to be submitted by May 30, 2019, in writing, by mail, or by email (preferred) to:

Annette Carlson
Washington State Department of Ecology
3100 Port of Benton Boulevard
Richland, WA 99354
http://wt.ecology.commentinput.com/?id=NSTBg (preferred)

At the conclusion of the public comment period, Ecology will address public comments and prepare a Response to Comment document.

Copies of the proposed modification and supporting documentation will be available during the public comment period online at https://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=0063755H, or on Ecology's website at http://www.ecy.wa.gov/programs/nwp/commentperiods.htm. Permit modification may also be viewed at the Hanford Public Information Repositories listed below.

Hanford Public Information Repositories

Portland State University Government Information Branford Price Millar Library 1875 SW Park Avenue Portland, OR 97207-1151 Attn: Claudia Irla (503) 725-4542 E-Mail: westonc@pdx.edu Map: www.pdx.edu/map.html	**University of Washington** Suzzallo Library Government Publications Dept. Box 352900 Seattle, WA 98195-2900 Attn: Hilary Reinert (206) 685-3130 E-Mail: cass@uw.edu; reinerth@uw.edu Map: www.tinyurl.com/m8ebj	**U.S. Department of Energy Public Reading Room** Washington State University, Tri-Cities Consolidated Information Ctr., Rm. 101-L 2770 University Drive Richland, WA 99352 Attn: Janice Scarano (509) 372-7443 E-Mail: doe.reading.room@pnnl.gov Map: www.tricity.wsu.edu/campusmaps/campusmap.pdf	**Gonzaga University** Foley Center Library East 502 Boone Avenue Spokane, WA 99258 Attn: John Spencer (509) 313-6110 E-Mail: spencer@gonzaga.edu Map: www.tinyurl.com/2c6bpm	**Ecology Nuclear Waste Program Resource Center** 3100 Port of Benton Blvd. Richland, WA 93354 Attn: Valarie Peery 509-372-7950 E-Mail: Hanford@ecy.wa.gov Online: http://www.ecy.wa.gov/programs/nwp/commentperiods.htm

Administrative Record and Public Information Repository:

Address: 2440 Stevens Center Place, Room 1101, Richland, WA. **Attn**: Heather Childers

Phone: 509-376-2530 **E-Mail:** heather_m_childers@rl.gov **Web site**: www2.hanford.gov/arpir/

THE HANFORD SITE

FACT SHEET

Public Involvement Opportunity

We want to hear from you on the proposed changes to the Hanford Dangerous Waste Permit for the Waste Treatment and Immobilization Plant Project Waste Storage and Transportation Staging Areas.

Comment Period: April 1 to May 30, 2019
Public Meeting: May 8, 2019, 5:30 p.m.**,** Richland Public Library

OFFICE OF RIVER PROTECTION
United States Department of Energy
Class 2 Permit Modification Fact Sheet
U.S. Department of Energy
Office of River Protection
P.O. Box 450, H4-02
Richland, WA 99352

ON GARDENING

Have you been out-phloxed again?

BY NORMAN WINTER
Tribune News Service

It is happening all across the South right now and probably rates high on the list as one of the saddest moments in the landscape.

It is, of course, when gardeners come to that realization that they have been "Out Phloxed" another year, by their neighbors!

If you are in this category, then now is the time to correct the situation by planting your own phlox.

It is the moss phlox or phlox subulata causing all of the consternation, right now, but there will be others. Phlox subulata or Moss Pink represents one of those "60-mile-per-hour plants," which means pretty flowers in the landscape, diverts your attention while you are zipping down the highway.

Large bold plantings of Moss Pink can do that.

Today it is happening in Old Town in Columbus, Georgia, as drivers slowly pass by a picturesque estate with a dazzling show of more moss phlox than most gardeners have ever seen at one time.

The phlox gets its name from ancient Latin meaning Flame and you certainly have to agree that the Moss Pink brings brilliant color to the late winter or early spring garden. Habit wise it is a low-growing, evergreen plant with a fine, textured leaf. Wonderful on slopes and in rock gardens, it is much more drought- and sun-tolerant than most other phlox.

Next up in the jealousy category is the Prairie Phlox, Phlox pilosa. This one is also called downy phlox and sports a great fragrance.

It is still mostly sold generically by native plant nurseries but a couple of named varieties have been seen in recent years. Buy it whenever you see it! It ranges from 12 to 24 inches in height and comes in a variety of colors.

Lastly giving the spring shout out is the Phlox divaricata known as Louisiana Phlox, Wild Sweet William, Woodland Phlox, and Blue Phlox.

Though called Louisiana Phlox it is native over a huge area from Alaska to Quebec and Minnesota, southward to Texas and then eastward to Florida. The fragrant blooms come in various shades of blue and last six to eight weeks.

If you plant these stalwart spring bloomers then add the old-fashioned summer phlox, you'll find phlox blooming, in some areas, for eight to nine months a year t. I promise you won't be Out Phloxed!

NORMAN WINTER TNS

Moss phlox is one of the best plants that catches your attention.

STEVE RINGMAN Seattle Times

The great room of Eric and Kim's home is lined with an expansive window wall facing Lake Sammamish and all it has to offer. "One day, my mom wanted to see the house, and two eagles were flying right in front of the window," says architect Andrew Finch. "It literally took my breath away."

New lake home represents a process of give-and-take

BY SANDY DENEAU DUNHAM
Seattle Times

KING COUNTY, WASH.

There is harmony here: in alignment and scale, in colors and materials, in the happy banter of an architect and a homeowner singing each other's praises – especially after a complex project involving serious site challenges; highly informed participants; and, ultimately, creatively agreeable tradeoffs.

Actually, there were two architects behind Eric and Kim's gleaming new home on Lake Sammamish. One is Andrew Finch, of Finch Design & Production. The other is Kim herself.

"I have done only health care and always wanted to do a house," she says. "We had a larger home in the Entiat area on Lake Washington. Our last house was a builder house, built in 2000. So many things weren't what I wanted."

STEVE RINGMAN Seattle Times

Architect Andrew Finch of Finch Design & Production worked with SBI Construction on Eric and Kim's new home on this challenging, steep waterfront lot.

The 1940s cabin that previously lived on this idyllic slice of waterfront didn't exactly cut it, either. For one thing, says Finch, "The cabin's water came out of the lake."

The fact that any new house arose here at all should be considered the first critical, mutual victory.

"Before construction could begin, the home underwent an extensive regulatory review because of its location along the shores of Lake Sammamish, and the site having two areas designated as steep slope," says Finch. "(The) soil was so bad that workers stood on sheets of plywood while forming the foundations."

You notice the slope as you stutter-step down the driveway shared by Eric and Kim and their fellow empty-nesters next door. Then, rebalanced at the bottom, you notice nothing but this home: It's textured and smooth, metallic and glassily reflective, nestled and bold, with a shed roof over the one-story garage; a majestic butterfly roof alit on the two-story living area; and an entry hall connecting, and separating, them.

The fact that Eric and Kim's home is this harmoniously stunning should be considered the ultimate win: It's a thoughtful composition of input, insight and experience. Plus a whole lot of give-and-take.

"We had a very clear idea of how we live – how we want to live," says Eric.

"There were days that were collaborative, and some we wanted to kill each other," Kim says of Finch, happily bantering. "Part of the dialogue was that Andrew got used to getting hand-drawn sketches from me – no CAD. Hour by hour, there definitely were some things we disagreed on, but I did value so much Andrew's design expertise. And in some cases, I knew I was right. We each had certain battles we won and ones we lost. The end result is very satisfactory."

Today's tour of gentle give-and-take begins, as tours should, in that welcoming entry hall, reached via an impressive 900-pound, one-piece, 5-by-9-foot pivot door.

"This was a disagreement," says Kim. "Back in the beginning, I didn't know I wanted a pivot door, or whether the structure could support it. ... It's an extremely heavy door; it needs a steel frame for size and movement." It is amazing. "You were right about the pivot door," she says to Finch – adding that she found this particular, more-affordable custom version through a vendor in Tucson.

Of the siding, Finch says, "Kim wanted a no-maintenance exterior. It gives the house more depth." Adds Kim: "That was a win for me."

Downstairs, past a custom stairway that integrates a virtual wall of cabinetry through both levels, "You compromised a little on the bedroom size," Finch says. Adds Kim: "On this level, to get two bedrooms and two bathrooms, everything is a little undersized. The upstairs is big. It's a tradeoff."

In the master bathroom, glass doors open to the toilet and to the shower. "Andrew won this one," Kim says. "I wanted translucent all the way to the top, but the light comes in so much better through the clear. It makes the room feel so much bigger. Great call."

In the kitchen, part of the light-filled, lofty-ceilinged, glass-walled great room, Kim says, "I wanted a secondary table, to stand up." A precisely centered island fits the bill perfectly. "With this island, it's much more pleasant to face each other," Finch says. "She was right."

Off the great room, Eric's office looks through glass pocket doors to more than 20 windows framing the lake. "One of my goals was to get Eric's office on the water," says Kim. "We couldn't do it, but this isn't too bad."

Celebrating the kitchen, the heart of the home

BY KATIE LAUGHRIDGE
Tribune News Service

In my house, we sleep in the bedrooms, relax in the family room, and we live in the kitchen. It is the meeting place after a long day and the hub of activity during a weekend at home. When hosting guests, I find myself entertaining more and more from my modestly sized kitchen. Even though we don't intend to host by the oven, as house layouts trend increasingly toward open concepts, the kitchen is no longer a hidden room for immediate family. Instead, it has become a shared space for all who visit.

I have found bringing decor and design into the kitchen a challenging but fun experience. Here are a few tips and tricks to keep in mind when decorating your kitchen.

Design up, not out: Counter space is a hot commodity in my house. Somehow when I cook, it seems to take up the entire room. I have found that decorating upward in tiers instead of outwards has allowed me to incorporate more of the decor I love into my kitchen without hindering my meal prep.

Lean into kitchen art: Wall space in the kitchen can be limited due to appliances and cabinets, but that shouldn't discourage you from incorporating art into the room. Whether it's above the oven, over the sink or on the countertop itself, there is always a place for art.

Put a tray on display: Decorative dishes, fashionable tea towels, colorful produce – let us see it! If you have available counter space, don't hide potential decor elements behind a cabinet door. Gather your best kitchen items and display them expertly on a fun tray for an instant and classic vignette moment.

Customize your furniture: A great way to soften your space is with custom upholstery at the island our dining nook. Is there a favorite fabric from your living room sofa, or perhaps a chair from your entryway that you love? Bring that color or pattern in by customizing seating to coordinate with the rest of your home.

Incorporate fun lighting: Overhead lighting is a great way to bring your personal style into a space. Play up your kitchen lighting and make it standout with a fixture. Not only does a hanging light feature pop over an island countertop or dining nook, there are unlimited options to make the perfect statement for your kitchen.

THE HANFORD SITE

Provide input on the Hanford Site Waste Treatment and Immobilization Plant (WTP) Project Proposed Construction of New Waste Storage and Transportation Staging Areas

PUBLIC COMMENT PERIOD: April 1 — May 30, 2019

The U.S. Department of Energy (DOE), Office of River Protection is holding a 60-day public comment period to support a Class 2 Permit Modification to the Hanford Dangerous Waste Permit (Permit).
The purpose of the changes is to add language into the WTP Permit describing the WTP Waste Storage and Transportation Staging Areas.

The public meeting is May 8, 2019 at 5:30 p.m. at the Richland Public Library, 955 Northgate Drive, Richland, Washington 99352.

Visit https://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=0063755H to review details on these proposed changes. Please submit comments by **May 30** in writing to the Washington State Department of Ecology (Ecology), 3100 Port of Benton Boulevard, Richland, WA 99354 or electronically: http://wt.ecology.commentinput.com/?id=NSTBg.

DOE's contact, Paula Call, paula.call@orp.doe.gov, 509-376-2048 or Ecology's contact, Annette Carlson, anca461@ecy.wa.gov, 509-372-7950.

To request disability accommodation, please contact Jennifer Colburn, Jennifer_M_Colburn@rl.gov, 509-376-5840 at least 10 working days prior to the event.

Learn more about Hanford cleanup at www.hanford.gov

From:	^TPA
To:	HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV
Subject:	30-day Advance Notification: Upcoming Public Comment Period on Proposed Changes to the Hanford WTP Dangerous Waste Permit
Date:	Wednesday, February 27, 2019 9:48:55 AM

This is a message from the U.S. Department of Energy

Notice of Public Comment Period on Proposed Changes to the Hanford WTP Dangerous Waste Permit

The U.S. Department of Energy Office of River Protection (ORP) is planning a 60-day public comment period to support a requested Class 2 permit modification to the Hanford Waste Treatment and Immobilization Plant (WTP) Dangerous Waste Permit. This modification is requesting approval from the Washington State Department of Ecology (Ecology) to install a new permitted waste container storage area and a new transporter staging area in support of WTP operations.

The public comment period is expected to start in March, with a public meeting scheduled for April.

Copies of the proposed modification and supporting documentation will be available during the public comment period at the Hanford Administrative Record Public Information Repository located at 2440 Stevens Drive, Richland, WA, and online at http://pdw.hanford.gov/arpir/.

Additional information on the proposed permit modification will be available on Ecology's website, the Hanford Public Information Repositories, and other document review locations when the public comment period begins.

Questions? Please contact Abi Zilar, ORP, at abigail_j_zilar@orp.doe.gov, or Dan McDonald, Ecology, at dmcd461@ecy.wa.gov.

Ecology logo

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From:	^TPA
To:	HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV
Subject:	Comment period begins today for proposed changes to the Hanford WTP Dangerous Waste Permit
Date:	Monday, April 1, 2019 10:05:42 AM
Attachments:	image003.png Fact Sheet for WTP Waste Storage and Transportation Staging Areas vFinal.pdf

THE HANFORD SITE

This is a message from the U.S. Department of Energy

Notice of Public Comment Period on Proposed Changes to Hanford's Waste Treatment and Immobilization Plant (WTP) Dangerous Waste Permit

The US Department of Energy (DOE) Office of River Protection is holding a 60-day public comment period to support a requested Class 2 permit modification to the Hanford WTP Dangerous Waste Permit. This modification is requesting approval from the Washington State Department of Ecology (Ecology) to install a new permitted waste container storage area and a new transporter staging area in support of WTP operations.

The public comment period is April 1 through May 30, 2019 with a public meeting May 8, 2019. The public meeting will be held May 8, 2019, 5:30 p.m., Richland Public Library, 955 Northgate Dr. Richland, Washington 99352. To read the full documentation, please see the Hanford.gov Events Calendar, the Administrative Record and the Public Information Repositories.

If you can't attend the meeting in person, join via the webinar.

Registration URL: https://attendee.gotowebinar.com/register/906724756226749452
Webinar ID: 687-052-315

Attached is a summary fact sheet, or you can visit https://go.usa.gov/xEJF6 to review details on these proposed changes. Please submit comments by **May 30, 2019**, by mail to:

Washington Department of Ecology
3100 Port of Benton Boulevard
Richland, WA 99354
or electronically at: http://wt.ecology.commentinput.com/?id=NSTBg

Questions? Please contact Paula Call, DOE at paula.call@orp.doe.gov or Annette Carlson, Ecology at anca461@ecy.wa.gov.

The permittee's compliance history during the life of the permit being modified is available from the Washington State Department of Ecology contact person above.

To request disability accommodation, please contact Jennifer Colborn, Jennifer_M_Colborn@rl.gov, 509-376-5480, in our external affairs office at least 10 working days prior to the event. DOE makes every effort to honor disability accommodation requests.

Ecology logo

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From:	^TPA
To:	HANFORD-INFO@LISTSERV.ECOLOGY.WA.GOV
Subject:	Reminder: Public meeting tomorrow on proposed changes to the Hanford WTP Dangerous Waste Permit
Date:	Tuesday, May 7, 2019 10:14:59 AM
Attachments:	image002.png Fact Sheet for WTP Waste Storage and Transportation Staging Areas vFinal.pdf

THE HANFORD SITE

Notice of Public Comment Period on Proposed Changes to Hanford's Waste Treatment and Immobilization Plant (WTP) Dangerous Waste Permit

The US Department of Energy (DOE) Office of River Protection is holding a 60-day public comment period to support a requested Class 2 permit modification to the Hanford WTP Dangerous Waste Permit. This modification is requesting approval from the Washington State Department of Ecology (Ecology) to install a new permitted waste container storage area and a new transporter staging area in support of WTP operations.

The public comment period is April 1 through May 30, 2019 with a public meeting May 8, 2019. The public meeting will be held tomorrow, May 8, 2019, 5:30 p.m., Richland Public Library, 955 Northgate Dr. Richland, Washington 99352. To read the full documentation, please see the Hanford.gov Events Calendar, the Administrative Record and the Public Information Repositories.

If you can't attend the meeting in person, join via the webinar.

Registration URL: https://attendee.gotowebinar.com/register/906724756226749452
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Washington Department of Ecology
3100 Port of Benton Boulevard
Richland, WA 99354
or electronically at: http://wt.ecology.commentinput.com/?id=NSTBg

Questions? Please contact Paula Call, DOE at paula.call@orp.doe.gov or Annette Carlson, Ecology at anca461@ecy.wa.gov.

The permittee's compliance history during the life of the permit being modified is available from the Washington State Department of Ecology contact person above.

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The US Department of Energy Office of River Protection is holding a 60-day public comment period on proposed modifications to the Hanford WTP Dangerous Waste Permit. The proposed permit change would add a small container storage pad and a Transportation Staging area for the transporters to ship the Immobilized Low Activity Waste containers to the Integrated Disposal Facility.

For more information on modification: https://pdw.hanford.gov/arpir/index.cfm/viewDoc?accession=0063755H

To submit comments: http://wt.ecology.commentinput.com/?id=NSTBg

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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 **July 01, 2019**

Chapters	Last Modification Date	Modification Number
Unit-Specific Conditions	07/01/2019	8C.2019.2F
1.0 Part A Form	07/01/2019	8C.2019.2F
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	07/01/2019	8C.2019.2F
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	07/01/2019	8C.2019.2F
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	04/30/2019	24590-WTP-PCN-ENV-19-001 (8C.2019.Q2)
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	06/12/2019	24590-WTP-PCN-ENV-19-002 (8C.2019.Q2)
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	07/01/2019	8C.2019.2F
Appendices 8: Pretreatment Facility	07/06/2017	8C.2017.2F
Appendices 9: Low-Activity Waste Building	06/12/2019	24590-LAW-PCN-ENV-17-007 (8C.2019.Q2)
Appendices 10: High-Level Waste Building	02/01/2018	8C.2017.Q4
Appendices 11: Laboratory Building	06/13/2019	24590-LAB-PCN-ENV-19-001 (8C.2019.Q2)
Appendices 12: Balance of Facilities	07/06/2017	8C.2017.2F
Appendices 13: Effluent Management Facility	05/16/2019	24590-BOF-PCN-ENV-18-001 (8C.2019.Q2)

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

Modification Date	Modification Number
07/01/2019	8C.2019.2F
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

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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, with the exception of pressure, without interruption, evaluates the detector response at least once every fifteen (15) seconds and computes and records the average value at least every sixty (60) seconds, except during allowable periods of calibration and 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: means when additional waste feed cut-off parameter set points deviate outside the limits specified in Permit Tables III.10.H.F, III.10.I.F, III.10.J.F, and III.10.K.F after waste feed is cut-off, but while waste or waste residues are being managed in HLW and LAW.

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 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.

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.

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.

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.

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.

Vitrification System Shutdown: means emergency and planned shutdowns of the vitrification system as defined in the operating procedure(s).

Vitrification System Startup: means startup of the vitrification system as defined in operating procedure(s).

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 through 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.xv, 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] Daily visual inspection[c]
10.	P-0110F	CXP C3/C5 process enclosure	PTF	0	Portable, impermeable berm[a] Continuous leak detection[b]
11.	P-0110H	TLP C3/C5 process enclosure	PTF	0	Portable, impermeable berm[a] Continuous leak detection[b]
12.	P-0116A	TCP C3/C5 process enclosure	PTF	0	Portable, impermeable berm[a] 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
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 WTP Waste 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		
WTP Waste Storage Area[b]	253,440 gal. (33,880 ft^3)	31,680 gal. (4,235 ft^3)
Transportation Staging Area	18,095 gal. (2,419 ft^3)	NA
HLW 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

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-0128 Temporary Storage Room	RESERVED	RESERVED
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

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])
LAW Buffer Container Containment Building	RESERVED	RESERVED
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		

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 Drum Swabbing and Monitoring Area Containment Building	RESERVED	RESERVED
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] Maximum Capacity Gallons (Solids) is based on 4608 drum equivalents spaced two wide and stacked two high and including 30 inch aisle spacing for 33,880 ft^3. Maximum Operating Volume (Liquids) is based on 2304 drum equivalents spaced two wide and including 30 inch aisle spacing for 4,235 ft^3.

[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 = 1ft^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).

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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 through D, I, K, 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 through D, I, K, 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 through D and III.10.E, I, K, M, O, and S 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 through D, I, K, 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 through D, and I through S, 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 through D and III.10.E.I through 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 through D, I, K, 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 through H, and S as approved/modified pursuant to Permit Condition III.10.E.9, 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 through D, I, K, 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 through D, I through K, 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 through D, I through K, 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 through 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 through 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 through 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 through D, J, L, N, P, and S engineering 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 through D, and I, K, 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, K, M, O, and R 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, through D, I through K, 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 through H, and R through 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 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 [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.E.Q, 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.E.9.e.ii.

C. Revisions (including additions or deletions to Table III.10.E.Q 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 Table III.10.E.Q will be approved by Ecology prior to installation of the penetration seals.

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 through D (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 through H, and R through 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 trips and expected operating range as specified in Permit Tables III.10.E.E through H, and R through 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 through H, and R through 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 through H, and R through S, not addressed in Permit Condition III.10.E.9.d.

III.10.E.9.e.xii Permit Tables III.10.E.A through 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, K, 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 FRP-VSL-00002A (Waste Feed Receipt Vessel) FRP-VSL-00002B (Waste Feed Receipt Vessel) FRP-VSL-00002C (Waste Feed Receipt Vessel) FRP-VSL-00002D (Waste Feed Receipt Vessel)	FRP	**24590-PTF** -M2-FRP-P0001 -M2-FRP-P0002 -M2-FRP-P0003 -M2-FRP-P0004 -M5-V17T-00003 -M6-FRP-00001001 -M6-FRP-00001002 -M6-FRP-00002001 -M6-FRP-00002002 -M6-FRP-00003001 -M6-FRP-00003002 -M6-FRP-00003003 -M6-FRP-00003004 -M6-FRP-00003005 -M6-FRP-00005001 -M6-FRP-00005002 -M6-FRP-00005003 -M6-FRP-00005004 -M6-FRP-00005005 -M6-FRP-00005006 -M6-FRP-00005007 -M6-FRP-00005008 -M6-FRP-00006001 -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 FRP-VSL-00002B = 472,900 FRP-VSL-00002C = 472,900 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 -M6-FRP-00006004 -M6-FRP-00006005 -M6-FRP-00006006 -M6-FRP-00006007 -M6-FRP-00006008 -M6-FRP-00007001 -M6-FRP-00007002 -M6-FRP-00007003 -M6-FRP-00007004 -M6-FRP-00007005 -M6-FRP-00007006 -M6-FRP-00007007 -M6-FRP-00007008 -M6-FRP-00008001 -M6-FRP-00008002 -M6-FRP-00008003 -M6-FRP-00008004 -M6-FRP-00008005 -M6-FRP-00008006 -M6-FRP-00008007 -M6-FRP-00009001 -M6-FRP-00010001 -M6-FRP-00020001 -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 -M6-FRP-00020004 -M6-FRP-00020005 -M6-FRP-00020006 -M6-FRP-00020007 -MVD-FRP-00005 -MVD-FRP-00006 -MVD-FRP-00007 -MVD-FRP-00008 -N1D-FRP-00001 -P1-P01T-00001 -P1-P01T-00002 **24590-WTP** -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -3PS-MV00-T0003		
Waste Feed Evaporation Process System FEP-VSL-00005 (Waste Feed Evaporator Condensate Vessel) FEP-VSL-00017A (Waste Feed Evaporator Feed Vessel)	FEP	**24590-PTF** -3PS-MEVV-T0001 -M5-V17T-00004001 -M6-FEP-00001001 -M6-FEP-00001002 -M6-FEP-00001003 -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 FEP-VSL-00017A = 85,496 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 -M6-FEP-00003002 -M6-FEP-00006001 -M6-FEP-00006002 -M6-FEP-00006003 -M6-FEP-00006004 -M6-FEP-00006005 -M6-FEP-00007001 -M6-FEP-00007002 -M6-FEP-00007003 -M6-FEP-00007004 -M6-FEP-00007005 -M6-FEP-00008001 -M6-FEP-00008002 -MVD-FEP-P0001 -MVD-FEP-P0002 -MVD-FEP-00003 -MV-FEP-P0001 -MV-FEP-P0002 -N1D-FEP-00002 -N1D-FEP-P0003 -P1-P01T-00001 -P1-P01T-P0002 -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 -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -3PS-MV00-T0003		
Ultrafiltration Process System UFP-VSL-00001A (Ultrafiltration Feed Preparation Vessel) UFP-VSL-00001B (Ultrafiltration Feed Preparation Vessel) UFP-VSL-00002A (Ultrafiltration Feed Vessel) UFP-VSL-00002B (Ultrafiltration Feed Vessel) UFP-VSL-00062A (Ultrafilter Permeate Collection Vessel) UFP-VSL-00062B (Ultrafilter Permeate Collection Vessel) UFP-VSL-00062C (Ultrafilter Permeate Collection Vessel)	UFP	**24590-PTF** -M5-V17T-00009 -M5-V17T-00011 -M6-UFP-00001001 -M6-UFP-00001002 -M6-UFP-00001003 -M6-UFP-00001004 -M6-UFP-00001005 -M6-UFP-00001006 -M6-UFP-00001007 -M6-UFP-00002001 -M6-UFP-00002002 -M6-UFP-00002003 -M6-UFP-00002004 -M6-UFP-00002005 -M6-UFP-00002006 -M6-UFP-00002007 -M6-UFP-00002008 -M6-UFP-00003001 -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 UFP-VSL-00001B = 75,594 UFP-VSL-00002A = 39,629 UFP-VSL-00002B = 40,378 UFP-VSL-00062A = 34,700 UFP-VSL-00062B = 34,700 UFP-VSL-00062C = 34,700 UFP-FILT-00001A = 474 UFP-FILT-00001B = 474 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) UFP-FILT-00001B (Ultrafilter) UFP-FILT-00002A (Ultrafilter) UFP-FILT-00002B (Ultrafilter) UFP-FILT-00003A (Ultrafilter) UFP-FILT-00003B (Ultrafilter) UFP-FILT-00004A (Ultrafilter) UFP-FILT-00004B (Ultrafilter) UFP-FILT-00005A (Ultrafilter) UFP-FILT-00005B (Ultrafilter)		-M6-UFP-00003003 -M6-UFP-00003004 -M6-UFP-00003005 -M6-UFP-00003006 -M6-UFP-00003007 -M6-UFP-00003008 -M6-UFP-00004001 -M6-UFP-00004002 -M6-UFP-00004003 -M6-UFP-00005001 -M6-UFP-00005002 -M6-UFP-00005003 -M6-UFP-00005004 -M6-UFP-00005005 -M6-UFP-00005006 -M6-UFP-00005007 -M6-UFP-00006001 -M6-UFP-00006002 -M6-UFP-00006003 -M6-UFP-00006004 -M6-UFP-00006005 -M6-UFP-00006006 -M6-UFP-00006007 -M6-UFP-00007001 -M6-UFP-00007002		UPF-FILT-00002B = 474 UPF-FILT-00003A = 474 UPF-FILT-00003B = 474 UPF-FILT-00004A = 380 UPF-FILT-00004B = 380 UPF-FILT-00005A = 380 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 -M6-UFP-00007004 -M6-UFP-00007005 -M6-UFP-00007006 -M6-UFP-00007007 -M6-UFP-00009001 -M6-UFP-00009002 -M6-UFP-00009003 -M6-UFP-00009004 -M6-UFP-00009005 -M6-UFP-00009006 -M6-UFP-00010001 -M6-UFP-00010002 -M6-UFP-00010003 -M6-UFP-00010004 -M6-UFP-00010005 -M6-UFP-00010006 -M6-UFP-00010007 -M6-UFP-00011001 -M6-UFP-00011002 -M6-UFP-00011003 -M6-UFP-00011004 -M6-UFP-00011005 -M6-UFP-00015001 -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 -M6-UFP-00017001 -M6-UFP-00021001 -M6-UFP-00021002 -M6-UFP-00022001 -M6-UFP-00022002 -M6-UFP-00027001 -M6-UFP-00027002 -M6-UFP-00027003 -M6-UFP-00027004 -M6-UFP-00027005 -M6-UFP-00027006 -M6-UFP-00027007 -MLD-UFP-P0007 -MVD-UFP-00001 -MVD-UFP-00014 -MVD-UFP-00015 -MVD-UFP-00002 -MVD-UFP-00005 -MVD-UFP-00006 -MVD-UFP-00007 -MV-UFP-00001001 -MV-UFP-00001002 -MV-UFP-00001003 -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 -MV-UFP-00002003 -MV-UFP-00003 -MV-UFP-00004 -MV-UFP-P0005 -MV-UFP-P0006 -MV-UFP-P0007 -MV-UFP-00016 -MV-UFP-00017 -MV-UFP-00018 -MV-UFP-00028 -MV-UFP-00029 -MV-UFP-00030 -MV-UFP-00031 -N1D-UFP-P0001 -N1D-UFP-P0002 -N1D-UFP-00003 -N1D-UFP-P0004 -N1D-UFP-P0005 -N1D-UFP-P0008 -N1D-UFP-00009 -P1-P01T-00001 **24590-WTP** -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 -3PS-MV00-T0002 -3PS-MV00-T0003		
HLW Lag Storage and Feed Blending Process System HLP-VSL-00022 (HLW Feed Receipt Vessel) HLP-VSL-00027A (HLW Lag Storage Vessel) HLP-VSL-00027B (HLW Lag Storage Vessel) HLP-VSL-00028 (HLW Feed Blend Vessel)	HLP	**24590-PTF** -M5-V17T-00007 -M5-V17T-00008 -M6-HLP-00001001 -M6-HLP-00001002 -M6-HLP-00001003 -M6-HLP-00001004 -M6-HLP-00002001 -M6-HLP-00002002 -M6-HLP-00003001 -M6-HLP-00003002 -M6-HLP-00003003 -M6-HLP-00005001 -M6-HLP-00005002 -M6-HLP-00005003 -M6-HLP-00005004 -M6-HLP-00005005 -M6-HLP-00005006 -M6-HLP-00005007 -M6-HLP-00006001 -M6-HLP-00006002 -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 HLP-VSL-00027A = 127,260 HLP-VSL-00027B = 127,260 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 -M6-HLP-00006005 -M6-HLP-00006006 -M6-HLP-00006007 -M6-HLP-00007001 -M6-HLP-00007002 -M6-HLP-00007003 -M6-HLP-00007004 -M6-HLP-00007005 -M6-HLP-00007006 -M6-HLP-00007007 -M6-HLP-00009001 -M6-HLP-00009002 -M6-HLP-00009003 -M6-HLP-00010001 -M6-HLP-00010002 -M6-HLP-00010003 -M6-HLP-00027001 -M6-HLP-00027002 -M6-HLP-00027003 -M6-HLP-00027004 -M6-HLP-00027005 -M6-HLP-00027006 -M6-HLP-00028004 -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 -MVD-HLP-00006 -MVD-HLP-00007 -MVD-HLP-00008 -MVD-HLP-00009 -MV-HLP-00003001 -MV-HLP-00004 -MV-HLP-00005 -MV-HLP-00006 -N1D-HLP-00001 -N1D-HLP-P0003 -N1D-HLP-00007 -N1D-HLP-00010 -P1-P01T-00001 **24590-WTP** -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0003		
Cesium Ion Exchange Process System CXP-VSL-00004 (Cesium Ion Exchange Feed	CXP	**24590-PTF** -M5-V17T-00012001 -M5-V17T-00012002 -M5-V17T-00013 -M5-V17T-00025 -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 CXP-VSL-00026A = 38,000 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) CXP-VSL-00026B (Cesium Ion Exchange Treated LAW Collection Vessel) CXP-VSL-00026C (Cesium Ion Exchange Treated LAW Collection Vessel) CXP-IXC-00001 (Cesium Ion Exchange Column) CXP-IXC-00002 (Cesium Ion Exchange Column) CXP-IXC-00003 (Cesium Ion Exchange Column) CXP-IXC-00004 (Cesium Ion Exchange Column)		-M6-CXP-00001003 -M6-CXP-00001004 -M6-CXP-00001006 -M6-CXP-00001007 -M6-CXP-00002001 -M6-CXP-00002002 -M6-CXP-00003001 -M6-CXP-00003002 -M6-CXP-00003003 -M6-CXP-00005001 -M6-CXP-00005002 -M6-CXP-00005003 -M6-CXP-00005004 -M6-CXP-00007 -M6-CXP-000100001 -M6-CXP-000100002 -M6-CXP-000100003 -M6-CXP-000100004 -M6-CXP-00011001 -M6-CXP-00011002 -M6-CXP-00011003 -M6-CXP-00011004 -M6-CXP-00011005 -M6-CXP-00011006 -M6-CXP-00011007		CXP-VSL-00026C = 38,000 CXP-IXC-00001 = 680 CXP-IXC-00002 = 680 CXP-IXC-00003 = 680 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 -M6-CXP-00012002 -M6-CXP-00012003 -M6-CXP-00012004 -M6-CXP-00013 -MV-CXP-P0002 -MV-CXP-P0008 -MV-CXP-P0009 -MV-CXP-P0010 -MVD-CXP-P0015 -MVD-CXP-P0021 -MVD-CXP-P0022 -MVD-CXP-P0023 -N1D-CXP-P0003 -N1D-CXP-P0007 -P1-P01T-00001 -P1-P01T-00002 **24590-WTP** -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -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 CNP-VSL-00001 (Cesium Evaporator Eluant Lute Pot) CNP-VSL-00003 (Eluate Contingency Storage Vessel) CNP-VSL-00004 (Cesium Evaporator Recovered Nitric Acid Vessel)	CNP	**24590-PTF** -M5-V17T-00014 -M6-CNP-00001001 -M6-CNP-00001002 -M6-CNP-00001003 -M6-CNP-00002001 -M6-CNP-00002002 -M6-CNP-00002003 -M6-CNP-00003001 -M6-CNP-00003002 -M6-CNP-00003003 -M6-CNP-00003004 -M6-CNP-00004 -M6-CNP-00005 -MV-CNP-P0001 -MV-CNP-P0002 -MV-CNP-P0005 -MVD-CNP-P0003 -MVD-CNP-P0007 -MVD-CNP-P0010 -N1D-CNP-P0006 -N1D-CNP-P0009 -N1D-CNP-P0011 -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 CNP-VSL-00003 = 21,713 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 TCP-VSL-00001 (Treated LAW Concentrate Storage Vessel)	TCP	**24590-PTF** -M5-V17T-00006 -M6-TCP-00001001 -M6-TCP-00001002 -M6-TCP-00001003 -M6-TCP-00002001 -M6-TCP-00002002 -M6-TCP-00002003 -M6-TCP-00002004 -M6-TCP-00002005 -MV-TCP-P0002 -MVD-TCP-P0002 -N1D-TCP-P0001 -P1-P01T-00001 **24590-WTP** -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -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 TLP-VSL-00002 (Treated LAW Evaporator Condensate Vessel)	TLP	**24590-PTF** -3PS-MEVV-T0001 -M5-V17T-00005 -M6-TLP-00001 -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 TLP-VSL-00009A = 130,010 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) TLP-VSL-00009B (LAW SBS Condensate Receipt Vessel)		-M6-TLP-00002002 -M6-TLP-00002003 -M6-TLP-00002004 -M6-TLP-00003001 -M6-TLP-00003002 -M6-TLP-00003003 -M6-TLP-00003004 -M6-TLP-00005001 -M6-TLP-00005002 -M6-TLP-00005003 -M6-TLP-00005004 -M6-TLP-00005005 -M6-TLP-00006001 -M6-TLP-00006002 -M6-TLP-00006003 -M6-TLP-00006004 -M6-TLP-00006005 -MVD-TLP-P0001 -MVD-TLP-P0002 -MVD-TLP-00004 -MV-TLP-P0001 -MV-TLP-P0002 -N1D-TLP-P0001 -N1D-TLP-P0006 -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 **24590-WTP** -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -3PS-MV00-T0003		
Spent Resin and Dewatering Process System RDP-VSL-00002A (Spent Resin Slurry Vessel) RDP-VSL-00002B (Spent Resin Slurry Vessel) RDP-VSL-00002C (Spent Resin Slurry Vessel) RDP-VSL-00004 (Spent Resin Dewatering Moisture Separation Vessel)	RDP	**24590-PTF** -3PS-MWD0-TP003 -M5-V17T-00020 -M6-RDP-00001001 -M6-RDP-00001002 -M6-RDP-00001003 -M6-RDP-00001004 -M6-RDP-00001005 -M6-RDP-00002 -M6-RDP-00006 -MVD-RDP-P0005 -MVD-RDP-P0006 -MVD-RDP-P0007 -MVD-RDP-P0008 -MV-RDP-P0001 -MV-RDP-P0002 -MV-RDP-P0003 -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 RDP-VSL-00002B = 15,230 RDP-VSL-00002C = 15,230 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 -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -3PS-MV00-T0003		
Pretreatment Plant Radioactive Liquid Waste Disposal System RLD-TK-00006A (Process Condensate Tank) RLD-TK-00006B (Process Condensate Tank) RLD-VSL-00017A (Alkaline Effluent Vessel) RLD-VSL-00017B (Alkaline Effluent Vessel)	RLD	**24590-PTF** -M5-V17T-00022003 -M5-V17T-00022004 -M6-RLD-00001001 -M6-RLD-00001002 -M6-RLD-00001003 -M6-RLD-00001004 -M6-RLD-00002001 -M6-RLD-00002002 -M6-RLD-00002003 -M6-RLD-00003001 -M6-RLD-00003002 -M6-RLD-00003003 -M6-RLD-00004 -M6-RLD-00005 -M6-RLD-00006 -M6-RLD-00007001 -MVD-RLD-P0005 -MVD-RLD-P0006 -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 RLD-TK-00006B = 343,734 RLD-VSL-00017A = 34,340 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 -N1D-RLD-P0002 -P1-P01T-00001 **24590-WTP** -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -3PS-MV00-T0003		
Pretreatment Plant Wash and Disposal System PWD-VSL-00015 (Acidic/Alkaline Effluent Vessel) PWD-VSL-00016 (Acidic/Alkaline Effluent Vessel) PWD-VSL-00033 (Ultimate Overflow Vessel) PWD-VSL-00043 (HLW Effluent Transfer Vessel) PWD-VSL-00044 (Plant Wash Vessel)	PWD	**24590-PTF** -M5-V17T-00022001 -M5-V17T-00022002 -M6-PWD-00001 -M6-PWD-00002001 -M6-PWD-00002002 -M6-PWD-00003001 -M6-PWD-00003002 -M6-PWD-00003003 -M6-PWD-00003004 -M6-PWD-00005 -M6-PWD-00006 -M6-PWD-00007 -M6-PWD-00008 -M6-PWD-00009 -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 PWD-VSL-00016 = 119,150 PWD-VSL-00033 = 41,650 PWD-VSL-00043 = 41,650 PWD-VSL-00044 = 103,024 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 -M6-PWD-00012 -M6-PWD-00014 -M6-PWD-P0018 -M6-PWD-P0019 -M6-PWD-00020001 -M6-PWD-00020002 -M6-PWD-00020003 -M6-PWD-00020004 -M6-PWD-00020005 -M6-PWD-00020006 -M6-PWD-00021001 -M6-PWD-00021002 -M6-PWD-00021003 -M6-PWD-00021004 -M6-PWD-00021005 -M6-PWD-00021006 -M6-PWD-00023001 -M6-PWD-00023002 -M6-PWD-00023003 -M6-PWD-00023004 -M6-PWD-00023005 -M6-PWD-00024001 -M6-PWD-00024002 -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 -M6-PWD-00024005 -M6-PWD-00024006 -M6-PWD-00024007 -M6-PWD-00025001 -M6-PWD-00025002 -M6-PWD-00025003 -M6-PWD-00025004 -M6-PWD-00026 -M6-PWD-00029 -M6-PWD-00033 -M6-PWD-00041 -M6-PWD-00043 -M6-PWD-00044 -M6-PWD-00046 -M6-PWD-00050 -M6-PWD-00051 -M6-PWD-00057 -M6-PWD-00058001 -M6-PWD-00058002 -MVD-PWD-P0001 -MVD-PWD-00002 -MVD-PWD-P0003 -MVD-PWD-P0010 -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 -MV-PWD-P0001001 -MV-PWD-P0001002 -MV-PWD-P0003001 -MV-PWD-P0003002 -MV-PWD-P0005 -MV-PWD-P0006 -MV-PWD-P0007 -MV-PWD-P0010 -N1D-PWD-P0001 -N1D-PWD-00002 -N1D-PWD-P0003 -N1D-PWD-P0005 -N1D-PWD-P0006 -P1-P01T-00001 -P1-P01T-00006		
Pretreatment Vessel Vent Process System PVP-VSL-00001 (Vessel Vent HEME Drain Collection Vessel)	PVP	**24590-PTF** -M5-V17T-00021001 -M5-V17T-00021002 -M5-V17T-00021004 -M6-PVP-00002 -M6-PVP-00004001 -M6-PVP-00004002 -M6-PVP-00017001 -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 -M6-PVP-00018001 -M6-PVP-00018002 -MVD-PVP-P0001 -MV-PVP-P0002 -N1D-PVP-P0002 -P1-P01T-00001 **24590-WTP** -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -3PS-MV00-T0003		
Pretreatment In-Cell Handling System PIH-TK-00001 (Decontamination Soak Tank)	PIH	**24590-PTF** -M6-PIH-00001001 -M6-PIH-00001002 -P1-P01T-00001 **24590-WTP** -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

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 LCP-VSL-00001 (LAW Melter 1 Concentrate Receipt Vessel) LCP-VSL-00002 (LAW Melter 2 Concentrate Receipt Vessel)	LCP	**24590-LAW** -M5-V17T-00001 -M5-V17T-00002 -M6-LCP-00001002 -M6-LCP-00001003 -M6-LCP-00002003 -M6-LCP-00002004 -MV-LCP-P0001 -MV-LCP-P0002 -MVD-LCP-P0004 -MVD-LCP-P0005 -N1D-LCP-P0001 -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 LCP-VSL-00002 = 18,130
LAW Melter Feed Process System LFP-VSL-00001 (Melter 1 Feed Preparation Vessel) LFP-VSL-00002 (Melter 1 Feed Vessel) LFP-VSL-00003 (Melter 2 Feed Preparation Vessel)	LFP	**24590-LAW** -M5-V17T-00001 -M5-V17T-00002 -M6-LFP-00001001 -M6-LFP-00001002 -M6-LFP-00001003 -M6-LFP-00001004 -M6-LFP-00001005 -M6-LFP-00001006 -M6-LFP-00003001 -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 LFP-VSL-00002 = 9,123 LFP-VSL-00003 = 9,123 LFP-VSL-00004 = 9,123

Table III.10.E.B – LAW Vitrification 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)
LFP-VSL-00004 (Melter 2 Feed Vessel)		-M6-LFP-00003003 -M6-LFP-00003004 -M6-LFP-00003005 -M6-LFP-00003006 -MV-LFP-P0001 -MV-LFP-P0002 -MV-LFP-P0004 -MV-LFP-P0005 -MVD-LFP-P0007 -MVD-LFP-P0008 -MVD-LFP-P0010 -MVD-LFP-P0011 -P1-P01T-00002 -N1D-LFP-00004 -N1D-LFP-00006		
LAW Secondary Off-gas/Vessel Vent Process System LVP-TK-00001 (LAW Caustic Collection Tank)	LVP	**24590-LAW** -M5-V17T-00011 -P1-P01T-00004 -MT-LVP-00005001 -MTD-LVP-00001 -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** -M5-V17T-P0007 -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

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) LOP-VSL-00002 (LAW Melter 2 SBS Condensate Vessel)		-M6-LOP-00001002 -M6-LOP-00002002 -MV-LOP-P0001 -MV-LOP-P0002 -MVD-LOP-00004 -MVD-LOP-00005 -N1D-LOP-P0002 -P1-P01T-00002		LOP-VSL-00002 = 9,056
LAW Vitrification Plant Radioactive Liquid Waste Disposal System RLD-VSL-00003 (Plant Wash Vessel) RLD-VSL-00004 (C3/C5 Drains/Sump Collection Vessel) RLD-VSL-00005 (SBS Condensate Collection Vessel)	RLD	**24590-LAW** -M5-V17T-00014 -M6-RLD-00001001 -M6-RLD-00001002 -M6-RLD-00001003 -M6-RLD-00001004 -M6-RLD-00001005 -M6-RLD-00001006 -M6-RLD-00002001 -M6-RLD-00002002 -M6-RLD-00002003 -M6-RLD-00002004 -M6-RLD-00002005 -M6-RLD-00003001 -M6-RLD-00003002 -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 RLD-VSL-00004 = 7,675 RLD-VSL-00005 = 25,670

Table III.10.E.B – LAW Vitrification 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)
		-MVD-RLD-00001 -MVD-RLD-00006 -MVD-RLD-00007 -MV-RLD-P0001 -MV-RLD-P0002 -MV-RLD-P0003 -P1-P01T-00001 -P1-P01T-00002 -N1D-RLD-00001 -N1D-RLD-00002 -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 The HCP System has ancillary equipment only	HCP	**24590-HLW** -M5-V17T-P0001 -M6-HCP-00001001 -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 HFP-VSL-00001 (Melter 1 Feed Preparation Vessel)	HFP	**24590-HLW** -3YD-HFP-00001[a] -M5-V17T-00001 -P1-P01T-00002 -M6-HFP-00001001 -M6-HFP-00001002 -M6-HFP-00001003 -M6-HFP-00001004 -M6-HFP-00007001 **24590-WTP** -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -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. HFP-VSL-00002 (Melter 1 Feed Vessel)	HFP	**24590-HLW** -3YD-HFP-00001[a] -M5-V17T-P0001 -P1-P01T-00002 -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 -M6-HFP-00002003 -M6-HFP-00008001 **24590-WTP** -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -3PS-MV00-T0003		
Melter Feed Process System cont. HFP-VSL-00005 (Melter 2 Feed Preparation Vessel)	HFP	**24590-HLW** -3YD-HFP-00001[a] -M5-V17T-P0001 -P1-P01T-00002 -M6-HFP-20001001 -M6-HFP-20001002 -M6-HFP-20001003 -M6-HFP-20001004 -M6-HFP-20007001 **24590-WTP** -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -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. HFP-VSL-00006 (Melter 2 Feed Vessel)	HFP	**24590-HLW** -3YD-HFP-00001[a] -M5-V17T-P0001 -P1-P01T-00002 -M6-HFP-20002001 -M6-HFP-20002002 -M6-HFP-20002003 -M6-HFP-20008001 **24590-WTP** -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -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 HOP-VSL-00903 (Melter 1 SBS Condensate Receiver Vessel) HOP-VSL-00904 (Melter 2 SBS Condensate Receiver Vessel)	HOP	**24590-HLW** -3YD-HOP-00001[a] -M5-V17T-P0003 -M5-V17T-P20003 -M6-HOP-00004 -M6-HOP-00006001 -M6-HOP-00006002 -M6-HOP-20004 -M6-HOP-20006001 -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 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 -MVD-HOP-P0012 -MV-HOP-P0001 -MV-HOP-P0003 -N1D-HOP-P0009 -P1-P01T-00001 **24590-WTP** -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -3PS-MV00-T0003		
HLW Canister Decontamination Handling System HDH-VSL-00001 (Canister Rinse Vessel) HDH-VSL-00002 (Canister Decon Vessel 1) HDH-VSL-00003 (Waste Neutralization Vessel) HDH-VSL-00004 (Canister Decon Vessel 2)	HDH	**24590-HLW** -M5-V17T-00006 -M6-HDH-00001001 -M6-HDH-00002001 -M6-HDH-00002002 -M6-HDH-00002003 -M6-HDH-20001001 -M6-HDH-20001002 -M0-HDH-P0012001 -M0-HDH-P0012002 -MV-HDH-00003 -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 HDH-VSL-00002 = 630 HDH-VSL-00003 = 5315 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 -MVD-HDH-P0009 -N1D-HDH-00003 -N1D-HDH-P0005 -N1D-HDH-P0007 -P1-P01T-00001 -P1-P01T-00002 -3YD-HDH-00002[a] **24590-WTP** -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -3PS-MV00-T0003		
HLW Melter Cave Support Handling System HSH-TK-00001 (Decontamination Tank Melter Cave 1) HSH-TK-00002 (Decontamination Tank Melter Cave 2)	HSH	**24590-HLW** -M6-HSH-00004001 -M6-HSH-20004001 -M6-HSH-20004002 -M0-HSH-P0072 -N1D-HSH-P0001 -P1-P01T-00002 **24590-WTP** -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 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 RLD-VSL-00002 (Off-gas Drains Collection Vessel) RLD-VSL-00007 (Acidic Waste Vessel) RLD-VSL-00008 (Plant Wash & Drain Vessel)	RLD	**24590-HLW** -3YD-RLD-00001[a] -M5-V17T-P0007001 -M5-V17T-P0007002 -M6-RLD-00001001 -M6-RLD-00001002 -M6-RLD-00001003 -M6-RLD-00002001 -M6-RLD-00002002 -M6-RLD-00002003 -M6-RLD-00002004 -M6-RLD-00006 -M6-RLD-00007 -M6-RLD-00014 -MV-RLD-00002 -MV-RLD-P0003 -MV-RLD-00025001 -MV-RLD-00025002 -MV-RLD-00025003 -MV-RLD-00025004 -MVD-RLD-00005 -MVD-RLD-00007 -MVD-RLD-00008 -N1D-RLD-P0001 -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 RLD-VSL-00007 = 18,145 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 -P1-P01T-00001 -P1-P01T-00002 **<u>24590-WTP</u>** -3PS-G000-T0002 -3PS-MV00-T0001 -3PS-MV00-T0002 -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 RLD-VSL-00164 (Laboratory Area Sink Drain Collection Vessel) • RLD-LT-6202 • RLD-EDUC-00002A/B/C • RLD-SUMP-00041 • RLD-LT-6211 • RLD-PMP-00182A/B • RLD-SUMP-00045 • RLD-TWDVC-00003 • RLD-LT-6212 • RLD-LDB-00005/6/7/8/11 RLD-VSL-00165 (Hotcell Drain Collection Vessel) • RLD-LT-6104 • RLD-EDUC-00003A/B/C/D/E/F/G/H • RLD-SUMP-00042 • RLD-LT-6115 • RLD-PMP-00183A • RLD-SUMP-00043A • RLD-TWDVC-00002A	RLD	**24590-LAB** -3ZD-RLD-00001[a] -M5-V17T-00029 -M6-RLD-00001001 -M6-RLD-00001002 -M6-RLD-00001003 -M6-RLD-00001004 -M6-RLD-00002001 -M6-RLD-00002003 -M6-RLD-00006001 -M6-RLD-00006002 -M6-RLD-00006003 -M6-RLD-00007001 -M6-RLD-00007002 -M6-RLD-00008001 -M6-RLD-00008002 -MVD-RLD-00164 -MVD-RLD-P0165 -N1D-RLD-P0002 -N1D-RLD-P0003 -P1-60-00007 -P1-60-00008 **24590-WTP** -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 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 • RLD-PMP-00183B • RLD-SUMP-00043B • RLD-TWDVC-00002B • RLD-LT-6124 • RLD-SUMP-00044 • RLD-TWDVC-00001 • RLD-LT-6123 • RLD-LDB-00002/4/9		-3PS-MV00-T0001 -3PS-MV00-T0002 -3PS-MV00-T0003 24590-CM-POA-MVA0-00010-01-02 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 – 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 – 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 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
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

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
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
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

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-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
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

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-LSHH-6104A	Level interlock/soft ware	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)									
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

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
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)									
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

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-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 P-0123 (Hotcell El. 0)	RESERVED	RESERVED	RESERVED
PWD-SUMP-00028 P-0123 (Hotcell El. 0)	RESERVED	RESERVED	RESERVED
PWD-SUMP-00029 P-0123 (Hotcell El. 0)	RESERVED	RESERVED	RESERVED
PWD-SUMP-00032 P-0123A (Maintenance Cave, El. 0)	RESERVED	RESERVED	RESERVED
PWD-SUMP-00033 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 P-B005 (Pit-19, El. –19')	60	Dry Sump	30"Dia x 18"Deep Epoxy	**24590-PTF** -M6-PWD-00041 -P1-P01T-00006
PWD-SUMP-00040 P-B002 (Pit-45, El. –45')	233.7	Dry Sump	60" x 30" x 30" Stainless Steel	**24590-PTF** -M6-PWD-00012 -P1-P01T-00006
PWD-SUMP-00001 P-0108B (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00008 -P1-P01T-00001
PWD-SUMP-00001A P-0108C (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00010 -P1-P01T-00001
PWD-SUMP-00002 P-0108A (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00008 -P1-P01T-00001
PWD-SUMP-00002A P-0108 (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00010 -P1-P01T-00001
PWD-SUMP-00003 P-0106 (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00008 -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 P-0104 (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00008 -P1-P01T-00001
PWD-SUMP-00005 P-0102A (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00008 -P1-P01T-00001
PWD-SUMP-00006 P-0102 (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00008 -P1-P01T-00001
PWD-SUMP-00007 P-0109 (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00009 -P1-P01T-00001
PWD-SUMP-00008 P-0111 (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00009 -P1-P01T-00001
PWD-SUMP-00009 P-0112 (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00009 -P1-P01T-00001
PWD-SUMP-00010 P-0113 (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00009 -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 P-0114 (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00009 -P1-P01T-00001
PWD-SUMP-00012 P-0117 (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00009 -P1-P01T-00001
PWD-SUMP-00013 P-0117A (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00014 -P1-P01T-00001
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED
PWD-SUMP-00031 P-0119 (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-00010 -P1-P01T-00001
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED
RESERVED	RESERVED	RESERVED	RESERVED	RESERVED
PWD-SUMP-00034 P-0121A (Spent Resin Dewatering, El. 0')	75	Dry Sump	30" Dia. x 27" Deep Stainless Steel	**24590-PTF** -M6-PWD-00012
PWD-SUMP-00035 P-0122A (Waste Packaging Area, El. 0')	75	Dry Sump	30" Dia. x 27" Deep Stainless Steel	**24590-PTF** -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 P-0118 (El. 0')	75	Dry Sump	30" Dia. By ~27" deep Stainless Steel	**24590-PTF** -M6-PWD-P0012 -P1-P01T-00001
PWD-SUMP-00037 P-0124A	7.5		30" Dia. x 27" Deep Stainless Steel	**24590-PTF** -M6-PWD-00012
RLD-SUMP-00003 P-0150 (Radioactive Liquid Waste Disposal Area, El. 0', Outdoor)	583	Dry Sump	78" x 48" x 36" Deep Epoxy coating	**24590-PTF** -M6-RLD-00002003
PVP-ZY-00037-S11B-03, P-0105 (PVP-BULGE-00001, El. 0')			3" Stainless Steel	**24590-PTF** -M6-PVP-00017002
PVP-ZY-00036-S11B-03, P-0101A (PVP-BULGE-00002, El. 0')			3" Stainless Steel	**24590-PTF** -M6-PVP-00018002
TCP-ZF-00032-S11B-03 Drain Line, P-0116 (TCP-BULGE-00004, El. 0')	N/A	N/A	3" Stainless Steel	**24590-PTF** -M6-TCP-00001002
DIW-ZF-01511-S11B-03 Drain Line, P-0320 (DIW-BULGE-00001, El. 56')	N/A	N/A	3" Stainless Steel	**24590-PTF** -M6-DIW-00004001
DIW-ZF-01510-S11B-03, P-0320 Drain Line (DIW-BULGE-00002, El. 56')	N/A	N/A	3" Stainless Steel	**24590-PTF** -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 PWD-ZF-03000-S11B-06 P-0123 (Hotcell, El.0')	939	N/A	6" Dia. Stainless Steel	**24590-PTF** -M6-PWD-00011
PWD-FD-00006 PWD-ZF-03001-S11B-06 P-0123 (Hotcell, El.0')	939	N/A	6" Dia. Stainless Steel	**24590-PTF** -M6-PWD-00011
PWD-FD-00435 P-0105		NA	3" Dia. Stainless Steel	**24590-PTF** -M6-PWD-00044
PWD-FD-00349 P-0105		NA	6" Dia. Stainless Steel	**24590-PTF** -M6-PWD-00044
PWD-FD-00436 P-0105		NA	3" Dia. Stainless Steel	**24590-PTF** -M6-PWD-00044
PWD-FD-00438 P-0105A		NA	6" Dia. Stainless Steel	**24590-PTF** -M6-PWD-00044
PWD-FD-00348 P-0105A		NA	6" Dia. Stainless Steel	**24590-PTF** -M6-PWD-00044
PWD-FD-00437 P-0105B		NA	3" Dia. Stainless Steel	**24590-PTF** -M6-PWD-00044
PWD-FD-347 P-0105B		NA	6" Dia. Stainless Steel	**24590-PTF** -M6-PWD-00044
PWD-FD-346 P-0105C		NA	4" Dia. Stainless Steel	**24590-PTF** -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 P-0426 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00298 P-0425 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00309 P-0402 Drain, El. 77'	655	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00310 P-0402 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00311 P-0402 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00312 P-0402 Drain, El. 77'	655	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00376 P-0415 Drain, El. 77'	655	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00377 P-0415 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00378 P-0415 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00379 P-0415 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00380 P-0415A Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -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 P-0415A Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00382 P-0415A Drain, El. 77'	655	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00383 P-0415A Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00557 P-0430 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00559 P-0430 Drain, El. 77'	665	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00561 P-0430 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00563 P-0411 Drain, El. 77'	665	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00564 P-0411 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00565 P-0410 Drain, El. 77'	665	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00566 P-0410 Drain, El. 77'	665	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00571 P-0410 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -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 P-0410 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00573 P-0410 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00574 P-0410 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00575 P-0410 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00576 P-0410 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00583 P-0422A Drain, El. 77'	655	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00584 P-0422A Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00589 P-0402 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00590 P-0423 Drain, El. 77'	655	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00591 P-0423 Drain, El. 77'	655	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00592 P-0423 Drain, El. 77'	655	N/A	8" Dia 304L	**24590-PTF** -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 P-0423 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00594 P-0423 Drain, El. 77'	655	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00595 P-0431A Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00596 P-0431A Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00597 P-0431A Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00598 P-0431A Drain, El. 77'	655	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00599 P-0431A Drain, El. 77'	655	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00600 P-0431A Drain, El. 77'	655	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00604 P-0431A Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00605 P-0431A Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00606 P-0431A Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -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 P-0431A Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00629 P-0425 Drain, El. 77'	655	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00044
PWD-FD-00630 P-0425 Drain, El. 77'	140	N/A	8" Dia 304L	**24590-PTF** -M6-PWD-00044
CRP-ZF-00002-S11B-03, P-0317 Drain Line (CRP-BULGE-00001 drain, El. 56')	N/A	N/A	3" Stainless Steel	**24590-PTF** -M6-CRP-00003001
CXP-ZF-00012-S11B-03 Drain Line, P-0317 (CXP-BULGE-00004, El. 56')	N/A	N/A	3" Stainless Steel	**24590-PTF** -M6-CXP-00003003
UFP-ZF-00043-S11B-03 Drain Line, P-0301 (UFP-BULGE-00001, El. 56')	N/A	N/A	3" Stainless Steel	**24590-PTF** -M6-UFP-00016001
UFP-ZF-00042-S11B-03 Drain Line, P-0301 (UFP-BULGE-00002, El. 56')	N/A	N/A	3" Stainless Steel	**24590-PTF** -M6-UFP-00017001
UFP-ZY-00002-S11B-03 Drain Line, P-0311 (UFP-BULGE-00005, El. 56')	N/A	N/A	3" Stainless Steel	**24590-PTF** -M56-UFP-00031001
UFP-ZY-00001-S11B-03 Drain Line, P-0311A (UFP-BULGE-00006, El. 56')	N/A	N/A	3" Stainless Steel	**24590-PTF** -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 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00050
PWD-LDB-00002 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00050
PWD-LDB-00003 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00050
PWD-LDB-00004 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00050
PWD-LDB-00005 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00050
PWD-LDB-00006 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00050
PWD-LDB-00007 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00050
PWD-LDB-00008 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -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 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00050
PWD-LDB-00010 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00050
PWD-LDB-00011 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00050
PWD-LDB-00012 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00051
PWD-LDB-00013 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00051
PWD-LDB-00014 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00051
PWD-LDB-00015 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00051
PWD-LDB-00016 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -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 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00051
PWD-LDB-00018 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00051
PWD-LDB-00019 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 24" Length Stainless Steel	**24590-PTF** -M6-PWD-00051
RLD-LDB-00012 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 34" Length Stainless Steel	**24590-PTF** -M6-PWD-00058001 and 00058002
RLD-LDB-00013 P-B001 (Inter Facility Transfer Line Tunnel, El.-45')	6	N/A	8" Dia. x 34" Length Stainless Steel	**24590-PTF** -M6-PWD-00058001 and 00058002
ASX Sampler 00017 Lower Containment Trough/Dam (P-0311B, El. 56')	N/A	N/A	3" Dia. Stainless Steel	**24590-PTF** -M6-PWD-00007
ASX Sampler 00019 Lower Containment Trough/Dam (P-0302, El. 56')	N/A	N/A	3" Dia. Stainless Steel	**24590-PTF** -M6-PWD-00007
ASX Sampler 00020 Lower Containment Trough/Dam (P-0301, El. 56')	N/A	N/A	3" Dia. Stainless Steel	**24590-PTF** -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. Stainless Steel	**24590-PTF** -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 – 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 H-B014 (Wet Process Cell, El. –21’)	75	Dry Sump	30” Dia. x 18” Deep Stainless Steel	**24590-HLW** -M6-RLD-00015001 -P1-P01T-00001
RLD-SUMP-00001 H-B014 (Wet Process Cell, El. –21’)	75	Dry Sump	30” Dia. x 18” Deep Stainless Steel	**24590-HLW** -M6-RLD-00015001 -P1-P01T-00001
HOP-SUMP-00003 H-B021 (SBS Drain Collection Cell 1, El. –21’)	75	Dry Sump	30” Dia. x 18” Deep Stainless Steel	**24590-HLW** -M6-RLD-00015001 -P1-P01T-00001
HOP-SUMP-00008 H-B005 (SBS Drain Collection Cell 2, El. –21’)	75	Dry Sump	30” Dia. x 18” Deep Stainless Steel	**24590-HLW** -M6-RLD-20004001 -P1-P01T-00001
HDH-SUMP-00001 H-B039B (Canister Rinse Tunnel, El. –16.5’)	75	Dry Sump	30” Dia. x 18” Deep Stainless Steel	**24590-HLW** -M6-RLD-00016001 -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 H-B039A (Canister Rinse Bogie Maintenance Room, El. –16')	75	Dry Sump	30" Dia. x 18" Deep Stainless Steel	**24590-HLW** -M6-RLD-00016001 -P1-P01T-00001
HDH-SUMP-00003 H-B035 (Canister Decon Cave, El. –16')	75	Dry Sump	30" Dia. x 18" Deep Stainless Steel	**24590-HLW** -M6-RLD-00004002 -P1-P01T-00001
HFP-SUMP-00002 H-0117 (Melter Cave 1, El. 5')	50	Dry Sump	20.5" x 20.5" x 16" Stainless Steel	**24590-HLW** -M6-RLD-00008002 -P1-P01T-00002
HFP-SUMP-00005 H-0106 (Melter Cave 2, El. 5')	50	Dry Sump	20.5" x 20.5" x 16" Stainless Steel	**24590-HLW** -M6-RLD- 20005001 -P1-P01T-00002
HSH-SUMP-00003 H-0117 (Melter Cave 1, El. 3')	50	Dry Sump	20.5" x 20.5" x 16" Stainless Steel	**24590-HLW** -M6-RLD-00008002 -P1-P01T-00002
HSH-SUMP-00007 H-0106 (Melter Cave 2, El. 3')	50	Dry Sump	20.5" x 20.5" x 16" Stainless Steel	**24590-HLW** -M6-RLD-20005001 -P1-P01T-00002
HSH-SUMP-00008 H-310A (Melter 1 Equip. Decon. Pit Area, El. 0')	50	Dry Sump	30" x 24" x 16" Stainless Steel	**24590-HLW** -M6-RLD-00003001 -P1-P01T-00002
HSH-SUMP-00009 H-0304A (Melter 2 Equip. Decon. Pit Area, El. 0')	50	Dry Sump	30" x 24" x 16" Stainless Steel	**24590-HLW** -M6-RLD-20003001 -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 H-0136 (Canister Handling Cave, El. -3')	75	Dry Sump	30" Dia. x 18" Deep Stainless Steel	**24590-HLW** -M6-RLD-00016001
HPH-SUMP-00005 H-0136 (Canister Handling Cave, El. -3')	75	Dry Sump	30" Dia. x 18" Deep Stainless Steel	**24590-HLW** -M6-RLD-00004001
HPH-SUMP-00003 H-B032 (Pour Tunnel 1, El. -21')	75	Dry Sump	30" Dia. x 18" Deep Stainless Steel	**24590-HLW** -M6-RLD-00016001
RLD-ZF-03330-S11B-03 H-B021 (SBS Drain Collection Cell 1)	N/A	N/A	Line Size Pipe Dia 3" 316L Stainless Steel	**24590-HLW** -M6-RLD-00015001
RLD-ZF-03447-S11B-03 H-B005 (SBS Drain Collection Cell 2)	N/A	N/A	Line Size Pipe Dia 3" 316L Stainless Steel	**24590-HLW** -M6-RLD-20004001
RLD-FD-0186 H-0308 (Melter 1 - Active Services Cell, El. 37')	N/A	N/A	Line Size Pipe Dia 6" Stainless Steel	**24590-HLW** -M6-RLD-00015001
RLD-FD-0187 H-0302 (Melter 2 - Active Services Cell, El. 37')	N/A	N/A	Line Size Pipe Dia 6" Stainless Steel	**24590-HLW** -M6-RLD-20004001
ASX Sampler 00028 Lower Containment Trough/Dam (H-0305A, El. 37')	N/A	N/A	3" Dia. Stainless Steel	**24590-HLW** -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. Stainless Steel	**24590-HLW** -M6-RLD-00002002
ASX Sampler 00042 Lower Containment Trough/Dam (H-0318, El. 37')	N/A	N/A	3" Dia. Stainless Steel	**24590-HLW** -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

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 ED-B001 Low-point drain vessel	DEP	**24590-BOF** -M5-V17T-00011 -M6-DEP-00001001 -M6-DEP-00001002 -MVD-DEP-00002 -N1D-DEP-00001 -P1-25-00001 -3PS-MVSC-T0002 24590-CM-POA-MVSC-00005-07-00001 (Sheet 3 of 23, Sheet 4 of 23)	Section 4G.2.1; Table 4G-1	18,000
DEP-VSL-00002 E-0105 Evaporator feed vessel	DEP	**24590-BOF** -M5-V17T-00011 -M6-DEP-00002002 -MVD-DEP-00003 -N1D-DEP-00002 -P1-25-00001 -3PS-MVSC-T0002 24590-CM-POA-MVSC-00005-07-00002 (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 E-0105 Evaporator feed vessel	DEP	**24590-BOF** -M5-V17T-00013 -M6-DEP-00005001 -MVD-DEP-00004 -N1D-DEP-00003 -P1-25-00001 -3PS-MVSC-T0002 24590-CM-POA-MVSC-00005-07-00003 (Sheet 3 of 18, Sheet 4 of 18)	Section 4G.2.3; Table 4G-1	14,900
DEP-VSL-00003B E-0105 Evaporator feed vessel	DEP	**24590-BOF** -M5-V17T-00013 -M6-DEP-00005002 -MVD-DEP-00004 -N1D-DEP-00003 -P1-25-00001 -3PS-MVSC-T0002 24590-CM-POA-MVSC-00005-07-00004 (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 E-0105 Evaporator feed vessel	DEP	**24590-BOF** -M5-V17T-00013 -M6-DEP-00005003 -MVD-DEP-00004 -N1D-DEP-00003 -P1-25-00001 -3PS-MVSC-T0002 24590-CM-POA-MVSC-00005-07-00005 (Sheet 3 of 18, Sheet 4 of 18)	Section 4G.2.3; Table 4G-1	14,900
DEP-VSL-00004A E-0106 Overhead sampling vessel	DEP	Reserved	Section 4G.2.4; Table 4G-1	40,800
DEP-VSL-00004B E-0106 Overhead sampling vessel	DEP	Reserved	Section 4G.2.4; Table 4G-1	40,800
DEP-VSL-00005A E-0106 Process condensate lag storage vessel	DEP	Reserved	Section 4G.2.5; Table 4G-1	127,260
DEP-VSL-00005B E-0106 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 E-0103 Evaporator feed pre-filter	DEP	**24590-BOF** -M5-V17T-00011 -M6-DEP-0002004 -P1-25-00001 -3PS-MLF0-T0002 24590-CM-POA-MLF0-00005-08-00001 24590-CM-POA-MLF0-00005-05-00004 (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 ED-B001	~58	Radio Frequency (RF) Capacitance	24 in. Dia. x 30 in. Length 304L SS	**24590-BOF** -M6-DEP-00001002
DEP-SUMP-00002A E-0103	~58	RF Capacitance	24 in. Dia. x 30 in. Length 304L SS	**24590-BOF** -M6-DEP-00009001
DEP-SUMP-00002B E-0103	~58	RF Capacitance	24 in. Dia. x 30 in. Length 304L SS	**24590-BOF** -M6-DEP-00009001
DEP-SUMP-00003A E-0102	~58	RF Capacitance	24 in. Dia. x 30 in. Length 304L SS	**24590-BOF** -M6-DEP-00009004
DEP-SUMP-00003B E-0102	~58	RF Capacitance	24 in. Dia. x 30 in. Length 304L SS	**24590-BOF** -M6-DEP-00009004
DEP-SUMP-00004A E-0105	~58	RF Capacitance	24 in. Dia. x 30 in. Length 304L SS	**24590-BOF** -M6-DEP-00009002
DEP-SUMP-00004B E-0105	~58	RF Capacitance	24 in. Dia. x 30 in. Length 304L SS	**24590-BOF** -M6-DEP-00009002
DEP-SUMP-00005A E-0106	~58	RF Capacitance	24 in. Dia. x 30 in. Length 304L SS	**24590-BOF** -M6-DEP-00009005
DEP-SUMP-00005B E-0106	~58	RF Capacitance	24 in. Dia. x 30 in. Length 304L SS	**24590-BOF** -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 ED-B001	~7	Conductivity Switch	8 in. Dia. x 41 in. Length 316L SS		**24590-BOF** -M6-DEP-00011001
DEP-LDB-00002 ED-B001	~7	Conductivity Switch	8 in. Dia. x 41 in. Length 316L SS		**24590-BOF** -M6-DEP-00011001
DEP-LDB-00003 ED-B001	~7	Conductivity Switch	8 in. Dia. x 41 in. Length 316L SS		**24590-BOF** -M6-DEP-00011001
DEP-LDB-00004 ED-B001	~7	Conductivity Switch	8 in. Dia. x 41 in. Length 316L SS		**24590-BOF** -M6-DEP-00011001
DEP-LDB-00005 ED-B001	~7	Conductivity Switch	8 in. Dia. x 41 in. Length 316L SS		**24590-BOF** -M6-DEP-00011001
DEP-LDB-00006 ED-B001	~7	Conductivity Switch	8 in. Dia. x 41 in. Length 316L SS		**24590-BOF** -M6-DEP-00011001
Drain Lines					
BOF-DEP-ZS-20282-W11A-011/02-01 ED-CH01	NA	NA	4 in. Dia. 316L SS	Containment pipe	**24590-BOF** -M6-DEP-00001001
			1 ½ in. Dia. AL6XN	Process pipe	
BOF-DEP-ZS-20236-W31A-02-01 ED-CH01	NA	NA	4 in. Dia. Carbon Steel	Containment pipe	**24590-BOF** -M6-DEP-00001001
			2 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-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 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.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-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-5; 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-5; 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-5; 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-5; 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-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
L-0115B Swabbing Area Line 1	21 × 15 × 24	RESERVED	Section 4E.3.2; Table 4E-5; 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-5; 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-5; 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-5; 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-5; 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-5; 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-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
LAW Pour Cave Containment Building		RESERVED	Section 4E.3.5; Table 4E-5; 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-5; 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-5; 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-5; 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-5; 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-5; 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-5; 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-5; 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-5; 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-5; 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: H-0117 Melter Cave 1 H-0116B Melter Cave 1 C3/C5 Airlock H-0310A Melter Cave 1 Equipment Decon Pit	 75 x 32 x 54 24 x 25 x 54 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: H-0106 Melter Cave 2 H-0105B Melter Cave 2 C3/C5 Airlock H-0304A Melter Cave 2 Equipment Decon Pit	75 x 32 x 54 24 x 25 x 54 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: H-0311A C3 Workshop H-0311B MSM Maintenance Workshop	19 x 30 x 22 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: H-0410B E&I Room H-0411 Waste Handling Room	17 x 20 x 10 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: H-0126A Crane Maintenance Room H-0126B Swabbing and Monitoring Room H-028 Cask Import/Export Room	15 x 20 x 31 30 x 18 x 31 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.

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 FEP-SEP-00001A (Waste Feed Evaporator Separator Vessel) FEP-SEP-00001B (Waste Feed Evaporator Separator Vessel)	FEP	**24590-PTF** -3PS-MEVV-T0001 -M5-V17T-00004001 -M5-V17T-00004002 -M6-FEP-00001001 -M6-FEP-00001002 -M6-FEP-00001003 -M6-FEP-00002001 -M6-FEP-00002002 -M6-FEP-00002003 -M6-FEP-00003001 -M6-FEP-00003002 -M6-FEP-00004001 -M6-FEP-00004002 -M6-FEP-00004003 -M6-FEP-00005001 -MVD-FEP-P0001 -MVD-FEP-P0002 -MVD-FEP-00003 -MVD-FEP-00006 -MVD-FEP-00007 -MV-FEP-P0001 -MV-FEP-P0002 -N1D-FEP-00002 -N1D-FEP-P0003 -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 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.) FEP-COND-00001A (Waste Evaporator Primary Condenser) FEP-COND-00001B (Waste Evaporator Primary Condenser) FEP-COND-00002A (Waste Evaporator Intercondenser) FEP-COND-00002B (Waste Evaporator Intercondenser) FEP-COND-00003A (Waste Evaporator Aftercondenser) FEP-COND-00003B (Waste Evaporator Aftercondenser)	FEP	**24590-PTF** -3PS-MEVV-T0001 -M5-V17T-00004001 -M5-V17T-00004002 -M6-FEP-00003002 -M6-FEP-00005001 -MED-FEP-P0003 -MED-FEP-P0004 -MED-FEP-P0005 -MED-FEP-P0006 -MED-FEP-P0007 -MED-FEP-P0008 -N1D-FEP-P0008 -N1D-FEP-00009 -N1D-FEP-00010 -P1-P01T-00001 -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.) FEP-RBLR-00001A (Waste Feed Evaporator Reboiler) FEP-RBLR-00001B (Waste Feed Evaporator Reboiler)	FEP	**24590-PTF** -3PS-MEVV-T0001 -M5-V17T-00004001 -M5-V17T-00004002 -MED-FEP-00010 -N1D-FEP-P0008 -P1-P01T-00001 -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 CNP-EVAP-00001 (Cesium Evaporator Separator Vessel)	CNP	**24590-PTF** -3PS-MEVV-T0002 -M5-V17T-00014 -M6-CNP-00001001 -M6-CNP-00001002 -M6-CNP-00001003 -M6-CNP-00002001 -M6-CNP-00002002 -M6-CNP-00002003 -M6-CNP-00008001 -M6-CNP-00008002 -M6-CNP-00010001 -M6-CNP-00010002 -MV-CNP-P0001 -MV-CNP-P0002 -MV-CNP-P0005 -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 -MVD-CNP-00006 -N1D-CNP-P0005 -N1D-CNP-P0006 -N1D-CNP-P0009 -N1D-CNP-P0011 -P1-P01T-00001 -P1-P01T-00002 -P1-P01T-00003 -P1-P01T-00004		
Cesium Nitric Acid Recovery Process System (Cont.) CNP-HX-00001 (Cesium Evaporator Concentrate Reboiler	CNP	**24590-PTF** -3PS-MEVV-T0002 -M5-V17T-P0014 -M6-CNP-00001001 -M6-CNP-00001002 -M6-CNP-00001003 -M6-CNP-00002001 -M6-CNP-00002002 -M6-CNP-00002003 -M6-CNP-00008 -MED-CNP-00003 -MED-CNP-00004 -MED-CNP-00010 -P1-P01T-00001 -P1-P01T-00002 -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.) CNP-DISTC-00001 (Cesium Evaporator Nitric Acid Rectifier Column)	CNP	**24590-PTF** -M5-V17T-00014 -M6-CNP-00010001 -N1D-CNP-00001 -P1-P01T-00003 -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.) CNP-HX-00002 (Cesium Evaporator Primary Condenser) CNP-HX-00003 (Cesium Evaporator Inter-Condenser) CNP-HX-00004 (Cesium Evaporator After-Condenser)	CNP	**24590-PTF** -M5-V17T-00014 -M6-CNP-00001001 -M6-CNP-00001002 -M6-CNP-00001003 -M6-CNP-00002001 -M6-CNP-00002002 -M6-CNP-00002003 -M6-CNP-00008001 -M6-CNP-00010001 -MED-CNP-00003 -MED-CNP-00004 -MED-CNP-00005 -MED-CNP-00010 -N1D-CNP-P0002 -N1D-CNP-P0003 -N1D-CNP-P0012 -P1-P01T-00001 -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 N/A 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 -P1-P01T-00004 -3PS-MEVV-T0002		
Treated LAW Evaporation Process System TLP-SEP-00001 (Treated LAW Evaporator Separator Vessel)	TLP	**24590-PTF** -3PS-MEVV-T0001 -M5-V17T-00005 -M6-TLP-00001 -M6-TLP-00002001 -M6-TLP-00002002 -M6-TLP-00002003 -M6-TLP-00002004 -M6-TLP-00003001 -M6-TLP-00003002 -M6-TLP-00003003 -M6-TLP-00003004 -M6-TLP-00005001 -M6-TLP-00005002 -M6-TLP-00005003 -M6-TLP-00005004 -M6-TLP-00005005 -M6-TLP-00006001 -M6-TLP-00006002 -M6-TLP-00006003 -M6-TLP-00006004 -M6-TLP-00006005 -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 -MVD-TLP-00004 -MVD-TLP-00005 -MV-TLP-P0001 -MV-TLP-P0002 -N1D-TLP-P0001 -N1D-TLP-P0005 -N1D-TLP-P0006 -P1-P01T-00001 -P1-P01T-00002 -P1-P01T-00003		
Treated LAW Evaporation Process System (Cont.) TLP-COND-00001 (Treated LAW Primary Condenser) TLP-COND-00002 (Treated LAW Inter-condenser) TLP-COND-00003 (Treated LAW After-condenser)	TLP	**24590-PTF** -3PS-MEVV-T0001 -M5-V17T-00005 -M6-TLP-00002001 -M6-TLP-00002002 -M6-TLP-00002003 -M6-TLP-00002004 -M6-TLP-00003001 -M6-TLP-00003002 -M6-TLP-00003003 -M6-TLP-00003004 -M6-TLP-00005001 -M6-TLP-00005002 -M6-TLP-00005003 -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 -M6-TLP-00006001 -M6-TLP-00006002 -M6-TLP-00006003 -M6-TLP-00006004 -M6-TLP-00006005 -MED-TLP-P0001 -MED-TLP-00002 -MED-TLP-00003 -MV-TLP-P0001 -MV-TLP-P0002 -N1D-TLP-P0002 -N1D-TLP-P0003 -P1-P01T-00001 -P1-P01T-00002 -P1-P01T-00003		
Treated LAW Evaporation Process System (Cont.) TLP-RBLR-00001 (Treated LAW Evaporator Reboiler)	TLP	**24590-PTF** -3PS-MEVV-T0001 -M5-V17T-00005 -MV-TLP-P0001 -MV-TLP-P0002 -N1D-TLP-P0011 -P1-P01T-00001 -P1-P01T-00002 -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 PIH-TTBL-00001 (Spray Decontamination Turntable) PIH-TTBL-00002 (Remote Repair Turntable PIH-BENCH-00003 (Size Reduction Table) 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 Hotcell Floor 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 PVP-SCB-00002 (Vessel Vent Caustic Scrubber)	PVP	**24590-PTF** -M5-V17T-00021001 -M5-V17T-00021004 -M6-PVP-00002 -M6-PVP-00017001 -M6-PVP-00017002 -M6-PVP-00017003 -M6-PWD-00044 -MKD-PVP-00002 -MVD-PVP-P0001 -MV-PVP-P0002 -N1D-PVP-P0001 -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.
Pretreatment Vessel Vent Process System (Cont.) PVP-HEME-00001A (Vessel Vent HEME, Mist eliminator) PVP-HEME-00001B (Vessel Vent HEME, Mist Eliminator) PVP-HEME-00001C (Vessel Vent HEME, Mist Eliminator)	PVP	**24590-PTF** -M5-V17T-00021001 -M5-V17T-00021004 -P1-P01T-00001 -P1-P01T-00002 -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.

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.) PVP-HX-00002 (Vessel Vent Scrubbing Liquid Cooler)	PVP	**24590-PTF** -M5-V17T-00021001 -M6-PVP-00017001 -M6-PVP-00017002 -M6-PVP-00017003 -P1-P01T-00002 -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.
Pretreatment Vessel Vent Process System (Cont.) PVP-OXID-00001 (Vessel Vent VOC Oxidizer Unit)	PVP	**24590-PTF** -M5-V17T-00021001 -M5-V17T-00021004 -M6-PVP-00017001 -M6-PVP-00017002 -M6-PVP-00017003 -M6-PVP-000018001 -M6-PVP-000018002 -N1D-PVP-P0002 -P1-P01T-00001 -P1-P01T-00002 -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.
Pretreatment Vessel Vent Process System (Cont.) PVP-CLR-00001 (Vessel Vent Aftercooler)	PVP	**24590-PTF** -M5-V17T-00021001 -M5-V17T-00021004 -P1-P01T-00001 -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 -P1-P01T-00004	
Pretreatment Vessel Vent Process System (Cont.) PVP-ADBR-00001A (Vessel Vent Carbon Bed Absorber) PVP-ADBR-00001B (Vessel Vent Carbon Bed Absorber)	PVP	**24590-PTF** -M5-V17T-00021001 -M5-V17T-00021004 -P1-P01T-00001 -P1-P01T-00002 -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.
Pretreatment Vessel Vent Process System (Cont.) PVP-FILT-00001 (Vessel Vent Adsorber Outlet Filter)	PVP	**24590-PTF** -M5-V17T-00021001 -M5-V17T-00021004 -P1-P01T-00002 -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 PVV-HEPA-00001A (Vessel Vent Primary HEPA Filter) PVV-HEPA-00001B (Vessel Vent Primary HEPA Filter) PVV-HEPA-00002A (Vessel Vent Secondary HEPA Filter)	PVV	**24590-PTF** -M5-V17T-00021001 -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.) PVV-FAN-00001A (Vessel Vent Exhaust Fan) PVV-FAN-00001B (Vessel Vent Exhaust Fan)	PVV	**24590-PTF** -M5-V17T-00021001 -M5-V17T-00021004 -P1-P01T-00002 -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.
Pretreatment Pulse Jet Mixer Exhaust Vent System PJV-HEPA-00001A (PJV Primary Exhaust HEPA Filter) PJV-HEPA-00001B (PJV Primary Exhaust HEPA Filter) PJV-HEPA-00001C (PJV Primary Exhaust HEPA Filter) PJV-HEPA-00001D (PJV Primary Exhaust HEPA Filter) PJV-HEPA-00001E (PJV Primary Exhaust HEPA Filter)	PJV	**24590-PTF** -M5-V17T-00021002 -M6-PJV-00001 -M6-PJV-00002 -M6-PJV-00004001 -N1D-PJV-P0001 -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) PJV-HEPA-00001G (PJV Primary Exhaust HEPA Filter) PJV-HEPA-00002A (PJV Secondary Exhaust HEPA Filter) PJV-HEPA-00002B (PJV Secondary Exhaust HEPA Filter) PJV-HEPA-00002C (PJV Secondary Exhaust HEPA Filter) PJV-HEPA-00002D (PJV Secondary Exhaust HEPA Filter) PJV-HEPA-00002E (PJV Secondary Exhaust HEPA Filter) 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.) PJV-FAN-00001A (PJV Exhaust Fan) PJV-FAN-00001B (PJV Exhaust Fan) PJV-FAN-00001C (PJV Exhaust Fan)	PJV	**24590-PTF** -M5-V17T-00021002 -M6-PJV-00001 -M6-PJV-00002 -M6-PJV-00004001 -N1D-PJV-P0001 -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.) PJV-DMST-00002A (PJV Demister) PJV-DMST-00002B (PJV Demister) PJV-DMST-00002C (PJV Demisters)	PJV	**24590-PTF** -M5-V17T-00021002 -M6-PJV-00001 -M6-PJV-00002 -M6-PJV-00004001 -N1D-PJV-P0001 -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" Stainless Steel	**24590-PTF** -M6-PVP-00017002
PVP-ZY-00036-S11B-03, P-0101A (PVP-BULGE-00002, El. 0')			3" Stainless Steel	**24590-PTF** -M6-PVP-00018002
PVP-ZY-00056-S11B-03, P-0302 (PVP-BULGE-00014, El. 56')			3" Stainless Steel	**24590-PTF** -M6-PVP-00017003
PWD-FD-00323P-0304 Drain, El. 56'	140	N/A	6" Dia 316L	**24590-PTF** -M6-PWD-00044
PWD-FD-00324 P-0304 Drain, El. 56'	140	N/A	6" Dia 316L	**24590-PTF** -M6-PWD-00044
PWD-FD-00325 P-0304 Drain, El. 56'	140	N/A	6" Dia 316L	**24590-PTF** -M6-PWD-00044
PWD-FD-00326 P-0304 Drain, El. 56'	140	N/A	6" Dia 316L	**24590-PTF** -M6-PWD-00044
PWD-FD-00327 P-0304 Drain, El. 56'	140	N/A	6" Dia 316L	**24590-PTF** -M6-PWD-00044
PWD-FD-00512 P-0320 Drain, El. 56'	140	N/A	6" Dia 316L	**24590-PTF** -M6-PWD-00043
PWD-FD-00513 P-0320 Drain, El. 56'	140	N/A	6" Dia 316L	**24590-PTF** -M6-PWD-00043
PWD-FD-00514 P-0320 Drain, El. 56'	140	N/A	6" Dia 316L	**24590-PTF** -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 P-0325 Drain, El. 56'	140	N/A	6" Dia 316L	**24590-PTF** -M6-PWD-00043
PWD-FD-00516 P-0325 Drain, El. 56'	140	N/A	6" Dia 316L	**24590-PTF** -M6-PWD-00043
PWD-FD-00517 P-0325 Drain, El. 56'	655	N/A	8" Dia 316L	**24590-PTF** -M6-PWD-00043
PWD-FD-00557 P-0430 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -M6-PWD-00043
PWD-FD-00561 P-0430 Drain, El. 77'	140	N/A	6" Dia 304L	**24590-PTF** -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 in Permit Table III.10.H.F.

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 and shutdown, 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 and shutdown, 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 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 systems, 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.

III.10.H.1.c.iii The Permittees will operate the AWFCO systems, 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 all instruments specified on Permit Table III.10.H.F for measuring the monitored parameter fail or exceed its span value.

III.10.H.1.c.iv The Permittees will operate the AWFCO systems, 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 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.H.1.c.v In the event of a malfunction of the AWFCO systems listed in Permit Table III.10.H.F, as approved/modified pursuant to Permit Condition III.10.H.5, 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 limits 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, combined, to the LAW Vitrification System occur due to deviations from 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 exceedance 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 the specified set points are deviated from while dangerous waste, 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.H.F, from which the set-point is deviated:

A. The parameter(s) that deviated from the set-point(s) in Permit Table III.10.H.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.H.1.c.viii 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.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 and shutdown, 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. 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
28.	L-0124	E	PD	01849
29.	L-0124	S	PD	01801
30.	L-0125	E	PD	01858
31.	L-0125	E	PD	01859

Table III.10.H.G – LAW Plant Penetration Seal Location

Row Number	Room Number	Orientation	Discipline	Sequence Number
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
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 LMP-MLTR-00001 (LAW Melter 1) LMP-MLTR-00002 (LAW Melter 2)	LMP	**24590-LAW** -CM-HC4-HXYG-00240-02-00014 -M0D-LMP-00001 -M0D-LMP-00002 -M6-LMP-00001001 -M6-LMP-00002001 -M6-LMP-00002002 -M6-LMP-00031001 -M6-LMP-00032001 -M6-LMP-00032002 -MF-LMP-00001 -MF-LMP-00002 -MF-LMP-00003 -MF-LMP-00004 -3PS-AE00-T0001 -3PN-LMP-00002 -N1D-LMP-00001 -P1-P01T-00002	Section 4E.2.2, Table 4E-2, and Figures 4A-1, 4A-3 and 4A-21 in Operating Unit Group 10, Chapter 4 of this Permit.
LAW Primary Offgas Process System LOP-FCLR-00001 (Melter 1 Primary Film Cooler) LOP-FCLR-00002 (Melter 1 Standby Film Cooler No. 2) LOP-FCLR-00003 (Melter 2 Primary Film Cooler)	LOP	**24590-LAW** -P1-P01T-00002 -M6-LOP-00004001 -M6-LOP-00004002 -M6-LOP-00005001 -M6-LOP-00005002	Section 4E.4.2.1, Table 4E-2, 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.) LOP-SCB-00001 (Melter 1 Submerged Bed Scrubber) LOP-SCB-00002 (Melter 2 Submergered Bed Scrubber)	LOP	**24590-LAW** -M5-V17T-P0007 -M5-V17T-P0008 -M6-LOP-00001001 -M6-LOP-00002001 -MK-LOP-P0001001 -MK-LOP-P0001002 -MK-LOP-P0001003 -MKD-LOP-00008 -NID-LOP-P0001 -P1-P01T-00002	Section 4E.4.2.1, Table 4E-2, and Figures 4A-1 and 4A-3 in Operating Unit Group 10, Chapter 4 of this Permit.
LAW Primary Offgas Process System (Cont.) LOP-WESP-00001 (Melter 1 Wet Electrostatic Precipitator – WESP) LOP-WESP-00002 (Melter 2 Wet Electrostatic Precipitator – WESP)	LOP	**24590-LAW** -M5-V17T-P0007 -M5-V17T-P0008 -M6-LOP-00001004 -M6-LOP-00002004 -NID-LOP-00003 -P1-P01T-00002 **24590-WTP** -3PS-MKE0-T0001 24590-QL-POA-MKE0-00001-06-32	Section 4E.4.2.1, Table 4E-2, 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 LVP-HEPA-00001A (Melter Offgas HEPA Filter) LVP-HEPA-00001B (Melter Offgas HEPA Filter) LVP-HEPA-00002A (Melter Offgas HEPA Filter) LVP-HEPA-00002B (Melter Offgas HEPA Filter) LVP-HEPA-00003A (Melter Offgas HEPA Filter)	LVP	**24590-LAW** -M5-V17T-00010 -M6-LVP-00001003 -P1-P01T-00005 24590-QL-POA-MKH0-00001-04-00148	Section 4E.4.2.2, Table 4E-2, Figures 4A-1 and 4A-3 in Operating Unit Group 10, Chapter 4 of this Permit.
LAW Secondary Offgas/Vessel Vent Process System (Cont.) LVP-SCO-00001 (Thermal Catalytic Oxidizer – located on LVP-SKID-00002)	LVP	**24590-LAW** -M6-LVP-00005002 24590-CD-POC-MBT0-00007-01-00353	Section 4E.4.2.2, Table 4E-2, Figures 4A-1 and 4A-3 in Operating Unit Group 10, Chapter 4 of this Permit.
LAW Secondary Offgas/Vessel Vent Process System (Cont.) LVP-SCR-00001 (NOx Selective Catalytic Reduction Unit – located on LVP-SKID-00002) LVP-HX-00001 (Catalytic Oxidizer Heat Exchanger – located on LVP-SKID-00002) LVP-HTR-00002 (Catalytic Oxidizer Electric Heater – located on LVP-SKID-00002)	LVP	**24590-LAW** -M6-LVP-00005002 24590-CD-POC-MBT0-00007-01-00353	Section 4E.4.2.2, Table 4E-2, 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.) LVP-ADBR-00001A (Offgas Mercury Adsorber – located on LVP-SKID-00001) LVP-ADBR-00001B (Offgas Mercury Adsorber – located on LVP-SKID-00001)	LVP	**24590-LAW** -M5-V17T-00011 -M6-LVP-00004001 -M6-LVP-00004002 -M6-LVP-00004003 -P1-P01T-00005 24590-QL-POA-MWK0-00001-05-00198	Section 4E.4.2.2, Table 4E-2, 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.) LVP-SCB-00001 (Melter Offgas Caustic Scrubber)	LVP	**24590-LAW** -P1-P01T-00005 -M6-LVP-00002001 -M6-LVP-00002002 **24590-QL-POA-MKAS** -00003-04-00050 -00003-04-00051 -00003-04-00052	Section 4E.4.2.2, Table 4E-2, 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.) LVP-HTR-00001A (Melter Offgas HEPA Preheater) LVP-HTR-00003A (Melter Offgas HEPA Preheater)	LVP	**24590-LAW** -M5-V17T-00010 -M6-LVP-00001002 -P1-P01T-00005 24590-CD-POA-MEE0-00003-03-00005	Section 4E.4.2.2, Table 4E-2, 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.) LVP-EXHR-00001A (Melter Offgas Exhauster) LVP-EXHR-00001B (Melter Offgas Exhauster) LVP-EXHR-00001C (Melter Offgas Exhauster)	LVP	**24590-LAW** -M5-V17T-00010 -M6-LVP-00001004 -M6-LVP-00001005 -M6-LVP-00001006 -M6-LVP-00002006 -P1-P01T-00005 24590-QL-POA-MACS-00007-06-00009	Section 4E.4.2.2, Table 4E-2, 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 L-0123 (Process Cell, El. +3')	37	30" Dia. x 12" deep Stainless Steel (6% Mo)	**24590-LAW** -M6-RLD-00003002 -P1-P01T-00002
RLD-SUMP-00030 L-0123 (Process Cell, El. +3')	37	30" Dia. x 12" deep Stainless Steel (6% Mo)	**24590-LAW** -M6-RLD-00003002 -P1-P01T-00002
RLD-SUMP-00031 L-0124 (Process Cell Sump, El. +3')	37	30" Dia. x 12" deep Stainless Steel (6% Mo)	**24590-LAW** -M6-RLD-00003002 -P1-P01T-00002
RLD-SUMP-00032 L-0124 (Process Cell, El. +3')	37	30" Dia. x 12" deep Stainless Steel (6% Mo)	**24590-LAW** -M6-RLD-00003002 -P1-P01T-00002
LOP-FD-00001 L-0123 (LOP-BULGE-00001 Drain El. +3')	N/A	2" Dia. 6% Mo	**24590-LAW** -M6-LOP-00001003
RLD-WS-20037-S11B-01 L-0123 (Melter 1 Encasement Assembly Drain, El. +3')	N/A	1" Dia. 316L	**24590-LAW** -M6-LMP-00012001
LOP-FD-00002 L-0124 (LOP-BULGE-00002 Drain, El. +3')	N/A	2" Dia. 6% Mo	**24590-LAW** -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 L-0124 (Melter 2 Encasement Assembly Drain, El. +3')	N/A	1" Dia. 316L	**24590-LAW** -M6-LMP-00042001
RLD-FD-00025 L-0304F (Curb Floor Drain for Caustic Scrubber, El. 48')	N/A	4" Dia. 316L	**24590-LAW** -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[c]
			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[c]
			Density Indicator	LMP-DI-2404	0-3 SpG				

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
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[c]
			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[c]
			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[c]
			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[c]
			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[c]	TBD[c]
			Level Transmitter	LMP-LT-1466					
			Level Indication	LMP-LI-1466B					

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
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 [c]	TBD [c]
			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 [c]	TBD [c]
			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 [c]	TBD [c]
			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					

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
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 [c]
			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 [c]
			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 [c]
			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 [c]
			Temperature Transmitter	LMP-TT-2293					

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
			Temperature Indicator	LMP-TI-2639, LMP-TI-2640					
21.	LMP-00001001 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 [c]
			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 [c]
			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 [c]
			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 [c]
			Temperature Transmitter	LOP-TT-2038					
			Temperature Indicator	LOP-TI-2038					

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
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 [c]
			Temperature Transmitter	LOP-TT-1047					
			Temperature Indicator	LOP-TI-1047					
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 [c]
			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 [c]
			Temperature Transmitter	LVP-TT-0104					
			Temperature Transmitter	LVP-TI-0104					

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
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 [c]
			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					
			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.

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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.

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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
• Lead	_

Table III.10.H.E – LAW Vitrification System Estimated Emission Rates

Analyte	Performance Standard
• 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

Footnotes:

NOTE: Maintenance, at a minimum, is in accordance with equipment manufacturer's recommendations. Dangerous and mixed waste treatment may continue during maintenance activities conducted with site-specific standard operating procedures, for a maximum of 24 hours after instrument malfunction/failure. Also, dangerous and mixed waste treatment may continue during calibrations and "blowback cycles" in accordance with manufacturer's recommendations.

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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.xi, 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 HMP-MLTR-00001 (HLW Melter 1) HMP-MLTR-00002 (HLW Melter 2)	HMP	-M6-HMP-00001001 -M6-HMP-00001002 -M6-HMP-00003001 -M6-HMP-00004001 -M6-HMP-00006001 -M6-HMP-00006002 -M6-HMP-00007001 -M6-HMP-00008001 -M6-HMP-00013002 -M6-HMP-00013003 -M6-HMP-20001001 -M6-HMP-20001002 -M6-HMP-20003001 -M6-HMP-20004001 -M6-HMP-20006001 -M6-HMP-20008001 -M6-HMP-20013002 -M6-HMP-20013003 -M5-V17T-P0002 -M5-V17T-P20002 -M0D-HMP-00001 -M0D-HMP-00002 -MF-HMP-00001 -MF-HMP-00002 -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 -P1-P01T-00002 -3PS-AE00-T0001	
Melter Offgas Treatment Process System HOP-FCLR-00001 (Melter 1 Offgas Film Cooler) HOP-FCLR-00002 (Melter 2 Offgas Film Cooler) HOP-FCLR-00003 (Melter 1 Standby Offgas Insert) HOP-FCLR-00004 (Melter 2 Standby Offgas Insert)	HOP	**24590-HLW** -M5-V17T-P0002 -M5-V17T-P20002 -M6-HMP-00002001 -M6-HMP-00002002 -M6-HMP-20002001 -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.) HOP-SCB-00001 (Melter 1 Submerged Bed Scrubber, SBS) HOP-SCB-00002 (Melter 2 Submerged Bed Scrubber, SBS)	HOP	**24590-HLW** -M5-V17T-P0003 -M5-V17T-P20003 -M6-HOP-00001001 -M6-HOP-00001002 -M6-HOP-00001003 -M6-HOP-20001001 -M6-HOP-20001002 -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 -MK-HOP-P0001001 -MK-HOP-P0001002 -MK-HOP-P0001003 -MK-HOP-P0001004 -N1D-HOP-P0010 -P1-P01T-00002 -3YD-HOP-00001[a] **24590-WTP** -3PS-MV00-T0001 -3PS-MV00-T0002 -3PS-MV00-T0003	
Melter Offgas Treatment Process System (Cont.) HOP-WESP-00001 (Melter 1 Wet Electrostatic Precipitator, WESP) HOP-WESP-00002 (Melter 2 Wet Electrostatic Precipitator, WESP)	HOP	**24590-HLW** -M5-V17T-P0003 -M5-V17T-P20003 -M6-HOP-00002 -M6-HOP-20002 -N1D-HOP-P0002 -P1-P01T-00004 -P1-P01T-00005 -3YD-HOP-00001[a] **24590-WTP** -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.) HOP-HEPA-00001A (Melter 1 Primary Offgas HEPA Filter) HOP-HEPA-00001B (Melter 1 Primary Offgas HEPA Filter) HOP-HEPA-00002A (Melter 1 Secondary Offgas HEPA Filter) HOP-HEPA-00002B (Melter 1 Secondary Offgas HEPA Filter) HOP-HEPA-00007A (Melter 2 Primary Offgas HEPA Filter) HOP-HEPA-00007B (Melter 2 Primary Offgas HEPA Filter) HOP-HEPA-00008A (Melter 2 Secondary Offgas HEPA Filter) HOP-HEPA-00008B (Melter 2 Secondary Offgas HEPA Filter)	HOP	**24590-HLW** -M5-V17T-P0003 -M5-V17T-P20003 -M6-HOP-00010 -M6-HOP-20010 -MAD-HOP-00010 -MAD-HOP-00011 -MAD-HOP-00012 -MAD-HOP-00013 -MAD-HOP-00014 -MAD-HOP-00015 -MAD-HOP-00016 -MAD-HOP-00017 -P1-P01T-00002 -3YD-HOP-00001[a] **24590-WTP** -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.) HOP-ADBR-00001A (Melter 1 Activated Carbon Adsorber – located on Activated Carbon Adsorber Skid HOP-ADBR-00001) HOP-ADBR-00001B (Melter 1 Activated Carbon Adsorber – located on Activated Carbon Adsorber Skid HOP-ADBR-00001) HOP-ADBR-00002A (Melter 2 Activated Carbon Adsorber – located on Activated Carbon Adsorber Skid HOP-ADBR-00002) HOP-ADBR-00002B (Melter 2 Activated Carbon Adsorber – located on Activated Carbon Adsorber Skid HOP-ADBR-00002)	HOP	**24590-HLW** -M5-V17T-00004 -M5-V17T-20004 -M6-HOP-00003001 -M6-HOP-00003002 -M6-HOP-20003001 -M6-HOP-20003002 -MVD-HOP-00015 -MVD-HOP-00016 -N1D-HOP-00003 -P1-P01T-00002 **24590-WTP** -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.) HOP-HEME-00001A (Melter 1 High Efficiency Mist Eliminator, HEME) HOP-HEME-00001B (Melter 1 High Efficiency Mist Eliminator, HEME) HOP-HEME-00002A (Melter 2 High Efficiency Mist Eliminator, HEME) HOP-HEME-00002B (Melter 2 High Efficiency Mist Eliminator, HEME)	HOP	**24590-HLW** -M5-V17T-P0003 -M5-V17T-P20003 -M6-HOP-00009001 -M6-HOP-00009002 -M6-HOP-20009001 -M6-HOP-20009002 -MVD-HOP-00007 -MV-HOP-P0002001 -MV-HOP-P0002002 -MV-HOP-P0002003 -N1D-HOP-P0001 -P1-P01T-00002 -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.) HOP-SCO-00001 (Thermal Catalytic Oxidizer – located on Catalyst SkidHOP-SKID-00005) HOP-SCO-00004 (Thermal Catalytic Oxidizer – located on Catalyst Skid HOP-SKID-00007)	HOP	**24590-HLW** -M5-V17T-00004 -M5-V17T-20004 -M6-HOP-00008001 -M6-HOP-00008002 -M6-HOP-00008003 -M6-HOP-20008001 -M6-HOP-20008002 -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 -N1D-HOP-00004 -NID-HOP-00005 -P1-P01T-00002 -3PS-MBTV-T0002 **24590-LAW** -3PS-MBTV-T0001	
Melter Offgas Treatment Process System (Cont.) HOP-SCR-00001 (NOx Selective Catalytic Reducer – located on Catalyst Skid HOP-SKID-00005) HOP-SCR-00002 (NOx Selective Catalytic Reducer – located on Catalyst Skid HOP-SKID-00007)	HOP	**24590-HLW** -M5-V17T-00004 -M5-V17T-20004 -M6-HOP-00008001 -M6-HOP-00008002 -M6-HOP-00008003 -M6-HOP-20008001 -M6-HOP-20008002 -M6-HOP-20008003 -MKD-HOP-00019 -N1D-HOP-00004 -N1D-HOP-00005 -P1-P01T-00002 -3PS-MBTV-T0002 **24590-LAW** -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.) HOP-HX-00001 (Catalyst Skid Preheater – located on Catalyst Skid HOP-SKID-00005) HOP-HX-00003 (Catalyst Skid Preheater – located on Catalyst Skid HOP-SKID-00007)	HOP	**24590-HLW** -M5-V17T-00004 -M5-V17T-20004 -M6-HOP-00008001 -M6-HOP-00008002 -M6-HOP-00008003 -M6-HOP-20008001 -M6-HOP-20008002 -M6-HOP-20008003 -MKD-HOP-00019 -N1D-HOP-00008 -P1-P01T-P0002 -3PS-MBTV-T0002 **24590-LAW** -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.) HOP-HTR-00001 (Catalyst Skid Electric Heater – located on Catalyst Skid HOP-SKID-00005) HOP-HTR-00007 (Catalyst Skid Electric Heaters – located on Catalyst Skid HOP-SKID-00007)	HOP	**24590-HLW** -M5-V17T-00004 -M5-V17T-20004 -M6-HOP-00008001 -M6-HOP-00008002 -M6-HOP-00008003 -M6-HOP-20008001 -M6-HOP-20008002 -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 -P1-P01T-00002 -3PS-MBTV-T0002 -N1D-HOP-00011 **24590-LAW** -3PS-MBTV-T0001	
Melter Offgas Treatment Process System (Cont.) HOP-ABS-00002 (Silver Mordenite Column) HOP-ABS-00003 (Silver Mordenite Column)	HOP	**24590-HLW** -M5-V17T-00004 -M5-V17T-20004 -M6-HOP-00008001 -M6-HOP-00008002 -M6-HOP-00008003 -M6-HOP-20008001 -M6-HOP-20008002 -M6-HOP-20008003 -MKD-HOP-00014 -MKD-HOP-00017 -NID-HOP-P0006 -P1-P01T-00001 -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.) HOP-HTR-00001B (HEPA Preheater) HOP-HTR-00002A (HEPA Preheater) HOP-HTR-00005A (HEPA Preheater) HOP-HTR-00005B (HEPA Preheater)	HOP	**24590-HLW** -M5-V17T-P0003 -M5-V17T-P20003 -M6-HOP-00010 -M6-HOP-20010 -MED-HOP-00013 -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.) HOP-HX-00002 (Silver Mordenite Preheater) HOP-HX-00004 (Silver Mordenite Preheater)	HOP	**24590-HLW** -M5-V17T-00004 -M5-V17T-20004 -M6-HOP-00003001 -M6-HOP-00003002 -M6-HOP-20003001 -M6-HOP-20003002 -N1D-HOP-00007 -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.) HOP-FAN-00001A (Booster Extraction Fan) HOP-FAN-00001B (Booster Extraction Fan) HOP-FAN-00001C (Booster Extraction Fan) HOP-FAN-00009A (Booster Extraction Fan) HOP-FAN-00009B (Booster Extraction Fan) HOP-FAN-00009C (Booster Extraction Fan)	HOP	**24590-HLW** -M5-V17T-00004 -M5-V17T-20004 -M6-HOP-00003001 -M6-HOP-00003002 -M6-HOP-20003001 -M6-HOP-20003002 -MAD-HOP-00018 -P1-P01T-00001 **24590-WTP** -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.) HOP-FAN-00008A (Stack Extraction Fan) HOP-FAN-00008B (Stack Extraction Fan)	HOP	**24590-HLW** -M5-V17T-00004 -M5-V17T-20004 -M6-HOP-00008001 -M6-HOP-00008002 -M6-HOP-00008003 -M6-HOP-20008001 -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) HOP-FAN-000010A (Stack Extraction Fan) HOP-FAN-000010B (Stack Extraction Fan) HOP-FAN-000010C (Stack Extraction Fan)		-M6-HOP-20008003 -MAD-HOP-00038 -P1-P01T-00005 **24590-WTP** -3PS-MACS-T0004	
Melter Offgas Treatment Process System (Cont.) HLW Stack	HOP	**24590-HLW** -M5-V17T-00004 -M5-V17T-20004 -M6-HOP-00008001 -M6-HOP-00008002 -M6-HOP-00008003 -M6-HOP-20008001 -M6-HOP-20008002 -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 PJV-HTR-00002 (Pulse Jet Ventilation HEPA Electric Preheater)	PJV	**24590-HLW** -M6-PJV-00001001 -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)) PJV-HEPA-00005B (PJV System HEPA Filter (Standby Secondary)) PJV-HEPA-00004A (PJV System HEPA Filter (Primary)) PJV-HEPA-00005A (PJV System HEPA Filter (Secondary)) PJV-FAN-00002A (Pulse Jet Vent Extraction Fan) PJV-FAN-00002B (Pulse Jet Vent Extraction Fan)			
Process Vessel Vent Extraction System PVV system contains ancillary equipment only.	PVV	**24590-HLW** -M6-PVV-00001 -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).

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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)* Or (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)* Or (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 (LI-0816A Or LI-0816B)**	TBD	TBD	TBD	TBD	TBD
24590-HLW-M6-HMP-00007001	Melter 1 West Discharge Air Lift	TBD	YC-0761 YV-0761	TBD	TBD	TBD	TBD	TBD
24590-HLW-M6-HMP-0000800124590-HLW-M6-HMP-00008002	Melter 1 East canister level	TBD	LT-0820 (LI-0820A Or 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 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 (LI-2816A Or LI-2816B)**	TBD	TBD	TBD	TBD	TBD
24590-HLW-M6-HMP-20007001	Melter 2 West Discharge Air Lift	TBD	YC-2761 YV-2761	TBD	TBD	TBD	TBD	TBD
24590-HLW-M6-HMP-2000800124590-HLW-M6-HMP-20008002	Melter 2 East canister level	TBD	LT-2820 (LI-2820A Or LI-2820B)**	TBD	TBD	TBD	TBD	TBD
24590-HLW-M6-HMP-20006001	Melter 2 East Discharge Air Lift	TBD	YC-2664 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.

1

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).

2

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.

3

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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) E-0102	DEP	**24590-BOF** -M5-V17T-00012 -M6-DEP-00003004 -MED-DEP-00004 -N1D-DEP-00007 -P1-25-00001 -3PS-MEVV-T0001 24590-CM-POA-MEVV-00003-05-00001 (Sheet 2 of 3, Sheet 3 of 3)	4G.3.2; Table 4G-2	NA
DEP-COND-00002 (Evaporator Inter-Condenser) E-0102	DEP	**24590-BOF** -M5-V17T-00012 -M6-DEP-00003004 -MED-DEP-00005 -N1D-DEP-00007 -P1-25-00001 24590-CM-POA-ME00-00003-04-00004 (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) E-0102	DEP	**24590-BOF** -M5-V17T-00012 -M6-DEP-00003004 -MED-DEP-00006 -N1D-DEP-00007 -P1-25-00001 24590-CM-POA-ME00-00003-04-00001 (Sheet 2 of 3, Sheet 3 of 3)	4G.3.4; Table 4G-2	NA
DEP-EVAP-00001 (Evaporator Separator Vessel) E-0103	DEP	**24590-BOF** -M5-V17T-00012 -M6-DEP-00003001 -MVD-DEP-00009 -N1D-DEP-00010 -P1-25-00001 -3PS-MEVV-T0001 24590-CM-POA-MEVV-00003-05-00002 (Sheet 2 of 6, Sheet 5 of 6)	4G.3.4; Table 4G-2	3,544
DVP-HTR-00001A (Process Ventilation Preheater) E-0102	DEP	Reserved	4G; Table 4G-2	NA
DVP-HTR-00001B (Process Ventilation Preheater) 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) E-0102A	DEP	Reserved	4G; Table 4G-2	NA
DVP-HEPA-00003B (Process Ventilation Primary HEPA Filter) E-0102A	DEP	Reserved	4G; Table 4G-2	NA
DVP-HEPA-00004A (Process Ventilation Secondary HEPA Filters) E-0102A	DEP	Reserved	4G; Table 4G-2	NA
DVP-HEPA-00004B (Process Ventilation Secondary HEPA Filters) E-0102A	DEP	Reserved	4G; Table 4G-2	NA
DEP-HX-00001 (Evaporator Concentrate/Feed Vessels LAW Effluent Cooler) E-0103	DEP	**24590-BOF** -M5-V17T-00013 -M6-DEP-00002006 -MED-DEP-00001 -N1D-DEP-00008 -P1-25-00001 -3PS-MEP0-T0001 24590-CM-POA-MEP0-00006-04-00004 (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) E-0103	DEP	**24590-BOF** -M5-V17T-00012 -M6-DEP-00003002 -MBD-DEP-00001 -N1D-DEP-00009 -P1-25-00001 -3PS-MEVV-T0001 24590-CM-POA-MEVV-00003-05-00003 (Sheet 2 of 4, Sheet 3 of 4)	4G.3.9; Table 4G-2	NA
DVP-EXHR-00001A (Process Ventilation Exhausters) E-0102	DEP	Reserved	4G; Table 4G-2	NA
DVP-EXHR-00001B (Process Ventilation Exhausters) E-0102	DEP	Reserved	4G; Table 4G-2	NA

1

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Dangerous Waste Permit Application Part A Form

Date Received	Reviewed by:	Date:
Month Day Year	Approved by:	Date:
03 28 2019		

06	03	2019
07	01	2019

I. This form is submitted to: (place an "X" in the appropriate box)

☒	Request modification to a final status permit (commonly called a "Part B" permit)	
☐	Request a change under interim status	
☐	Apply for a final status permit. This includes the application for the initial final status permit for a site or for a permit renewal (i.e., a new permit to replace an expiring permit).	
☐	Establish interim status because of the wastes newly regulated on:	(Date)
	List waste codes:	

II. EPA/State ID Number

W	A	7	8	9	0	0	0	8	9	6	7

III. Name of Facility

US Department of Energy – Hanford Facility

IV. Facility Location (Physical address not P.O. Box or Route Number)

A. Street

Refer to Permit Attachment 2 – Hanford Facility Permit Legal Description

City or Town	State	ZIP Code
Near Richland	WA	

County Code (if known)	County Name
005	Benton

B. Land Type	C. Geographic Location Latitude (degrees, mins, secs)	Longitude (degrees, mins, secs)	D. Facility Existence Date Month Day Year
F	Refer to TOPO Map (Section XV.)		11 19 1980

V. Facility Mailing Address

Street or P.O. Box		
P.O. Box 450		
City or Town	**State**	**ZIP Code**
Richland	WA	99352

VI. Facility contact (Person to be contacted regarding waste activities at facility)		
Name (last)	**(first)**	
Vance	Brian	
Job Title	**Phone Number (area code and number)**	
Manager	(509) 372-2315	
Contact Address		
Street or P.O. Box		
P.O. Box 450		
City or Town	**State**	**ZIP Code**
Richland	WA	99352

VII. Facility Operator Information		
A. Name	**Phone Number (area code and number)**	
Department of Energy Owner/Operator Bechtel National, Inc. Co-Operator for WTP*	(509) 372-2315 (509) 371-2220*	
Street or P.O. Box		
P.O. Box 450 2435 Stevens Center Place *		
City or Town	**State**	**ZIP Code**
Richland	WA	99352 99354*
B. Operator Type F		
C. Does the name in VII.A reflect a proposed change in operator?	☐ Yes ☒ No	
If yes, provide the scheduled date for the change:	**Month**	**Day** / **Year**
D. Is the name listed in VII.A. also the owner? If yes, skip to Section VIII.C.	☐ Yes ☒ No	

Footnote From Section VII

* Asterisk indicates information for Bechtel National, Inc., the Co-Operator for WTP

VIII. Facility Owner Information		
A. Name	**Phone Number (area code and number)**	
U.S. Department of Energy Owner/Operator	(509) 372-2315	
Street or P.O. Box		
P.O. Box 450		
City or Town	**State**	**ZIP Code**
Richland	WA	99352
B. Owner Type F		
C. Does the name in VIII.A reflect a proposed change in owner?	☐ Yes ☒ No	
If yes, provide the scheduled date for the change:	**Month**	**Day** / **Year**

IX. NAICS Codes (5/6 digit codes)													
A. First							**B. Second**						
5	6	2	2	1	1	Waste Treatment & Disposal	9	2	4	1	1	0	Administration of Air & Water Resource & Solid Waste Management Programs

X. Other Environmental Permits (see instructions)														
A. Permit Type			B. Permit Number											C. Description
	E		N	O	C		I	D		1	0	4	3		WAC 246-247, NOC Approval Rad Air (EMF)
	E		N	O	C		I	D		1	0	4	4		WAC 246-247, NOC Approval Rad Air (Unit 557)
	E		N	O	C		I	D		1	0	4	5		WAC 246-247, NOC Approval Rad Air (Unit 558)
	E		N	O	C		I	D		1	0	4	6		WAC 246-247, NOC Approval Rad Air (Unit 559)
	E		N	O	C		I	D		1	0	4	7		WAC 246-247, NOC Approval Rad Air (Unit 754)
	E		N	O	C		I	D		1	0	4	8		WAC 246-247, NOC Approval Rad Air (Unit 553)
	E		N	O	C		I	D		1	0	4	9		WAC 246-247, NOC Approval Rad Air (Unit 554)
	E		N	O	C		I	D		1	0	5	0		WAC 246-247, NOC Approval Rad Air (Unit 555)
	E		N	O	C		I	D		1	0	5	1		WAC 246-247, NOC Approval Rad Air (Unit 753)
	E		N	O	C		I	D		1	0	5	2		WAC 246-247, NOC Approval Rad Air (Unit 551)
	E		N	O	C		I	D		1	0	5	3		WAC 246-247, NOC Approval Rad Air (Unit 552)
	E		N	O	C		I	D		1	0	5	4		WAC 246-247, NOC Approval Rad Air (Unit 548)
	E		N	O	C		I	D		1	0	5	5		WAC 246-247, NOC Approval Rad Air (Unit 549)
	E		N	O	C		I	D		1	0	5	6		WAC 246-247, NOC Approval Rad Air (Unit 550)
	E		N	O	C		I	D		1	0	5	7		WAC 246-247, NOC Approval Rad Air (Unit 547)
	E		N	O	C		I	D		1	0	5	8		WAC 246-247, NOC Approval Rad Air (Unit 544)
	E		N	O	C		I	D		1	0	5	9		WAC 246-247, NOC Approval Rad Air (Unit 545)
	E		N	O	C		I	D		1	0	6	0		WAC 246-247, NOC Approval Rad Air (Unit 546)
	E		N	O	C		I	D		1	0	6	1		WAC 246-247, NOC Approval Rad Air (Unit 534)
	E		N	O	C		I	D		1	0	6	2		WAC 246-247, NOC Approval Rad Air (Unit 543)
	E		N	O	C		I	D		9	4	7			WAC 246-247, NOC Approval Rad Air (Unplanned)
	E		D	E	1	6	N	W	P	-	0	0	3		WAC 173-400/-460, Non-Radiactive Air Approval
	E		D	E	0	1	N	W	P	-	0	0	3		WAC 173-400/-460, Non-Radioactive Air Approval
	E		D	E	0	2	N	W	P	-	0	0	2		WAC 173-400/-460, Non-Radioactive Air Approval
	E		D	E	0	7	N	W	P	-	0	0	4		WAC 173-400-/460, Non-Radioactive Air Approval
	P		P	S	D	-	0	2	-	0	1				WAC 173-400 Prevention of Significant Deterioration
	E		A	O	P	0	0	-	0	5	-	0	0	6	WAC 173-401, Hanford Site Air Operating Permit
	E		W	A	G	-	5	0	-	5	1	8	0		WAC 173-220/-216, Sand and Gravel General Permit
	E		W	A	G	-	5	0	-	5	1	8	1		WAC 173-220/-216, Sand and Gravel General Permit
	E		S	T	0	0	0	4	5	1	1				WAC 173-216, State Waste Discharge Permit
	E		H	A	N	0	0	9							WAC 246-272A, Large On-Site Sewage Systems
	E		H	A	N	0	1	3							WAC 246-272B, Large On-Site Sewage Systems
	E		T	S	C	A	2	0	0	0	0	8	3	1	40 CFR 761.61(c) TSCA approval Dated August 31, 2000.

XI. Nature of Business (provide a brief description that includes both dangerous waste and non-dangerous waste areas and activities)

Bechtel National Inc. (BNI) is in the process of constructing the Waste Treatment Immobilization Plant (WTP); the WTP is permitted as Operating Group 10 under the Dangerous Waste Permit (DWP) Number WA7890008967. Currently, six (6) major facilities are being designed and constructed; the Low-Activity Waste (LAW) Facility, the High-Level Waste (HLW) Facility, the Pretreatment (PT) Facility, the Laboratory (Lab) Facility, the Balance of Facilities (BOF), and the Effluent Management Facility (EMF). During dangerous waste management operations, the WTP will chemically separate, treat, and immobilize radioactive and dangerous (mixed) waste through vitrification.

During mixed waste treatment operations, WTP will utilize two separate configurations. The first configuration, known as the Direct Feed LAW configuration, will allow mixed waste to be transferred directly from the Low-Activity Waste Pretreatment System (LAWPS) to the LAW Facility, bypassing the PT Facility. The low-activity waste will then be treated in the LAW Facility using the vitrification process. Effluents generated during the process will be treated in the EMF. In the second configuration, known as the baseline configuration, tank waste will be sent directly from the Tank Farms to the PT Facility. The mixed waste will then be pretreated and sent to either the HLW Facility or the LAW Facility, depending on the waste characterization. In both configurations, waste will be characterized prior to receipt at the WTP. The waste will only be transferred to WTP if it meets WTP's waste acceptance criteria. While operating in the Direct Feed LAW configuration, WTP will not accept and/or treat mixed waste that carries the D001 (ignitable) waste code and/or the D003 (reactive) waste code. While operating in the baseline configuration, WTP may accept mixed waste that carries the D001 (ignitable) waste code and/or the D003 (reactive) waste code. Once waste has been received, process knowledge will be used to remove the D001 and D003 waste codes. Waste initially characterized as reactive and/or ignatible will only be stored in dangerous waste management units designed for these waste codes.

Process Codes S01, S02, S06, T01, T04, and X99 utilized in Sections XII and XIII are described below.

(S01)

At the WTP, a total of seven (7) container storage areas are permitted to store the dangerous/mixed waste in containers. Three (3) of the areas will be located in the HLW Facility, one (1) area will be located in the Lab, and three (3) areas are considered part of the BOF. The dangerous or mixed waste generated at the EMF and the LAW Facility will be managed in 90-day accumulation areas and satellite accumulation areas pursuant to the generator requirements (WAC-173-303-200) or may be transferred to the permitted WTP waste storage area. The Transportation Staging Area is also permitted for the staging (storage) of ILAW transporters with full ILAW containers ready to ship to the Integrated Disposal Facility (IDF) for disposal.
The 1,361,290 gallon Process Design Capacity for S01 listed in Section XII was calculated by multiplying the maximum surface area of all permitted container storage areas by the maximum waste container heights.

(S02)

A total of ninety-seven (97) tanks will be permitted to store dangerous/mixed waste. The PT Facility will have fifty-nine (59) tanks permitted to store dangerous/mixed waste; the LAW Facility will have twelve (12) tanks permitted to store dangerous/mixed waste; the HLW Facility will have fifteen (15) tanks permitted to store dangerous/mixed waste, the EMF will have nine (9) tanks permitted to store dangerous/mixed waste, and the Lab will have two (2) tanks permitted to store and/or treat dangerous/mixed waste.

The 5,717,000 gallon, which includes the EMF tank volume, Process Design Capacity for S02 in Section XII was calculated by summing up the total tank volumes. The total tank volumes are nominal and do not account for manufacturing tolerances, nozzles, and displacement of internals.

The nine (9) Direct Feed LAW Effluent Management Facility Process System (DEP) tanks/vessels that will be permitted for storage, and corresponding rooms are:

- DEP-VSL-00001-Low-point drain vessel (ED-8001)
- DEP-VSL-00002-Evaporator feed vessel (E-0105)
- DEP-VSL-00003A-Evaporator concentrate vessel (E-0105)

- DEP-VSL-00003B-Evaporator concentrate vessel (E-0105)
- DEP-VSL-00003C- Evaporator concentrate vessel (E-0105)
- DEP-VSL-00004A- Overhead sampling vessel (E-0106)
- DEP-VSL-00004B- Overhead sampling vessel (E-0106)
- DEP-VSL-00005A- Process condensate lag storage vessel (E-0106)
- DEP-VSL-00005B- Process condensate lag storage vessel (E-0106)

(S06)

A total of twenty-two (22) containment building areas are permitted to store dangerous/mixed waste at the WTP. The PT Facility will have five (5) areas permitted to store dangerous/mixed waste , the LAW Facility will have six (6) areas permitted to store dangerous/mixed waste , and the HLW Facility will have ten (10) areas permitted to store dangerous/mixed waste. EMF will not have any containment building areas.

The 712 cubic meters of containment building storage capacity for Process Design Code S06 in Section XII represents the maximum volume of dangerous/mixed waste that can be stored in all containment buildings which includes:

- areas where filled IHLW canisters (65.33 m^3) and ILAW containers (109.42 m^3) are cooled and stored,
- areas where failed melters are temporarily stored (LAW 299.38 m^3) (HLW 121.94 m^3),
- areas where secondary wastes such as containers, uncontainerized process equipment, and various other items awaiting decontamination, treatment or repackaging are stored (115.8 m^3).

(T01)

A total of ninety-seven (97) tank treatment units will be permitted to treat dangerous/mixed waste at the WTP.

The 9,000 gal/day Process Design Capacity for the T01 process code in Section XII was calculated using the baseline configuration using the volumetric flow from Tank Farms. The waste is received and separated at the Pretreatment Facility before it is sent to either the HLW Facility (0.17 ft^3/min) or LAW Facility (0.64 ft^3/min) for vitrification. The volumetric flow is calculated by adding the feed rate for HLW feed and LAW feed and converting the rate to gallons per day.

The nine (9) Direct Feed LAW Effluent Management Facility Process System (DEP) tanks/vessels that will be permitted for treatment, and corresponding rooms are:

- DEP-VSL-00001-Low-point drain vessel (ED-8001)
- DEP-VSL-00002-Evaporator feed vessel (E-0105)
- DEP-VSL-00003A-Evaporator concentrate vessel (E-0105)
- DEP-VSL-00003B-Evaporator concentrate vessel (E-0105)
- DEP-VSL-00003C- Evaporator concentrate vessel (E-0105)
- DEP-VSL-00004A- Overhead sampling vessel (E-0106)
- DEP-VSL-00004B- Overhead sampling vessel (E-0106)
- DEP-VSL-00005A- Process condensate lag storage vessel (E-0106)
- DEP-VSL-00005B- Process condensate lag storage vessel (E-0106)

Although the nine EMF tanks were added as treatment units to the Process Total Number of Units in Section XII, the tanks are not considered in the Process Design Capacity, as the baseline configuration is considered to be a bounding scenario for tank treatment in WTP operations.

(T04)

A total of four (4) treatment units will be used to treat mixed waste through vitrification. The LAW Facility will have two (2) tanks (melters) and the HLW Facility will have (2) tanks (melters) permitted to treat the mixed waste via vitrification.

The 21,000 gal/day Process Design Capacity for T04 in Sections XII and XIII is based on the maximum rate that waste can be treated in all melters. The Process Design Capacity is additive and equal to the maximum volumetric flow into the LAW melters (1.52 ft^3/min) and HLW melters (0.42ft^3/min) after glass formers are added. The combined volumetric flow is calculated by adding the flow rates of 1.52 ft^3/min and 0.42 ft^3/min then converting the rate to gallons per day for a total value of 20,898 gal/day rounded to 21,000 gal/day. The EMF will not have any treatment units.

(X99)

A total of eighteen (18) miscellaneous units (MUs) will be permitted to manage the dangerous/mixed waste in EMF. These units are comprised of six (6) units involved in waste evaporation, four (4) filtration units, and eight (8) units associated with the vessel vent system.

The 600 gal/hour Process Design Capacity for the units involved in evaporation addressed under X99 in Sections XII and XIII is based on a maximum inflow feed rate of 10 gal/min multiplied by 60 min/hr for a feed rate of 600 gal/hr.

The six (6) units involved in waste evaporation that will be permitted, and corresponding rooms are:

- DEP-HX-00001- Evaporator concentrate/feed vessels LAW effluent cooler (E-0103)
- DEP-EVAP-00001-DEP Evaporator separator vessel (E-0103)
- DEP-COND-00001-DEP Evaporator primary condenser (E-0102)
- DEP-COND-00002-DEP Evaporator inter-condenser (E-0102)
- DEP-COND-00003- DEP Evaporator after-condenser (E-0102)
- DEP-RBLR-00001- DEP Evaporator reboiler (E-0103)

The 9,720 gallons/hr Process Design Capacity for units involved in filtration in Sections XII and XIII is based on the highest designed flowrate capacity of the filters, which is 162 gal/min for the DEP evaporator feed prefilter (DEP-FILT-00003) multiplied by 60 min/hr for a flowrate capacity of 9,720 gal/hr.

The four (4) filtration system units that will be permitted, and corresponding rooms are:

- DEP-FILT-00002-DEP Process condensate filter (E-0103)
- DEP-FILT-00003-DEP Evaporator feed prefilter (E-0103)
- DEP-FILT-00004A-DEP Condensate duplex cartridge filter (E-0102)
- DEP-FILT-00004B-DEP Condensate duplex cartridge filter (E0102)

The remaining eight (8) MUs are managed under the WTP air permits listed in Section X. These MUs associated with the Direct Feed LAW Effluent Management Facility Vessel Vent System (DVP), and corresponding rooms are:

- DVP-HEPA-00003A- Process ventilation primary HEPA filters (E-0102A)
- DVP-HEPA-00003B- Process ventilation primary HEPA filters (E-0102A)
- DVP-HEPA-00004A-Process ventilation secondary HEPA filters (E-0102A)
- DVP-HEPA-00004B- Process ventilation secondary HEPA filters (E-0102A)
- DVP-EXHR-00001A- Process ventilation exhausters (E-0102)
- DVP-EXHR-00001B- Process ventilation exhausters (E-0102)
- DVP-HTR-00001A- Process ventilation preheater (E-0102)
- DVP-HTR-00001B- Process ventilation preheater (E-0102)

Process Codes

S01 = Storage in containers
S02 = Tank storage
S06 = Containment building storage
T01 = Tank treatment
T04 = Other treatment (vitrification)
X99= Other Processes

EXAMPLE FOR COMPLETING ITEMS XII and XIII (shown in lines numbered X-1, X-2, and X-3 below): A facility has two storage tanks that hold 1200 gallons and 400 gallons respectively. There is also treatment in tanks at 20 gallons/hr. Finally, a one-quarter acre area that is two meters deep will undergo *in situ vitrification.*

Section XII. Process Codes and Design Capacities								Section XIII. Other Process Codes								
Line Number		A. Process Codes (enter code)			B. Process Design Capacity 1. Amount	B. Process Design Capacity 2. Unit of Measure (enter code)	C. Process Total Number of Units	Line Number		A. Process Codes (enter code)			B Process Design Capacity 1. Amount	B Process Design Capacity 2. Unit of Measure (enter code)	C. Process Total Number of Units	D. Process Description
X	1	S	0	2	1,600	G	002	X	1	T	0	4	700	C	001	In situ vitrification
X	2	T	0	3	20	E	001									
X	3	T	0	4	700	C	001									
	1	S	0	1	1,361,290	G	006		1	T	0	4	21,000	U	004	Vitrification
	2	S	0	2	5,717,000	G	097		2	X	9	9	600	E	006	Evaporation
	3	S	0	6	712	C	021		5	X	9	9	9,720	E	004	Filtration
	4	T	0	1	9,000	U	097									
	5	T	0	4	21,000	U	004									
	6	X	9	9	600	E	006									
	7	X	9	9	9,720	E	004									

XIV. Description of Dangerous Wastes

Example for completing this section: A facility will receive three non-listed wastes, then store and treat them on-site. Two wastes are corrosive only, with the facility receiving and storing the wastes in containers. There will be about 200 pounds per year of each of these two wastes, which will be neutralized in a tank. The other waste is corrosive and ignitable and will be neutralized then blended into hazardous waste fuel. There will be about 100 pounds per year of that waste, which will be received in bulk and put into tanks.

Line Number			A. Dangerous Waste No. (enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)	D. Processes (1) Process Codes (enter)									D. Processes (2) Process Description [If a code is not entered in D (1)]
X	1		D	0	0	2	400	P	S	0	1	T	0	1				
X	2		D	0	0	1	100	P	S	0	2	T	0	1				
X	3		D	0	0	2												Included with above
		1	D	0	0	1	16,300	T	S	0	2							
		2	D	0	0	2		T	S	0	2	T	0	1				Included with above
		3	D	0	0	3		T	S	0	2							Included with above
		4	D	0	0	4		T	S	0	2	T	0	1				Included with above
		5	D	0	0	5		T										Included with above
		6	D	0	0	6		T										Included with above

		7	D	0	0	7		T										Included with above
		8	D	0	0	8		T										Included with above
		9	D	0	0	9		T										Included with above
	1	0	D	0	1	0		T										Included with above
	1	1	D	0	1	1		T										Included with above
	1	2	D	0	1	8		T										Included with above
	1	3	D	0	1	9		T										Included with above
	1	4	D	0	2	2		T										Included with above
	1	5	D	0	2	8		T										Included with above
	1	6	D	0	2	9		T										Included with above
	1	7	D	0	3	0		T										Included with above
	1	8	D	0	3	3		T										Included with above
	1	9	D	0	3	4		T										Included with above
	2	0	D	0	3	5		T										Included with above
	2	1	D	0	3	6		T										Included with above
	2	0	D	0	3	8		T										Included with above
	2	2	D	0	3	9		T										Included with above
	2	3	D	0	4	0		T										Included with above
	2	4	D	0	4	1		T										Included with above
	2	5	D	0	4	3		T										Included with above
	2	6	W	T	0	1		T										Included with above
	2	7	W	T	0	2		T										Included with above
	2	8	W	P	0	1		T										Included with above
	2	9	W	P	0	2		T										Included with above
	3	0	F	0	0	1		T										Included with above
	3	1	F	0	0	2		T										Included with above
	3	2	F	0	0	3		T										Included with above
	3	3	D	0	4	3		T										Included with above
	3	4	W	T	0	1		T										Included with above
	3	5	W	T	0	2		T										Included with above
	3	6	W	P	0	1		T										Included with above
	3	7	W	P	0	2		T										Included with above
	3	8	F	0	0	1		T										Included with above
	3	9	F	0	0	2		T										Included with above
	4	0	F	0	0	3		T										Included with above
	4	1	F	0	0	4		T										Included with above
	4	2	F	0	0	5		T										Included with above

	4	3	F	0	3	9*		T										Included with above
	4	4	D	0	0	2	50,700	T	S	0	1	T	0	4	S	0	6	Vitrification treatment process & storage of ILAW & IHLW
	4	5	D	0	0	4		T										Included with above
	4	6	D	0	0	5		T										Included with above
	4	7	D	0	0	6		T										Included with above
	4	8	D	0	0	7		T										Included with above
	4	9	D	0	0	8		T										Included with above
	5	0	D	0	0	9		T										Included with above
	5	1	D	0	1	0		T										Included with above
	5	2	D	0	1	1		T										Included with above
	5	3	D	0	1	8		T										Included with above
	5	4	D	0	1	9		T										Included with above
	5	5	D	0	2	2		T										Included with above
	5	6	D	0	2	8		T										Included with above
	5	7	D	0	2	9		T										Included with above
	5	8	D	0	3	0		T										Included with above
	5	9	D	0	3	3		T										Included with above
	6	0	D	0	3	4		T										Included with above
	6	1	D	0	3	5		T										Included with above
	6	2	D	0	3	6		T										Included with above
	6	3	D	0	3	8		T										Included with above
	6	4	D	0	3	9		T										Included with above
	6	5	D	0	4	0		T										Included with above
	6	6	D	0	4	1		T										Included with above
	6	7	D	0	4	3		T										Included with above
	6	8	W	T	0	1		T										Included with above
	6	9	W	T	0	2		T										Included with above
	7	0	W	P	0	1		T										Included with above
	7	1	W	P	0	2		T										Included with above
	7	2	F	0	0	1		T										Included with above
	7	3	F	0	0	2		T										Included with above
	7	4	F	0	0	3		T										Included with above
	7	5	F	0	0	4		T										Included with above
	7	6	F	0	0	5		T										Included with above
	7	7	F	0	3	9*		T										Included with above
	7	8	D	0	0	2	5,100	T	S	0	1	T	9	4	S	0	6	Treatment & storage of secondary waste other than ILAW containers and IHLW
	7	9	D	0	0	4		T										Included with above

	8	0	D	0	0	5		T										Included with above
	8	1	D	0	0	6		T										Included with above
	8	2	D	0	0	7		T										Included with above
	8	3	D	0	0	8		T										Included with above
	8	4	D	0	0	9		T										Included with above
	8	5	D	0	1	0		T										Included with above
	8	6	D	0	1	1		T										Included with above
	8	7	D	0	1	8		T										Included with above
	8	8	D	0	1	9		T										Included with above
	8	9	D	0	2	2		T										Included with above
	9	0	D	0	2	8		T										Included with above
	9	1	D	0	2	9		T										Included with above
	9	2	D	0	3	0		T										Included with above
	9	3	D	0	3	3		T										Included with above
	9	4	D	0	3	4		T										Included with above
	9	5	D	0	3	5		T										Included with above
	9	6	D	0	3	6		T										Included with above
	9	7	D	0	3	8		T										Included with above
	9	8	D	0	3	9		T										Included with above
	9	9	D	0	4	0		T										Included with above
1	0	0	D	0	4	1		T										Included with above
1	0	1	D	0	4	3		T										Included with above
1	0	2	W	T	0	1		T										Included with above
1	0	3	W	T	0	2		T										Included with above
1	0	4	W	P	0	1		T										Included with above
1	0	5	W	P	0	2		T										Included with above
1	0	6	F	0	0	1		T										Included with above
1	0	7	F	0	0	2		T										Included with above
1	0	8	F	0	0	3		T										Included with above
1	0	9	F	0	0	4		T										Included with above
1	1	0	F	0	0	5		T										Included with above
1	1	1	F	0	3	9*		T										Included with above
1	1	2	U	0	3	7**	24,000	G										PODC used and only applicable during the Environmental Performance Demonstration Test.
1	1	3	U	1	6	5**		G										Included with above

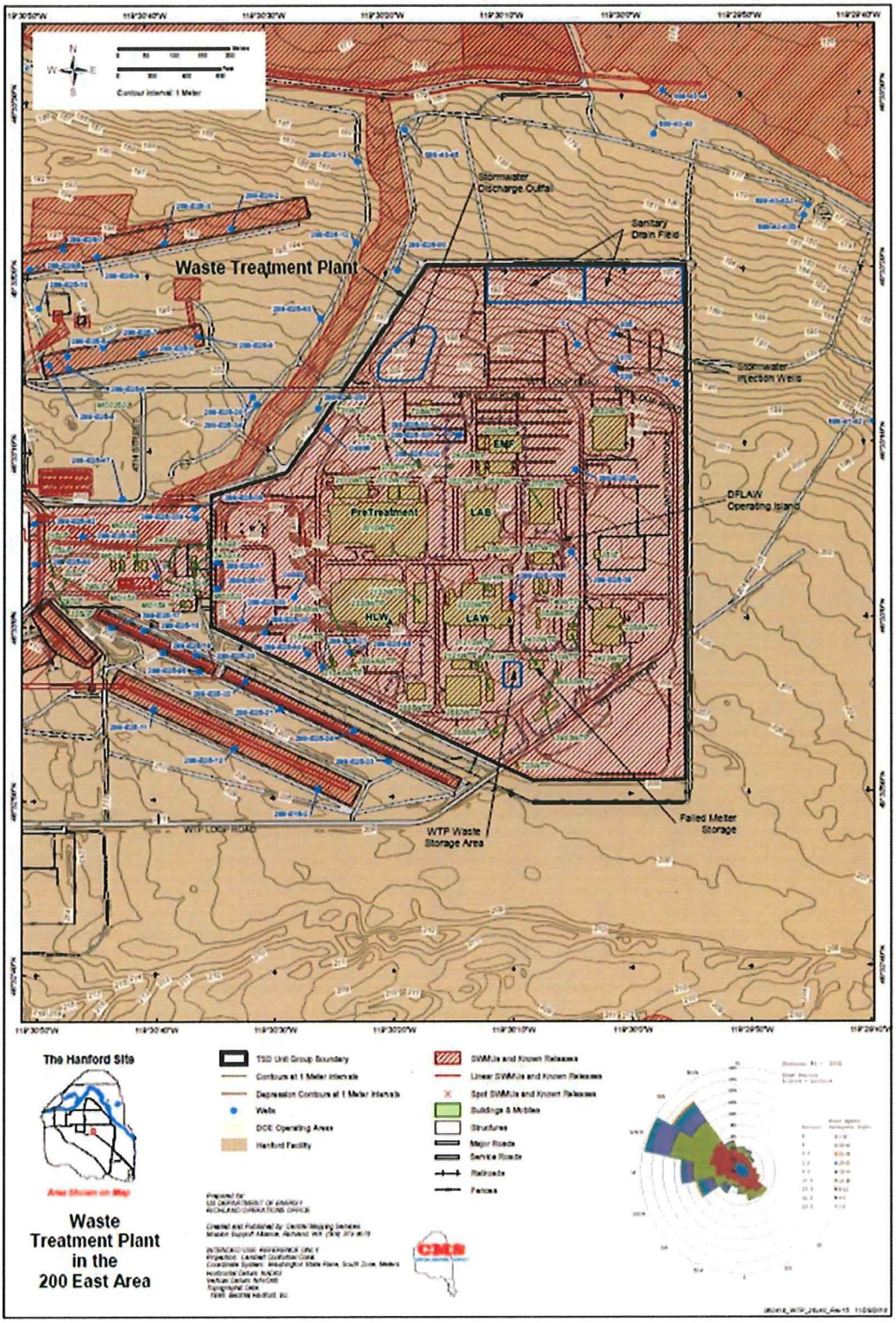
Footnote From Section XIV

*F039 is a multisource leachate included as a waste derived from non-specific source wastes F001 through F005

*Waste codes for ignitability (D001) and reactivity (D003) apply only to the waste while it is in the pretreatment facility. LAW feed receipt FRP vessels and the HLW feed receipt vessel. Downstream of these vessels, the D001 and D003 waste codes are administratively removed from the project's waste streams.

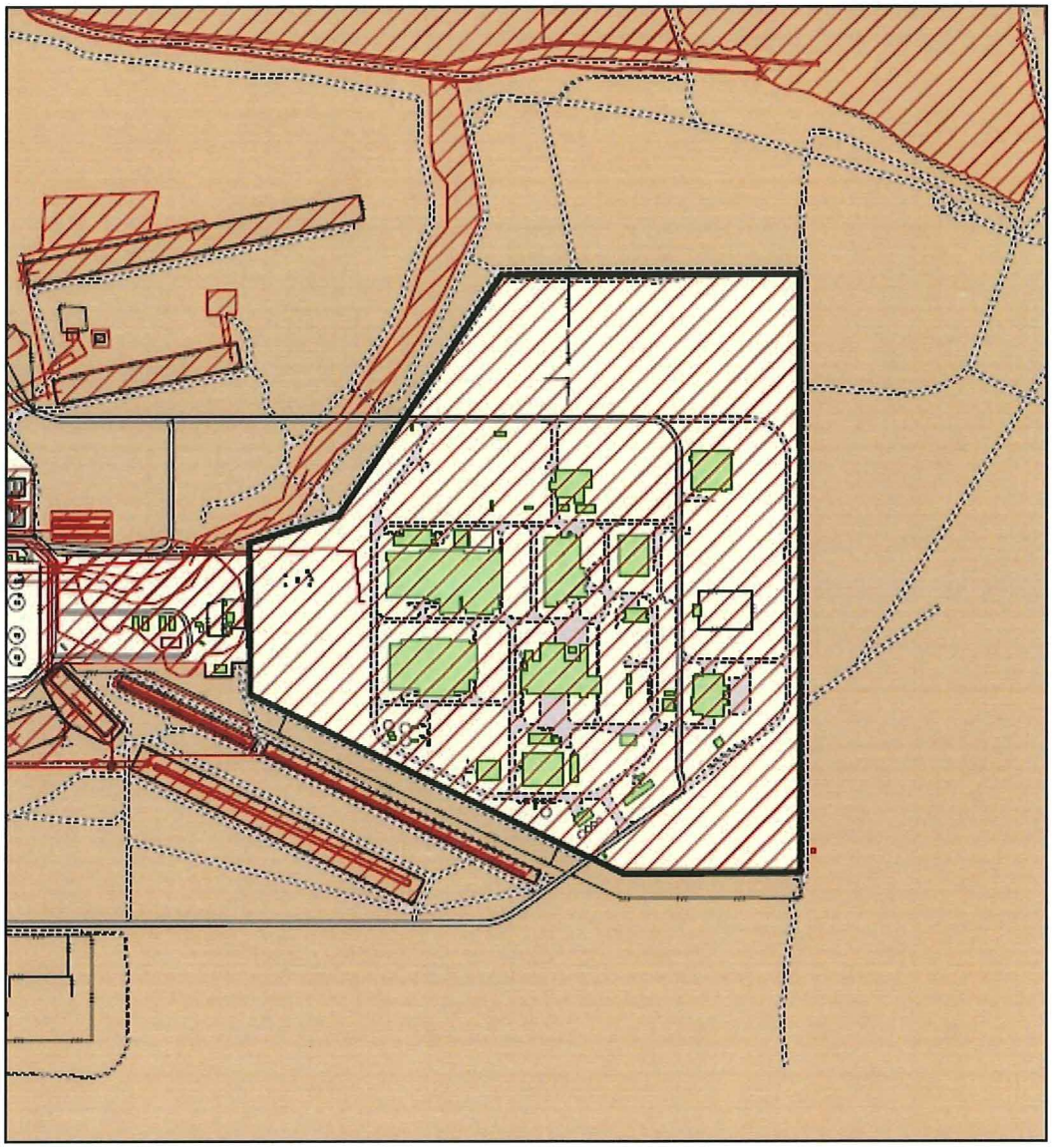
** Waste codes will only apply during the LAW Environmental Performance Demonstration Test Periods in which PODCs are spiked into the melter(s). After performing a purge of the LAW Vitrification System; in accordance with, DWP condition III.10.H.3.a.vi, these waste code(s) will no longer apply to any wastes generated in the LAW Vitrification System. No process media or equipment will be changed out (e.g. carbon media, HEPA filters, pumps, etc.) during the purge process.

XV. Map



XVI. Facility Drawing

All existing facilities must include a scale drawing of the facility (refer to Instructions for more detail).



Waste Treatment Plant

Prepared for:
US DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE
Created and Published by:
Central Mapping Services
Mission Support Alliance
Richland, WA (509) 373-9076
INTENDED USE: REFERENCE ONLY

Unit Group Boundary
DOE Operating Areas
Hanford Facility
Spot SWMUs and Known Releases
Linear SWMUs and Known Releases
SWMUs and Known Releases
Buildings and Mobiles
Structures
Major Roads
Service Roads
Railroads
Fences

Meters: 0 100 200 300
Feet: 0 200 400 600 800 1,000

O:\Projects\2005\RCRA_TSD\050614_2ndPriorityFacilityTopos2005_Thompson\Maps\160412_WTP_Boundary_85x11_Rev2.mxd 6/13/2016 09:31 AM

XVII. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, recycling, and disposal areas; and sites of future storage, treatment, recycling, or disposal areas (refer to Instructions for more detail).

Photograph Date: 2018

XVIII. Certifications

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Operator Name and Official Title (type or print) Brian Vance, Manager U.S. Department of Energy Office of River Protection	**Signature**	**Date Signed** 3/26/2019
Co-Operator* Name and Official Title (type or print) Valerie McCain Project Director Bechtel National, Inc.	**Signature**	**Date Signed** 13Mar19
Co-Operator* – Address and Telephone Number 2435 Stevens Center Place Richland, WA 99352 (509) 371-2335		
Facility-Property Owner Name and Official Title (type or print) Brian Vance, Manager U.S. Department of Energy Office of River Protection	**Signature**	**Date Signed** 3/26/2019

Comments

WASTE TREATMENT AND IMMOBILIZATION PLANT
CHAPTER 4.0
PROCESS INFORMATION

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
07/01/2019	8C.2019.2F
10/01/2018	24590-WTP-PCN-ENV-18-003 (8C.2018.Q4)
09/05/2017	8C.2017.6F
12/15/2016	8C.2016.Q3
06/20/2016	8C.2016.4F

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CHAPTER 4.0
PROCESS INFORMATION

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CHAPTER 4.0
PROCESS INFORMATION

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4.0 PROCESS INFORMATION

4.1 Process Description

The Hanford Tank Waste Treatment and Immobilization Plant (WTP) is a Treatment, Storage, and Disposal (TSD) Facility, permitted as Operating Unit Group 10 under the Hanford Dangerous Waste Permit. The WTP includes six major facilities. These facilities are the Low-Activity Waste (LAW) Vitrification Facility, the High-Level Waste (HLW) Vitrification Facility, the Pretreatment Facility (PTF), the Analytical Laboratory (Lab), the Direct-Feed Low-Activity Waste (DFLAW) Effluent Management Facility (EMF), and the Balance of Facilities (BOF).

The WTP manages mixed and dangerous wastes using tank systems, containment buildings, container storage areas, and miscellaneous unit systems. The floors and lower portions of the black cells and hot cell walls are lined with stainless steel for secondary containment. Black cells and hot cells are equipped with an instrumented sump or sumps for leak detection. Liquids are removed from the black cell sumps by steam ejectors.

The WTP uses two separate waste process system configurations during mixed waste treatment operations. These configurations are the Baseline configuration, and the DFLAW configuration.

Baseline Configuration

In the Baseline configuration, characterized LAW and HLW are sent directly from the Hanford Tank Farms to the PTF. The mixed waste is pretreated in the PTF and sent to either the HLW Vitrification Facility or the LAW Vitrification Facility for processing, depending on the waste characterization. Underground waste transfer lines allow for the transfer of waste from the Hanford Tank Farms to the PTF, and to and from the LAW Vitrification Facility, HLW Vitrification Facility, Lab, and other TSD Facilities.

The PTF, in the Baseline configuration, uses tank systems, miscellaneous unit systems (defined in Operating Unit Group 10, Section III.10.G of this Permit), and containment buildings to prepare waste feed from the Hanford Tank Farms for vitrification.

The LAW Vitrification Facility uses miscellaneous treatment unit sub-systems and equipment (defined in Operating Unit Group 10, Section III.10.H and III.10.I of this Permit), tank systems, and containment buildings to vitrify LAW feed.

The HLW Vitrification Facility uses miscellaneous treatment unit sub-systems and equipment (defined in Operating Unit Group 10, Section III.10.J and III.10.K of this Permit), tank systems, containment buildings, and container storage areas to vitrify HLW feed.

A tank system and a container storage area are used at the Lab. Container storage is used in the BOF for waste management activities.

DFLAW Configuration

In the DFLAW configuration, treated LAW from the Hanford Tank Farms LAW Pretreatment System (LAWPS) is transferred to the LAW Vitrification Facility via an underground waste transfer line. The LAWPS is permitted as a separate TSD Facility under the Hanford Site-Wide Dangerous Waste Permit (Site-wide DWP). The DFLAW configuration consists of the EMF, which includes the DFLAW EMF Process System (DEP), a dedicated ventilation system, and dedicated utilities, and underground waste transfer lines that allow for the transfer of waste to and from the LAW Vitrification Facility, Lab, and other TSD Facilities. The DFLAW configuration is independent of the Baseline configuration, and is only used prior to PTF startup and in the event of a prolonged PTF outage. The EMF uses tank systems and miscellaneous treatment unit sub-systems and equipment, defined in Operating Unit Group 10, Section III.10.M.

Waste Management

Waste management activities are discussed in the following sections and in Chapter 4D for the PTF, Chapter 4E for the LAW Vitrification Facility, Chapter 4F for the HLW Vitrification Facility, Chapter 4G for the EMF, Chapter 4H for the Lab, and Chapter 4I for the BOF.

Integrated Control Network

WTP operates an Integrated Control Network (ICN). The ICN provides a real-time control and data acquisition system platform responsible for the operation and control, and alarm management, of WTP processes during normal operating conditions. The ICN integrates the WTP control systems, such as the Process Control System (PCJ), the Mechanical Handling Control System (MHJ), and the Autosampling Control System (ASJ). The ICN includes network hardware devices (switches and routers), linking devices, computer servers, operating consoles and workstations, local operator interfaces, panels, enclosures, and an operating system software platform.

The WTP control systems serve as the controller logic that generate control outputs to the WTP processes, including mechanical handling, autosampling, and ventilation. The control systems conduct various functions, including:

- Monitoring and/or controlling the electrical services.
- Monitoring environmental and stack discharge equipment.
- Controlling non-safety services and utilities.

The control systems send data to the ICN where it is passed to the plant information network. The plant information network is a network designed to store plant operating system data and information applicable to the WTP Dangerous Waste Permit (DWP). The following are examples of the plant information network capabilities:

- Capture and store information related to WTP DWP sample requests, sample statuses, and sample results.
- Capture and store information related to the tracking of dangerous/mixed waste containers throughout the facilities, from point of generation to off-site shipment; including containers located in permitted container storage areas, 90-day accumulation areas, and satellite accumulation areas.

More information on the ICN and plant information network will be provided prior to the initial receipt of dangerous and/or mixed waste, as required in WTP DWP Permit Condition III.10.D.10.c.v.

4.1.1 Process Overview

In the DFLAW configuration, waste from the Hanford Tank Farms is pumped to the LAWPS where it is processed to meet contractual requirements for transfer of waste directly to the LAW Vitrification Facility. The LAWPS Facility is permitted as a separate TSD Facility under the Site-Wide DWP. After sampling the waste stream, and confirmation by the WTP that it meets LAW waste acceptance criteria, it is then pumped directly to the LAW Vitrification Facility.

In the Baseline configuration, the WTP will store and treat waste feed from the Hanford Tank Farms in the PTF. The PTF will separate the waste into two feed streams for the LAW and HLW Vitrification facilities. Feed from the Hanford Tank Farms is expected to be of four major waste feed types, or waste feed envelopes A, B, C, and D. For the DFLAW configuration, waste feed will come from waste feed envelope E. These waste feed envelopes are described as follows:

- Envelope A. This waste feed envelope will contain cesium at concentrations high enough to warrant removal of these radionuclides during pretreatment, to ensure that the Immobilized Low-Activity Waste (ILAW) glass will meet applicable requirements.

- Envelope B. This waste feed envelope will contain higher concentrations of cesium than envelope A. Cesium must be removed to comply with the ILAW specifications. This envelope may also contain concentrations of chlorine, chromium, fluorine, phosphates, and sulfates that are higher than those found in envelope A, which may limit the waste incorporation rate into the glass.
- Envelope C. This waste feed envelope will contain organic compounds containing complexed strontium and transuranics (TRU) that will require removal in a processing step unique to this waste envelope. As with envelopes A and B, cesium will also require removal in the pretreatment process to ensure that ILAW glass meets applicable requirements.
- Envelope D. HLW feed will be in the form of a slurry containing approximately 10 to 200 grams of unwashed solids per liter. The liquid fraction of the slurry will be separated from the solids and classified as envelope A, B, or C waste. The solid fraction will be envelope D waste.
- Envelope E. Direct feed from LAWPS, with a nominal sodium concentration of 5 to 8 molar.

The WTP treatment processes are designed to immobilize the waste constituents in a glass matrix by vitrification and to treat the offgas from the processes to a level that protects human health and the environment.

Two similarly designed vitrification systems are used in the WTP in the Baseline configuration. One system immobilizes the pretreated LAW feed and the second immobilizes the pretreated HLW feed. The dangerous waste constituents in the melter feed is destroyed, removed, or immobilized in a glass matrix through the vitrification process.

The ILAW and Immobilized High-Level Waste (IHLW) produced by the WTP will be in the form of glass. The glass is packaged in stainless steel containers for ILAW and stainless steel canisters for IHLW and placed in permitted TSD Facilities.

Secondary waste streams (e.g., dangerous and mixed solid waste, mixed waste and dangerous liquid effluents) are characterized and recycled into the treatment process, transported to permitted TSD Facilities located on the Hanford Site, or transported off-site, as appropriate.

Nonradioactive dangerous waste will also be generated by laboratory and maintenance activities. This waste will be managed at the WTP until it can be transferred to an off-site TSD unit. There are six primary components of the WTP: PTF, LAW Vitrification Facility, HLW Vitrification Facility, EMF, the Lab, and the supporting BOF systems and utilities. The following discussion presents an overview of these waste treatment processes and BOF systems at the WTP. Figure 4A-1 in Chapter 4A presents a simplified process flow diagram of the WTP treatment processes.

Pretreatment

In the Baseline configuration, waste feed is stored and subsequently treated in the PTF prior to vitrification. The processes in the PTF conditions the waste feed and removes cesium, strontium, TRU compounds, and entrained solids. The waste feed is also processed through ultrafiltration to separate the solids.

There are four types of waste management units in the PTF:

- Container storage areas.
- Tank systems.
- Containment buildings.
- Miscellaneous unit systems.

The structure of the PTF is supported by a reinforced concrete foundation. The superstructure is made of structural steelwork with a metal roof. Typically, the process cells within the PTF are constructed of reinforced concrete. Secondary containment is provided as required for tank systems and miscellaneous unit systems managing dangerous or mixed waste. Secondary containment consists of either stainless steel liners or special protective coatings. Table 4D-3 in Chapter 4D provides information on secondary containment. Figure 4A-2 and 4A-2A in Chapter 4A present simplified process flow diagrams of the pretreatment processes.

LAW Vitrification Facility

The LAW Vitrification Facility will house the vitrification systems for production of the ILAW. Four types of waste management units will be located in the LAW Vitrification Facility, as follows:

- Container Storage Areas.
- Tank systems.
- Containment buildings.
- Miscellaneous treatment unit sub-systems and equipment.

The LAW Vitrification Facility is constructed of reinforced concrete and structural steelwork. The below-grade portion of the building structure is made of reinforced concrete, and the superstructure is made of reinforced concrete and structural steelwork with a metal roof. The LAW Vitrification Facility structure is supported by a reinforced concrete mat foundation.

Secondary containment is provided as required for tank systems and miscellaneous unit sub-systems and equipment managing dangerous or mixed waste. Secondary containment consists of either stainless steel liners or protective coatings. Table 4E-3 in Chapter 4E provides information on secondary containment. Figure 4A-3 in Chapter 4A presents a simplified process flow diagram of the LAW Vitrification Facility treatment processes.

HLW Vitrification Facility

The HLW Vitrification Facility houses the vitrification systems for producing IHLW. Four types of waste management units are located in the HLW Vitrification Facility, as follows:

- Container storage areas.
- Tank systems.
- Containment buildings.
- Miscellaneous treatment sub-systems and equipment.

The HLW Vitrification Facility is constructed of reinforced concrete and structural steelwork. The lower elevations of the building structure are reinforced concrete construction, and the upper elevations made of structural steelwork with a metal roof. The HLW Vitrification Facility structure is supported by a reinforced concrete mat foundation. Secondary containment is provided as required for tank systems and miscellaneous unit sub-systems and equipment managing dangerous or mixed waste. Secondary containment consists of either stainless steel liner or protective coating. Table 4F-3 in Chapter 4F provides information on secondary containment. Figure 4A-4 in Chapter 4A presents a simplified process flow diagram of the HLW Vitrification Facility treatment processes.

Direct Feed Low-Activity Waste Effluent Management Facility

The EMF consists of four primary buildings: the LAW Effluent Process Building, the LAW Effluent Drain Tank Building, the LAW Effluent Electrical Building, and the LAW Effluent Utility Building. The EMF contains an evaporator system, nine major process vessels, two supporting reagent product storage tanks, heating, ventilation, and air conditioning (HVAC) equipment, and electrical utilities. The buildings

are constructed of reinforced concrete and structural steelwork with a metal roof. The EMF structures are supported by a reinforced concrete mat foundation.

The EMF is designed with a minimum of a 48-hour effluent storage capacity, and includes underground waste transfer lines to transfer waste to and from the LAW Vitrification Facility, Lab, and other TSD Facilities. Secondary wastes generated by the EMF are managed as described in Chapter 4G.1

There are two types of waste management units in the EMF:

- Tank Systems.
- Miscellaneous unit systems.

Analytical Laboratory

The Lab houses the hot cells, laboratories, and systems for analyzing process samples and managing regulatory compliance samples. Two types of waste management units are located in the Lab:

- Container storage areas.
- Tank systems.

The Lab is constructed of reinforced concrete, structural steelwork, and a metal roof. The below-grade portions of the building structure are constructed of reinforced concrete. The Lab structure will be supported by a reinforced concrete mat foundation. Secondary containment is provided as required for tank systems managing dangerous or mixed waste. Secondary containment consists of either stainless steel liner or protective coating. Table 4H-2 in Chapter 4H provides information on secondary containment.

Balance of Facilities

The BOF includes support systems and utilities required for the waste treatment processes within the PTF, LAW Vitrification Facility, HLW Vitrification Facility, EMF, and the Lab. BOF support systems and utilities include, but are not limited to, heating and cooling, process steam, process water, chilled water, primary and secondary power supplies, and compressed air. The BOF also includes the Glass Former Reagent system (GFR) that supplies glass former reagents to the LAW and HLW Vitrification facilities. Regulated waste management units within the BOF include:

- HLW Failed Melter Storage Facility.
- WTP Waste Storage Area.
- Transportation Staging Area.

4.2 Tank Systems

This section contains descriptive information for each tank system used for managing mixed waste. The term “tank systems” refers to mixed waste storage or treatment tanks, including primary containment sumps, and their associated ancillary equipment and containment systems. Figures and permit drawings depicting design features of tank systems are found in DWP Operating Unit Group 10.

The following text uses the terms “vessel” and “tank”. The term “vessel” is an engineering term and denotes more robust construction than a typical mixed waste storage or treatment tank. The term “vessel” is included due to the use of the term in the American Society of Mechanical Engineers (ASME) codes and specifications that are followed for most tank construction at the WTP.

4.2.1 Design, Installation, and Assessment of Tank Systems

This section describes the attributes of tank systems containing mixed waste. Tanks and ancillary equipment containing only additives or reagents, such as glass-forming chemicals, precipitation reagents, or unused resin, are not regulated under the Resource Conservation and Recovery Act (RCRA) or the Washington State Dangerous Waste Program, and are therefore not included.

Tank systems containing mixed waste are designed to comply with worst-case scenarios, such as extreme pH, temperature, and pressure conditions. The WTP is entirely new construction, and there are no "existing tanks" in the plant.

Tank systems, with the exception of the two outside tanks at the PTF and the eight outside vessels at the EMF, are located indoors and within process cells, process rooms, or caves with controlled access.

4.2.1.1 Design Requirements

Tanks

Most of the tanks that come in contact with the waste are operated under atmospheric pressure conditions at the WTP. The mixed waste tanks are designed, at a minimum, to *Boiler and Pressure Vessel Code* (ASME 2000), the American Petroleum Institute (API) codes, or other appropriate design codes. Tank integrity is reinforced by additional requirements of the tank group and seismic category assignment to each tank.

The vessels are designed for seismic loading in accordance with the *Uniform Building Code* (UBC) standard for Zone 2B (UBC 1997).

The codes and standards that are followed for design, construction, and inspection for the tanks are identified below, as applicable:

- ANSI American National Standards Institute.
- API American Petroleum Institute.
- ASME American Society of Mechanical Engineers.
- ASNT American Society of Non-Destructive Testing.
- ASTM American Society for Testing and Materials.
- EPA US Environmental Protection Agency.
- NACE National Association of Corrosion Engineers.
- NBBPVI The National Board of Boilers and Pressure Vessel Inspectors.
- OSHA Occupational Safety and Health Administration.
- PFI Pipe Fabrication Institute.
- UBC Uniform Building Code.
- WRC Welding Research Council.

Permit documents describing tank design requirements are located in DWP Operating Unit Group 10, Appendix 7.7:

- Specification for Pressure Vessel Design and Fabrication, 24590-WTP-3PS-MV00-T0001.
- Seismic Qualification Criteria for Pressure Vessels, 24590-WTP-3PS-MV00-T0002.
- Specification for Pressure Vessel Fatigue Analysis, 24590-WTP-3PS-MV00-T0003.

Piping and Pipe Support Design

The design code of the WTP piping and pipe supports is ASME B31.3 Code (ASME 1996), as well as the United States Department of Energy (DOE) seismic requirements. In compliance with DOE seismic requirements (DOE 1996), response spectrum method, or UBC (UBC 1997) static method is used for the seismic analysis of the piping systems.

Additional information for piping and pipe support design is included in the following documents, which are included in DWP Operating Unit Group 10 Appendices as indicated:

- *Material for Ancillary Equipment*, 24590-WTP-PER-M-02-002 (Appendix 7.9).
- *Piping Material Class Description*, 24590-WTP-PER-PL-02-001 (Appendix 7.2).
- *Ancillary Equipment Pipe Support Design*, 24590-WTP-PER-PS-02-001 (Appendix 7.5).

4.2.1.2 Physical Information for Tanks

Tables in Chapters 4D, 4E, 4F, 4G, and 4H list current tank design information (capacity, materials of construction, and dimensions). The tank systems are grouped by plant and process system.

Tank operation is generally automated. However, operator intervention can be used when human decisions or approval are required for initiation and termination of a process operation. Descriptions of tank system operation for major WTP process systems are identified in Chapters 4D, 4E, 4F, 4G, and 4H.

4.2.2 Ancillary Equipment Requirements

Information concerning ancillary equipment is provided in the following subsections.

4.2.2.1 Transfer or Pressure Control Devices

Several fluid transfer devices are used in the WTP. These devices include mechanical pumps, reverse flow diverters, and steam ejectors. Breakpots and seal pots, although not fluid transfer devices, are an important component of vessel operations. These components are discussed in the following sections.

Mechanical Pumps

Mechanical pumps are used for operations that require high-flow pumps (such as through the evaporator circuits) or high-pressure head pumps (such as for pumping a waste stream through ultrafiltration circuits). Mechanical pumps are located in process cells, process rooms, or caves. In general, mechanical pumps are repaired in place, or removed to a maintenance area. However, remotely maintained pumps are used in areas where maintenance activities would result in a significant radiation dose to the operators.

For normal process operating sequences, mechanical pumps and associated valves are controlled by the process control system. In systems where off-normal conditions require pump shutdown, the design includes an alarm mechanism that also trips the transfer device. The pump system is designed to allow for the drainage of liquid from the pump, and for the introduction of flush liquids at the end of transfers to reduce residual contamination.

Reverse Flow Diverters

Reverse flow diverters provide for the maintenance-free pulsed or metered transfer of liquids or slurries throughout the treatment process. A reverse flow diverter does not need to be fully submerged in order to remove the contents of a vessel, and it maintains a small and predictable volume of tank contents following its use. Operation of the reverse flow diverter is cyclical, following timed phases: suction phase, drive phase, and blowdown. The following paragraphs describe a typical reverse flow diverter system arrangement.

Suction phase: In the suction phase, the secondary automatic valve A is open, admitting air to the suction jet pump. Valve B is shut and liquid is drawn from the supply tank through the reverse flow diverter and

into the charge vessel. The suction ejector is designed so that it cannot produce a vacuum capable of lifting liquid higher than a certain valve known as the "suction lift". After a short time, the liquid reaches this "suction lift" height and stops, then valve A is shut.

Drive phase: When valve A is shut, valve B is opened, admitting air to the drive nozzle. Air passes through the nozzle and pressurizes the charge vessel. Liquid is forced across the reverse flow diverter and into the delivery pipe. The delivery pipe is quickly filled with liquid that flows into the delivery vessel.

Blowdown phase: When the charge vessel is nearly empty, valve B is shut; no air is supplied to either jet pump. The compressed air in the charge vessel passes back through the paired jet pumps, down the vent pipe, and into vessel vent system.

Shortly after blowdown begins, the pressure in the charge vessel falls below the delivery head, and the flow of liquid into the delivery vessel is halted.

The liquid in the delivery vessel then falls back down the pipe, across the reverse flow diverter, and into the charge vessel. After a short time, the pressure in the charge vessel falls to zero (gauge). The cycle is now complete.

Steam Ejectors

Steam ejectors are used to transfer process liquids, or to reduce the operating pressure of a system by gas removal. They empty liquid from vessels by means of suction lift, using a simple control system.

An automated control valve supplies high-pressure steam to the steam ejector. This steam accelerates through a nozzle, creating a differential pressure along a submerged suction leg within the vessel. The pressure then forces the liquid up the suction pipe. This effect is known as striking. The steam then conveys the liquid to the destination vessel, normally via a breakpot. Control is established using liquid level instrumentation in the vessel being emptied, and using a temperature indicator, such as a thermocouple, within the breakpot.

Seal Pots

A seal pot is a type of hydraulic seal. A hydraulic seal is used primarily to maintain a separation between vessel vent or offgas systems for feed and receipt vessels. This separation is necessary to prevent migration of airborne contamination between the vessels. Without the seal, airflow could occur due to the different pressures in the vent systems. The seal is a slug of liquid in the interconnecting pipe work that remains after each liquid transfer is completed, blocking airflow between vessels.

The seal can be provided by constructing a simple "U" shape in the piping. Different piping arrangements are used for different purposes. A seal pot is a small vessel with one (inlet or outlet) pipe submerged in the liquid slug in the lower part of the pot, while the other pipe terminates in the top of the pot, above the static liquid level. The pot may be provided with a level indicator or alarm, if necessary, to ensure adequate liquid level. Periodic liquid additions may be needed to maintain the seal, especially if the pipeline is infrequently used.

Breakpots

The main function of the breakpot is to reduce the amount of mixed waste material entrained into the vessel ventilation system. Breakpots are provided on transfer lines that use steam ejectors for moving liquids by pressure flow. These types of transfers create the potential for air entrainment of mixed waste contamination. Breakpots function to convert steam from pressure flow to liquid gravity flow, thereby reducing both the effluent loading on the downstream vessel ventilation treatment system and the mixed waste contamination levels in the vessel vent ductwork. Breakpots also serve a secondary purpose by providing a siphon break for other transfer systems where siphoning could occur.

Breakpots are typically placed at a high point in the discharge line from the steam ejector. Liquid is pumped into the breakpot through an inlet nozzle in its wall. The incoming liquid is directed towards a

baffle. Within the baffle, noncondensed steam and gases disengage. The breakpot is self-draining; the liquid drains through the breakpot discharge pipe to the destination vessel.

A packed bed where disentrainment of the gas stream occurs is located above the inlet nozzle(s). The exiting gas from the packed section passes into the vessel ventilation system. The packed bed can be washed periodically using a wash ring permanently installed above the packed bed.

4.2.2.2 Bulges

Bulges allow hands-on maintenance of equipment after process fluids are flushed from the bulge piping and components. Bulges provide shielding to personnel during process operation and allow vulnerable or failure prone components to be located outside the process environment. The cell wall provides shielding between the cell and the bulge interior. The bulge includes shielding and contamination control as needed, depending on the process fluid within the bulge piping.

A typical bulge consists of a metal frame attached to the outside wall of a process cell; the frame is used to support the piping and components as well as the shielding plates (usually steel), which are bolted to the frame. Bulges provide secondary containment for DWP ancillary equipment inside the bulge.

The ancillary equipment located inside the bulges are provided with leak detection or the bulge is provided with a drain line that flows to a sump equipped with leak detection. Leak detection can be provided internal to the bulge or in the sump associated with bulge drain line.

There are two classifications of bulges used at the WTP. One is a “process” bulge; the other is a “service” bulge. The process bulge contains valves, pumps, piping, etc. The service bulge contains valves used to transfer reagents, steam, etc., to the in-cell process equipment. The design of the two bulges is similar.

Bulges are equipped with several wash systems, facilitating washing both internal and external piping, components, and bulge confinement surfaces. Decontamination of the equipment internals and associated piping is achieved by externally connecting a flushing system located on the outside of the bulge. Wash fluids could be water or more aggressive media such as nitric acid, provided compatibility with the bulge materials is ensured.

Additional information on process bulges may be found in *Process Bulge Design and Fabrication* (24590-WTP-3PS-MX00-T0001), located in DWP Operating Unit Group 10, Appendix 7.7 and Chapter 4A, Figure 4A-127.

4.2.2.3 Description of WTP Piping System

Detailed information on piping is included in *Piping Material Class Description* (24590-WTP-PER-PL-02-001), located in DWP Operating Unit Group 10, Appendix 7.2.

Interplant Piping Transfer Lines

In both the Baseline and DFLAW configurations, waste feed from the Hanford Tank Farms and the LAWPS will be transported to the WTP via underground waste transfer lines.

The waste feed transfer lines are double-walled pipe. The inner pipe is constructed of stainless steel, while the outer secondary containment pipe is constructed of carbon steel. The carbon steel outer pipe is coated with a fusion bonded epoxy (FBE) coating. In addition, the coated outer pipe for the waste transfer lines are surrounded by an injected closed-cell polyurethane foam insulation and a high-density polyethylene outer jacket. This extra layer of protective material isolates the waste transfer lines from soil.

The inner pipe is supported by guides, saddles, support keys, or anchors within the outer pipe. The inner pipe transports waste and maintains the pressure boundary, while the outer pipe provides secondary containment for the inner pipe. The piping system is buried under a minimum depth of soil for radiation shielding. The minimum depth of soil was finalized at the detail design phase and will not be less than the 2 feet (ft) freeze depth. A heat trace system is not required for pipes buried below freeze depth.

In the baseline configuration, the waste transfer lines between the PTF and the other WTP process plants do not have this extra barrier from the soil, but are cathodically protected as described later in this section. In the DFLAW configuration, the new effluent or process waste transfer lines between the LAWPS and the EMF, starting at the DOE interface point at the WTP property boundary and ending at the LAW, and from the EMF back to the Hanford Tank Farms ending at DOE interface point at the WTP property boundary, utilize the High Density Polyethylene (HDPE) jacketed design to isolate the transfer lines from the soil environment. Similarly, the transfer lines between the LAW and EMF, the Lab and EMF, and the EMF to the intersection of the existing transfer line between the PTF and the Liquid Effluent Retention Facility/Effluent Treatment Facility (LERF/ETF) interface point, utilize the HDPE jacketed design. In the DFLAW configuration, the cathodically protected intra-facility piping system between the PTF and the other WTP facilities will be isolated, and not used. However, the cathodic protection system will remain operational even though wastes are not being managed in these process transfer lines.

A leak detection system is provided for each of the underground waste transfer lines. A leak detection alarm will send a signal to stop waste transfer pumps and terminate the transfer of waste feed.

The underground piping system has a continuous slope down toward the PTF from the Hanford Tank Farms in the Baseline configuration. In the DFLAW configuration all transfer lines slope to Leak Detection Boxes (LDBs) located in the LAW Effluent Drain Tank Building. The exception is the LERF/ETF transfer line LDBs which are located at the LERF/ETF interface point on the WTP property line. Released liquids resulting from leaks to the outer pipe will be removed as required by the Washington Administrative Code (WAC) 173-303-640(4)(b). The piping system is designed to allow water flushing to occur.

Liquid Effluent Transfer Lines

In the Baseline configuration, liquid effluent generated at the WTP is routed to the PTF for recycling through the WTP and then transferred to the LERF/ETF for treatment and disposal.

To support the Baseline configuration two HDPE jacketed waste effluent lines are routed from the PTF to the LERF/ETF interface point located northwest of the EMF along the WTP property line. In the DFLAW configuration two HDPE transfer lines intersect the existing LERF/ETF transfer lines between the PTF and the interface point. In this configuration the transfer line between the PTF and the line intersection is isolated to prevent fluids from flowing to the PTF. The pipes have a continuous downwards slope towards the LERF/ETF. A leak detection system is provided for the LERF/ETF waste transfer lines at the LERF/ETF interface point.

Intraplant Piping

Pipelines within the plants, associated with the tank systems located in process cells, black cells, bulges and pipe and pump pits, are typically single-walled pipelines. Secondary containment is provided by partially lined process cells, process rooms, or caves. Secondary containment to support unique processes is provided by pump and pipe pits, melter encasement assembly areas, and bulges or concrete ducts with liners at appropriate locations. The bulge or concrete ducts are provided with a low point which drains to process cells, process rooms, or caves. The leak detection equipment located within the process cells, process rooms, and caves provides warning of a piping leak through leak detection alarms.

Piping between plants and the two outdoor tanks at the PTF, and the eight EMF outdoor vessels, are double-walled, FBE-coated, insulated, HDPE-jacketed lines. The majority of the transfer lines are located below grade, and below the freeze line. The above ground segment of the lines to the associated vessels are insulated and heat traced to prevent freezing.

Cathodic Protection

An impressed current cathodic protection system is used in the Baseline configuration for eliminating or mitigating corrosion on underground piping. The cathodic protection system maintains a negative pipe to soil potential on the protected pipe relative to a saturated copper/copper sulfate reference electrode.

The impressed current cathodic protection system uses direct current provided by a rectifier that is powered from the plant's normal 480 Vac power system. The direct current from the rectifier is connected across the buried anode wire and the protected pipe. The current flows from the anode wire, which is positive, through the electrolyte, to the protected pipe, which is negative, and back to the rectifier completing the electrical circuit.

An annual survey, recommended by NACE International (formerly the National Association of Corrosion Engineers), is performed on the system provided with cathodic protection. Test stations are provided to permit potential measurements. Additional information on inspections is provided in Operating Unit Group 10, Chapter 6A.

The following waste transfer lines are provided with cathodic protection at the WTP. The waste transfer lines are double encased and constructed of materials that are compatible with the waste:

- Mixed waste transfer lines between the PTF and the HLW Vitrification Facility.
- Mixed waste transfer lines between the PTF and the LAW Vitrification Facility.
- Mixed waste transfer line between the Lab and the PTF.

Corrosion Protection

The following WTP waste transfer and effluent transfer lines that utilize FBE, thermal insulation, and an HPDE jacket, are isolated from soil moisture with an external water resistant barrier to provide corrosion protection:

- DOE waste feed pipelines from the Hanford Tank Farm interface point to the PTF.
- Radioactive/dangerous waste effluent transfer lines from the Pretreatment to the ETF/LERF interface point.
- Mixed waste transfer lines from the LAWPS to the EMF starting at the DOE interface point at the WTP property boundary and ending at the LAW Vitrification Facility.
- Mixed waste transfer lines from the EMF back to the Hanford Tank Farms beginning at EMF and ending at the DOE interface point at the WTP property boundary.
- Mixed waste transfer lines from the LAW Vitrification Facility to the EMF.
- Mixed waste transfer lines from the Lab to the EMF.
- Mixed waste transfer lines from the EMF to an intersection point on the existing transfer line from the PTF to the LERF/ETF interface point at the WTP property boundary.

The incoming DOE waste feed pipelines that interface with the WTP pipelines are intentionally not cathodically protected. Consistent with the existing Hanford Tank Farm waste transfer design, transfer lines from the WTP interface point, the Waste Feed Receipt Process (FRP) transfer lines and the LERF/ETF effluent coaxial transfer lines are furnished with additional corrosion protection by the addition of an external water resistant barrier. This barrier isolates the lines from moisture in the surrounding soils and provides corrosion protection in lieu of cathodic protection.

The barrier consists of a 2-inch layer of sprayed or injected closed-cell polyurethane foam with an external jacket of extruded HDPE jacket with a minimum thickness of 140 mils. This barrier is located over the fusion bonded epoxy coated carbon steel outer encasement pipe which provides secondary containment for the inner stainless steel process line.

The incoming waste transfer lines are also bonded at the crossing of the plant service air piping between the PTF and the HLW Vitrification Facility on the opposite end (which is cathodically protected piping). This area is defined as the "zone of influence." Bonding is provided to minimize stray electrical currents that may occur in the zone of influence.

4.2.2.4 Description of Foundations

Tank systems containing mixed waste are located indoors in process cells or caves, which are an integral part of the PTF, Lab, the LAW Vitrification Facility, HLW Vitrification Facility, and the EMF. The exception being two outdoor PTF tanks and eight outdoor EMF vessels. Therefore, the design requirements of the tank systems are met by the structural integrity of the plants. WTP compliance with UBC seismic design requirements, found in DWP Operating Unit Group 10, Supplement 1, provides the seismic design requirements for the WTP. The outdoor tanks and vessels are located outside of the PTF and EMF on protectively-coated concrete pads and concrete berms. The concrete pads for these tanks are sufficient to support the tanks and vessels.

Additional information on the design criteria, load definitions, load combinations, and methodology for the structural design and analysis may be found in *Secondary Containment Design* (24590-WTP-PER-CSA-02-001), located in DWP Operating Unit Group 10, Appendix 7.5.

4.2.3 Integrity Assessments

Written assessments of the adequacy of the design of tank systems and miscellaneous treatment systems are prepared on a system-by-system basis. Separate reports are prepared for tanks, tank system ancillary equipment, and associated secondary containment systems. Each assessment is reviewed and certified by an independent, qualified, registered professional engineer to attest that the tank and miscellaneous treatment systems are adequately designed for managing dangerous waste. Each assessment includes an evaluation of the foundation, structural support, seams, connections, pressure controls, compatibility of the waste with the materials of construction, and corrosion controls for each mixed waste management system, as appropriate. Integrity assessment reports are located in DWP Operating Unit Group 10, Appendix 8.11 for the PTF, Appendix 9.11 for the LAW Vitrification Facility, Appendix 10.11 for the HLW Vitrification Facility, Appendix 11.11 for the Lab, and Appendix 13.11 for the EMF.

4.2.4 Additional Requirements for Existing Tanks

Tanks and vessels that are permitted in the WTP are newly constructed; pre-existing tanks will not be used. Therefore, the requirements of this section do not apply.

4.2.5 Additional Requirements for New Tanks

Tank system installation is performed in a manner designed to prevent damage to the tank system. The WTP uses an independent, qualified installation inspector, or an independent qualified registered professional engineer to perform tank system installation inspections. Inspection activities include testing tanks for tightness, verifying protection of ancillary equipment against physical damage and stress, and evaluating evidence of corrosion. The inspections document weld breaks, punctures, coating scrapes, cracks, corrosion, and other structural defects. Installation inspections conform to permit requirements and consensus-recognized standards. Inspection findings and corrective actions, as appropriate, are documented in post-inspection reports.

Additional information describing the installation of tank systems and associated inspections are provided in *Installation of Tank Systems and Miscellaneous Unit Systems*, 24590-WTP-PER-CON-02-001.

4.2.5.1 Additional Requirements for New On-Ground or Underground Tanks

The majority of the tanks and vessels to be constructed in the WTP are located within the PTF, the Lab, the LAW Vitrification Facility, and the HLW Vitrification Facility. Therefore, the requirements of this section do not apply to the indoor tanks.

The two outdoor Process Condensate Tanks located at the PTF (RLD-TK-00006A/B), and the eight outdoor vessels at the EMF (DEP-VSL-00002, DEP-VSL-00003A/3B/3C, DEP-VSL-00004A/4B, and DEP-VSL-00005A/5B), are located within a bermed and lined secondary containment system and are not be in direct contact with soil. The design of the outdoor tanks' concrete pad addresses backfill, soil saturation, seismic forces, and freeze thaw effects. A portion of the ancillary piping for the unit is in contact with the soil, and the effects of corrosion on the piping are addressed in the final design.

4.2.6 Secondary Containment and Release Detection for Tank Systems

This section provides information about the secondary containment for tank systems that contain mixed waste in the WTP. Descriptions of equipment and procedures used for detecting and managing releases or spills from tank systems are also provided.

A number of documents are provided in appendices to DWP Operating Unit Group 10 that provide detailed information regarding the design of the secondary containment system. These documents include the following:

- *Secondary Containment Design*, 24590-WTP-PER-CSA-02-001, located in Appendix 7.5.
- *Material Selection for Building Secondary Containment/Leak Detection*, 24590-WTP-PER-M-02-001, located in Appendix 7.9.
- *Leak Detection in Secondary Containment Systems*, 24590-WTP-PER-J-02-002, located in Appendix 7.5.
- *Flooding Volume for PT Facility*, 24590-PTF-PER-M-02-005, located in Appendix 8.8.
- *Flooding Volume for 28 Ft Level in PT Facility*, 24590-PTF-PER-M-03-001, located in Appendix 8.8.
- *Flooding Volume for 56 Ft Level in PT Facility*, 24590-PTF-PER-M-04-001, located in Appendix 8.8.
- *Flooding Volume for 77 Ft Level in PT Facility*, 24590-PTF-PER-M-04-0003, located in Appendix 8.8.
- *Flooding Volume for Room P-0150 in the PT Facility*, 24590-PTF-PER-M-04-0008, located in Appendix 8.8.
- *Flooding Volume for Room P-0119 in the PT Facility*, 24590-PTF-PER-M-04-0005, located in Appendix 8.8.
- *Flooding Volume for Room P-0123A in the PT Facility*, 24590-PTF-PER-M-04-0007, located in Appendix 8.8.
- *Dangerous Waste Permit (DWP) Liner Heights in the LAW Facility*, 24590-LAW-PER-M-02-002, located in Appendix 9.8.
- *Flooding Volume for the HLW Facility*, 24590-HLW-PER-M-02-003, located in Appendix 10.8.
- *Dangerous Waste Permit (DWP) Liner Heights in the LAB Facility*, 24590-LAB-PER-M-02-001, located in Appendix 11.8.
- *Leak Detection Capability in the Pretreatment Facility*, 24590-PTF-PER-M-04-0010, located in Appendix 8.18.
- *Waste Removal Capability for the Pretreatment Facility*, 24590-PTF-PER-M-04-0011, located in Appendix 8.18.

- *Leak Detection Capability in the Low Activity Waste Facility*, 24590-LAW-PER-M-05-002, located in Appendix 9.18.
- *Waste Removal Capability for the LAW Vitrification Facility*, 24590-LAW-PER-M-05-001, located in Appendix 9.18.
- *Leak Detection Capability in the HLW Facility*, 24590-HLW-PER-M-04-002, located in Appendix 10.18.
- *HLW Facility Waste Removal Capability*, 24590-HLW-PER-M-04-0001, located in Appendix 10.18.
- *Lab Minimum Leak Rate Detection Capabilities for Leak Detection Boxes, Cell Sumps, and Pit Sumps*, 24590-LAB-PER-M-04-0001, located in Appendix 11.18.
- *LAB Waste Removal Capability for the Effluent Vessels Cells*, 24590-LAB-PER-M-04-0002, located in Appendix 11.18.
- *System Logic Description for the Direct Feed LAW Effluent Management Facility Process System (DEP)*, 24590-BOF-PER-J-16-001, located in Appendix 13.13.
- *Leak Detection Capability in the EMF Facility*, 24590-BOF-PER-M-16-001, located in Appendix 13.18.
- *Waste Removal Capacity for the Direct Feed LAW Effluent Management Facility (EMF)*, 24590-BOF-PER-M-16-002, located in Appendix 13.18.
- *Dangerous Waste Permit (DWP) Liner Heights in the Effluent Management Facility (EMF)*, 24590-BOF-PER-M-16-003, located in Appendix 13.8.

4.2.6.1 Secondary Containment System Requirements

Most of the tank systems containing mixed waste are located within the plants, although two tanks are located outside the PTF, and eight vessels are located outside of the EMF. Tank systems containing mixed waste that are located within the plants are arranged within process cells, process rooms, caves, or other areas provided with secondary containment liners or coatings. The outside tanks and vessels are located on a bermed, concrete pad, provided with special protective coatings and covings or waterstops, or provided with stainless steel liners that provide secondary containment.

The secondary containment systems are designed, installed, and operated to prevent migration of waste or accumulated liquid to soil, groundwater, or surface water. The piping associated with the tank systems are located in the process cells, process rooms, caves, berms, or bulges. Secondary containment for piping systems is incorporated into the design.

Tank systems and wet miscellaneous treatment systems are provided with secondary containment that can contain 100% of the volume from the largest tank within the containment area. In the PTF, the 15 black cells and the hot cell at the 0’ (ft) elevation are interconnected through hydraulic connections (open penetrations that interconnect adjacent cells) such that the combined secondary containment volume is available, if necessary, to contain a 100% leak from the largest tank. A leak to the hot cell floor, if large enough, drains to the overflow vessels in the pit at -45’ (ft) elevation and ultimately to the -45’ (ft) pit secondary containment if the volume of the overflow vessel(s) is exceeded. Secondary containment areas lined with stainless steel have a gradient (minimum 1%) designed to channel fluids to a sump. In some cases, there may be more than a single sump. For example, the hot cell in the PTF has three instrumented sumps for leak detection. Fire suppression water is included as appropriate in determining the height of the secondary containment. Table 4D-3 in Chapter 4D, Table 4E-3 in Chapter 4E, Table 4F-3 in Chapter 4F, Table 4G-3 in Chapter 4G, and Table 4H-2 in Chapter 4H summarize the calculated minimum liner height at the four process plants and the Lab. The flooding volume documents identified above present the secondary containment height for each plant.

A concrete berm with protective coatings or stainless liners is used for the PTF and EMF outdoor tanks and vessels. These secondary containment areas are capable of holding 100% of the volume from the largest tank within the berm, plus the precipitation from a 25-year, 24-hour rainfall event, as required under WAC 173-303-640(4)(e)(i)(B).

The WTP uses selected industry standards to ensure secondary containment systems have sufficient strength, thickness, and compatibility with waste. The design includes an engineered structural base to protect against failure resulting both from excess force applied during catastrophic events or settlement, and from the stress of daily operation.

In the event of a spill or release, the secondary containment design prevents released mixed waste from reaching the environment, and safely contains the waste until it can be transferred to an appropriate collection tank.

The following subsections provide detailed descriptions of typical secondary containment systems that will be used at the WTP.

Process Cells

Process cells are located within process plants. Process cells are typically constructed of concrete walls to protect plant operators and the environment from radiological exposure and to prevent migration of waste or accumulated liquid to soil, groundwater, or surface water. Operator access to the process cells is not allowed during normal operations. However, access is allowed for certain areas within WTP for nonroutine operations such as equipment replacement or maintenance. Process cells are provided with liners and special protective coatings as required. Systems within process cells that manage mixed waste have secondary containment (for example, process vessels and piping).

Black Cells

A black cell is a type of process cell that may contain vessels, evaporators, and piping systems that are used to support process waste stream storage and blending functions. No active equipment (i.e., equipment with moving parts) components are located in the black cell. The design for the vessels and piping is all welded construction. Some instrumentation (e.g., thermocouples, radiation detectors) are remotely replaceable by insertion into sealed pipe wells. The black cell vessels and design do not possess design features for remote replacement. The black cell concept is used in areas where the risk of vessel or piping failure due to corrosion or erosion is low. The PTF contains fifteen black cells and the HLW Vitrification Facility contains three black cells.

Hot Cell

Alternatively, a hot cell is a type of process cell that contains active equipment and periodically needs to be remotely accessed for equipment maintenance or replacement.

All process cells are provided with secondary containment as required. The floor is sloped to a collection sump to allow for collection and removal of accumulated liquid within the sump.

Caves

Caves are located within process plants. Caves typically are constructed with concrete walls thick enough to protect personnel from exposure to mixed waste. Caves house mechanical handling equipment designed for remote operation and maintenance. They generally have viewing windows and closed circuit television to allow observation of the cave operations and for overseeing remote maintenance. The cave floors and portions of the walls are provided with secondary containment as required. The floor of the cave is sloped to a collection sump to allow for collection and removal of accumulated liquid within the sump.

Berms

Concrete berms are used at the LAW Vitrification Facility for the Caustic Collection Tank (LVP-TK-00001). The berms are of sufficient structural strength and height to contain the 100% of the volume of the largest tank.

Vault-like structures are used for the two outdoor Process Condensate Tanks (RLD-TK-00006A/B) at the PTF, and the eight outdoor vessels at EMF (DEP-VSL-00002, DEP-VSL-00003A/B/C, DEP-VSL-00004A/B, and DEP-VSL-00005A/B). These vault-like structures are of sufficient structural strength and height to contain the 100% of the volume of the largest tank plus, for the outdoor Process Condensate Tanks, the amount of precipitation that results from the 24-hour, 25-year storm event.

A protective coating is applied to the concrete pad and a portion of the berms and vault-like structures to prevent contaminant penetration into the concrete. The containment system is designed to allow for the discharge of storm water after visual or other testing.

Drip Pan

The ancillary equipment/piping may be provided with a drip pan, sloped, or otherwise designed to perform the secondary containment functions, including leak detection. One such drip pan is located in the HLW Vitrification Facility Drum Transfer Tunnel (H-B015). Design details of the HLW drip pan are provided in the *Secondary Containment Design*, 24590-WTP-PER-CSA-02-001, located in Operating Unit Group 10 Appendix 7.5.

Low-Activity Waste Melter Feed Line Encasement Assembly

The feed lines that transfer wastes from the LAW Melter Feed Process system to the melters are housed in the LAW Melter Feed Line Encasement Assemblies (LMP-LDB-00001/00002). The encasement assemblies are a sloped bellows encasement that contains the feed line where they travel between the process cells and the melter gallery. The encasement assemblies are equipped with leak detection cables that run under the feed lines and into the bellows. The assemblies are equipped with drain lines to flow to sumps in the LAW process cells.

Autosampling System Samplers

The Autosampling System (ASX) samplers in the PTF, HLW Vitrification, and LAW Vitrification facilities contain both upper and lower secondary containment liners and leak detection systems. The upper containment area is designed to collect a potential leak from the incoming sample feed and return lines where they connect to the ISOLOK® sampling device. If a leak occurs in the upper containment area, the leak flows to the sloped liner which diverts the leak to the annular space of the coaxial sample return lines. Leaks flow down the secondary containment pipe and discharge to secondary containment with leak detection, typically a sump with a radar level detector. The ASX sample feed and sample return lines, and the routing of potential leaks in the annular space of the return lines are shown on the associated process system piping and instrumentation diagrams (P&IDs) provided in Operating Unit Group 10, Appendix 8.2, 9.2, and 10.2.

The sloped stainless steel liner in the lower containment area is designed to divert liquids to a sloped collection trough. The trough contains a removable weir that allows liquids to collect and activate the thermal level detection switch and alarms to indicate that a leak has occurred. Effluent from a leak flows to the same drain line that manages ISOLOK flush solutions. The ISOLOK flush lines terminate below the top of the trough drain to ensure that the leak detection system is not activated when flushing the ISOLOK. The ASX lower containment area drain lines are shown on the associated process system P&IDs provided in Operating Unit Group 10, Appendix 8.2, 9.2, and 10.2.

Sump and Leak Detection Boxes and Secondary Containment Drain Systems

Sumps, LDBs, and secondary containment drain systems for the four process plants and the Lab are listed in Table 4D-4 in Chapter 4D, Table 4E-4 in Chapter 4E, Table 4F-4 in Chapter 4F, Table 4G-4 in Chapter 4G, and Table 4H-3 in Chapter 4H and described in the following sections. Systems monitor and collect liquids managed in the system. Sumps, LDBs, and secondary containment drains are provided with a stainless steel liner or equivalent to act as the secondary containment. The sumps and LDBs within the process areas provide a low point for each secondary containment. The sumps and LDBs serve the following functions:

- Low point containment.
- Removal of material by means of sump emptying ejectors or pumps.
- Sampling of sump contents by means of sump sampling ejectors.

The following sections describe the type of sump used at the WTP and the secondary containment drains.

Sumps and Leak Detection Boxes

Sumps and LDBs are part of the secondary containment system provided for tank systems and wet miscellaneous treatment systems. Sumps and LDBs are located at a low point in the secondary containment systems, and are equipped with leak detection instrumentation and corresponding alarm. Mechanical or fluidic pumps are used to remove liquid that may accumulate in a sump or LDB.

A typical sump design is shown in *Secondary Containment Design*, 24590-WTP-PER-CSA-02-001, located in Operating Unit Group 10 Appendix 7.5. Design details of each sump and LDB, such as the sump size, capacity, level detection instrumentation, and pumps or ejectors are included in Table 4D-4 in Chapter 4D, Table 4E-4 in Chapter 4E, Table 4F-4 in Chapter 4F, Table 4G-4 in Chapter 4G, and Table 4H-3 in Chapter 4H and shown on the P&IDs for the Radioactive Liquid Waste Disposal (RLD) and/or Plant Wash and Disposal (PWD) systems, located in Operating Unit Group 10 Appendices 8.2, 9.2, 10.2, and 11.2.

Four sumps located in the HLW Vitrification Facility Melter Cave 1 and 2 (HSH-SUMP-00003/7/8/9) are equipped with stainless steel sump baskets. Sump baskets capture and retain small objects which may be inadvertently dropped into the sump, and prevent them from entering the piping. The baskets are provided with a lifting bail for the crane to remove from the sump and handles for the power manipulator to empty into a waste bucket. A typical sump basket design is shown in *Secondary Containment Design*, 24590-WTP-PER-CSA-02-001, Figure 10, located in Operating Unit Group 10 Appendix 7.5. Sump baskets are also identified on the P&IDs for the HLW RLD system, located in Operating Unit Group 10 Appendix 10.2. Sumps in the PTF, LAW, Lab, and EMF are provided with screened or perforated covers to prevent small objects from falling into, or accumulating in the sump. An example of a typical sump screened cover is shown *Secondary Containment Design*, 24590-WTP-PER-CSA-02-001, Figure 20, located in Operating Unit Group 10 Appendix 7.5.Secondary Containment Drains.

Many of the bulges, the autosamplers, and some process areas have secondary containment drains. This type of liquid collection system is located in a low spot in the cell formed by the sloping floor. Liquid detection instrumentation is provided for the secondary containment drains. Collected liquids gravity-drain to a collection vessel with a tank level indicator. The managed liquids could be waste released from a tank system, including ancillary equipment, or water used to wash the exterior of tanks or the walls of the containment area. Design details of each secondary containment drain/drain line are included in Table 4D-4 in Chapter 4D, Table 4E-4 in Chapter 4E, Table 4F-4 in Chapter 4F, Table 4G-4 in Chapter 4G, Table 4H-3 in Chapter 4H, and shown on the P&IDs for the RLD and/or PWD systems, located in Operating Unit Group 10 Appendices 8.2, 9.2, 10.2, and 11.2.

Design Requirements

The process cells, process rooms, or caves with mixed waste vessel or tank systems will be partially lined with stainless steel or special protective coating, which will cover the floor and extend up the sides of the process cell or cave to a height that can contain 100 percent of the volume from the largest tank within the process cell or cave. Table 4D-3 in Chapter 4D, Table 4E-3 in Chapter 4E, Table 4F-3 in Chapter 4F, Table 4G-4 in Chapter 4G, and Table 4H-2 in Chapter 4H present the calculated minimum secondary containment liner height at the four process plants and the Lab.

A concrete berm with special protective coatings or stainless liner are used for the PTF and EMF outdoor tanks and vessels. These secondary containment areas are capable of holding 100% of the volume from the largest tank within the berm, plus the precipitation from a 25-year, 24-hour rainfall event, as required under WAC 173-303-640(4)(e)(i)(B).

The WTP uses consensus-recognized standards to ensure that the process cells, process rooms, caves, or berms provide secondary containment with sufficient strength, thickness, and compatibility with waste. The design includes an engineered structural base to protect the cells, caves, berms, and tank systems against failure resulting both from excess force applied during catastrophic events or settlement, and from the stress of daily operation. In the event of a spill or release, the structural and foundation design for tank and process cells, process rooms, caves, and berms prevents released mixed waste from reaching the environment, and safely contains the waste until it can be transferred to an appropriate collection tank.

4.2.6.2 Management of Release or Spill to Sump and Secondary Containment Drain Systems

The WTP uses dry sumps and LDBs as part of the secondary containment and leak detection systems. Sumps and LDBs are instrumented to inform the operator to investigate the cause of the liquid detected in the sump or LDB. Secondary containment systems are sloped to direct flow of leaks or spills to the sump or LDB. To remove liquid from the sumps or LDBs in a timely fashion, sumps and LDBs are equipped with mechanical or fluidic pumps.

A detection alarm indicating that there is liquid in the sump or LDB will be investigated to determine if the alarm is valid. If the alarm is valid, the incident will be corrected. Mixed waste released from the primary system and collected in a sump or LDB will be removed within 24 hours, or in as timely a manner as possible. If the released material cannot be removed within 24 hours, the Washington State Department of Ecology (Ecology) will be notified.

4.2.6.3 Additional Requirements for Secondary Containment

The WTP dangerous waste storage tanks have vault-type secondary containments that have either chemical-resistant water stops and special protective coatings or the following configurations that the Department of Ecology has approved as equivalent to a coating/water stop system:

- An impermeable interior coating that is compatible with the stored waste and a polymeric filler material at interior corners and construction joints that performs a function equivalent to a water stop.
- A welded stainless steel liner attached to walls and floors.

Ancillary equipment such as piping is addressed within Section 4.2. Other types of ancillary equipment such as pumps, seal pots, and reverse flow diverters are provided with secondary containment. Inspection of ancillary equipment is addressed in Operating Unit Group 10, Chapter 6.0.

4.2.7 Variances from Secondary Containment Requirements

No variances from secondary containment requirements are sought for the WTP tank systems. Tank systems are provided with secondary containment as identified in the flooding volume documents described in the previous sections.

4.2.8 Tank Management Practices

The following provides the basic philosophy for the WTP vessel overflow systems. Three types of barriers exist to prevent overfill of process equipment: preventive controls, detectors, and regulators. Preventive controls promote controlled filling within normal process ranges. Detectors recognize if a vessel is being overfilled and alert an operator. Lastly, if preventive controls and detectors fail to stop overfill from occurring, regulators trip a control sequence that stops inflow and/or initiates outflow. The principal design concept to control vessel overflow is to prevent an overflow from occurring. The engineering design minimizes the likelihood of tank, ancillary equipment, and containment system overflows, and over-pressurization, ruptures, leaks, corrosion, and other failures.

In general, overflows are prevented by inventory control in conjunction with level monitoring. The fluid levels in a vessel are maintained within low- and high-level ranges. Appropriate alarm settings are used to note deviations from the designed settings. Automatic trip action is designed to shut down feed to the vessel when the high-level settings are exceeded. These automatic trip actions are provided for vessels with the potential for high operational and environmental impact in case of an accident or release.

Most of the WTP tank systems are designed to incorporate minimal or zero maintenance requirements and are based on a design life of approximately 40 years. The design emphasis of zero maintenance minimizes the likelihood of spills and overflows in the tank systems. In the event that the process controls fail to prohibit vessel overfilling, engineered overflows are provided to prevent liquid from entering the vessel ventilation systems. Vessels that are nominally operating at atmospheric pressure have a suitable gravity or engineered overflow system, unless an overflow can be shown not to be possible. Vessels or systems that normally operate at above atmospheric pressures are not be provided with overflows.

The following principles apply when designing an engineered overflow system:

- The overflow system for vessels must be instantaneously and continuously available for use.
- Overflowed process streams must be returned to the waste treatment process.
- Overflow systems must meet the requirements of WAC 173-303, *Dangerous Waste Regulations*, Section 640, Tank Systems. In meeting these requirements, overflowing direct to the cell floor is only considered as the last overflow in a cascaded system. Where an overflow is from a vessel to the cell, the overflow system maintains segregation of the cell and vessel ventilation systems. The compatibility of the overflowing liquid and the recipient vessel is considered.
- A vessel overflow line is sized to handle the maximum inflow to the vessel without the liquid level in the overflowing tank reaching an unacceptably high level. No valves or other restrictions are permitted in the overflow line. This line is also designed to prevent the buildup of material that could cause blockages.
- The overflow receiver is sufficiently sized to contain the overflow.
- Inspections are performed on the various tank and overflow systems, using the example schedules described in DWP Operating Unit Group 10, Chapter 6A.

4.2.9 Labels or Signs

Tanks managing mixed or dangerous waste are labeled according to the requirements of DWP permit conditions DWP III.10.E.5.e, for routinely non-accessible tanks, and DWP III.10.E.5.f, for tanks not addressed in DWP III.10.E.5.e. The labels inform employees and emergency personnel of the types of waste present, warn of the identified risks, and provide other pertinent information.

4.2.10 Air Emissions

4.2.10.1 Tank System Emissions

Most of the tanks are connected to a vessel ventilation system to collect vapors. Vessel vents are located on process vessels and tanks, breakpots, and other small vessels. Exhaust from reverse flow diverters and pulse jet mixers are also collected.

4.2.10.2 Process Vents

The air emission regulations, specified under WAC 173-303-690 and 40 CFR 264 Subpart AA, apply to process vents associated with distillation, fractionation, thin-film evaporation, and air or steam stripping operations that manage mixed waste with total organic carbon concentrations of at least 10 parts per million by weight. The WTP does not use these regulated processes; therefore, this regulation does not apply to the WTP.

4.2.10.3 Equipment Leaks

Regulations provided in WAC 173-303-691 and 40 CFR 264 Subpart BB contain the "Air Emission Standards for Equipment Leaks". These air emission standards do not apply to the WTP because waste feed entering the WTP contains less than 10% total organic carbon by weight and is excluded under 40 CFR 264.1050(b).

4.2.10.4 Tanks and Containers

The regulations specified under WAC 173-303-692 and 40 CFR 264 Subpart CC do not apply to the WTP mixed waste tank systems and containers. These tanks and containers qualify as waste management units that are "used solely for the management of radioactive dangerous waste in accordance with applicable regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act" and are excluded under 40 CFR 264.1080(b)(6). Containers bearing nonradioactive, dangerous waste, such as maintenance and laboratory waste, that is not excluded under 40 CFR 264.1080 (b)(2) or 40 CFR 264.1080(b)(8), will comply with the tank and container standards specified under 40 CFR 264 Subpart CC.

4.2.10.5 Ventilation Control

This section describes air emissions from vessel ventilation systems and reverse flow diverter exhausts. Organic emissions from vents associated with evaporator or distillation units are also discussed.

In compliance with the Washington Administrative Code, (WAC) 173-303-695, WTP facilities have been designed to prevent fugitive emissions of contaminants from containment buildings within the WTP permitted facilities through pathways other than high-efficiency particulate air (HEPA)-filtered and monitored discharge points to the environment. WTP HVAC systems, in conjunction with the building structures provide the confinement system needed to prevent exit of contaminants from WTP facilities through doors, windows, building cracks or other unmonitored and unfiltered exit paths directly to the environment.

The WTP facilities are designed such that they are segregated into confinement zones for ventilation control purposes. WTP confinement zones consist of barriers or barrier systems, which includes walls, floors and roofs, and the associated HVAC systems.

WTP facilities' ventilation confinement zones consist of the following:

Confinement Zone	Contamination Classification	Ventilation Design Philosophy Definitions
Primary	C5	Plant areas and associated ventilation ductwork that are in direct contact with airborne contaminants to adjacent zones under both normal and abnormal operating conditions. Maintained at approximately (-) 1.0 to (-) 1.4 inches of water relative to C3 areas.
Secondary	C3	Contaminated areas where work requires protective clothing. Maintained at maximum negative pressure of (-) 0.4-inches of water relative to surrounding C2 areas.
Tertiary	C2	Controlled Area. Operating areas of the process building that have direct interfaces with contaminated areas and have the potential to be contaminated. Maintained at a slight negative pressure with respect to atmosphere.

Information regarding specific facilities can be found in Chapters 4D.3, 4E.3, and 4F.3.

Airborne contaminants in C2 areas will cascade to C3 areas or be removed by C2 exhaust system HEPA filters prior to discharge to the environment. Airborne contaminants in C3 areas will cascade to C5 areas or be removed by C3 exhaust system HEPA filters prior to discharge to the environment, including releases from containment buildings within C3 areas. Airborne contaminant in C5 areas will be removed by C5 exhaust system HEPA filters prior to discharge to the environment, including releases from containment buildings within C5 areas.

The systems are interlocked such that the exhaust system serving areas of lesser contamination potential cannot operate without the exhaust systems serving areas of higher contamination potential operating. This precludes pressurization of WTP areas and possible fugitive dust emissions from the facility through doors, windows, building cracks, or other unmonitored and unfiltered exit paths.

The following design features and operational measures will be used to prevent fugitive dust from escaping from containment buildings resulting in unfiltered and unmonitored releases to the environment, and control fugitive emissions such that openings will not exhibit visible emissions:

- Cascading air flow from areas of least potential contamination to areas of greatest potential contamination (i.e., C2 to C3 to C5 areas).
- Greater negative pressure in confinement areas compared to outside environment pulls air into the area preventing backflow.
- Intake from one confinement zone to another through air in-bleed units, with isolation and backflow control type features.
- HEPA filtration of exhausted air is monitored prior to atmosphere discharge through the exhaust stack. C2 and C3 exhaust systems have one stage of HEPA filters. C5 exhaust systems have two stages of HEPA filters.
- Redundant exhaust fans maintain negative pressure and cascading airflow during normal operation, routine fan maintenance and repair conditions.
- Personnel ingress and egress through airlocks and subchange rooms.

- Dedicated HEPA-filter systems will be provided for each maintenance area, workshop, and decontamination room where local process-generated airborne contaminants will be collected to prevent spread outside of the area.
- Containment buildings (i.e., cells or areas) are typically located within C3 or C5 areas for control of airborne contamination.
- Containment buildings are located within ventilation-controlled process facilities.

4.2.11 Management of Ignitable, Reactive and Incompatible Waste in Tanks

In the Baseline configuration, mixed waste from the Hanford Tank Farms is initially designated as both ignitable (D001) and reactive (D003). The D001 and D003 waste numbers are as described in the waste analysis plan in DWP Operating Unit Group 10, Appendix 3A. The PTF process vessels are located in a manner that meets the National Fire Protection Association (NFPA) buffer zone requirements for process vessels, as contained in Tables 2-1 through 2-6 of the *NFPA-30 Flammable and Combustible Liquids Code* (NFPA 1981). The process vessels are designed to store the waste in such a way that it is protected from materials or conditions that could cause the contents to ignite or react. Vessel contents will be constantly mixed and will be actively vented to process stacks, which will be equipped with vapor collection and treatment systems that will manage emissions. Further information on waste numbers is contained in DWP Operating Unit Group 10, Appendix 3A.

In the DFLAW configuration, the treated LAW received from LAWPS will not demonstrate the characteristics of ignitable or reactive waste.

Ignitable or reactive waste may be generated from laboratory or maintenance activities. This waste is accumulated and managed in compliance with regulatory requirements, in approved containers. Potentially incompatible waste generated from laboratory or maintenance activities will not be stored in the tank systems.

A potential for incompatibility may exist, for example when nitric acid is used to elute waste components from ion-exchange column resins that were previously regenerated with sodium hydroxide. To minimize a reaction, water flushes are performed between batches.

Process reagents that could react with waste in the tank systems are stored in areas that are separated by physical barriers from process tanks. Potentially incompatible wastes generated from laboratory or maintenance activities will not be stored in proximity to each other in the tank systems.

4.3 Low-Activity Waste and High Level Waste Miscellaneous Treatment Sub-Systems [WAC 173-303-680 and WAC 173-303-806(4)(i)]

The LAW vitrification system and HLW vitrification system consist of the vitrification melters, offgas treatment equipment, and associated equipment. The melters immobilize mixed waste in a glass matrix. The LAW vitrification system and the HLW vitrification system contain two melters each. The following sections provide additional information on the vitrification systems.

Other miscellaneous treatment sub-systems, and their associated process control features, are described in Section 4.2.

4.3.1 Melter Capacity and Production

For the melters, throughput is defined on the basis of quantity of glass waste produced. In turn, the quantity of glass waste produced depends on the degree to which the feed can be incorporated into the glass matrix. The maximum design throughput of the LAW Melter systems is approximately 15 metric tons per day of glass waste for each melter and approximately 30 metric tons per day. The production rate of the HLW Melters is approximately 3 metric tons per day for each melter and approximately 6 metric tons per day throughput.

4.3.2 Description of Melter Units [WAC 173-303-806(4)(i)(i)]

The LAW Melter systems are located in the melter galleries and the HLW Melters are housed within the melter caves as depicted in the general arrangement plan and section permit drawings, which are found in DWP Operating Unit Group 10, Appendix 9.4 for the LAW Vitrification Facility and Appendix 10.4 for the HLW Vitrification Facility. The following subsections provide detailed descriptions of the melter units.

Low-Activity Waste Melter Units

Figure 4A-48 in Chapter 4A provides a sketch of a LAW Melter. Each LAW Melter (LMP-MLTR-00001/2) is a rectangular shell, lined with refractory material. An additional outer steel casing with access panels is provided to enclose the LAW Melter. This outer steel casing is designed to provide local shielding and containment. Each LAW Melter has a nominal design capacity of approximately 15 metric tons of glass waste per day. Each has a molten glass surface area of approximately 107 square feet (ft^2). Each of the two LAW melters has external dimensions of approximately 31 × 21 × 16 ft high, and weighs approximately 295 metric tons empty and 318 metric tons with glass. The operating temperature of the melter is between 1050°C and 1200°C.

The locally shielded LAW Melter (LMP-MLTR-00001/2) is operated and maintained in a personnel access area. The melter is maintained at a lower pressure than the surrounding room to prevent escape of contaminants. Consumable melter parts are replaced through access panels. The melters are transported in and out of the gallery on a rail system. A transporter moves the melters to and from the LAW Vitrification Facility.

The melter refractory package is designed to serve as a mechanical, thermal, and electrical barrier between the molten glass residing in the melter and the melter shell. The refractory package is housed in a steel shell and provides containment for the molten glass. Active cooling on the outside of the refractory package is provided by water jackets. The water jackets are in the intermediate loop of a two-loop system that transfers heat from the LAW Melter through heat exchangers to cooling towers. The intermediate loop containing the water jacket is a closed system that isolates the water circulating through the water jacket from the water in the cooling water loop circulating to the cooling tower. Mixed waste material leaking into the intermediate loop cooling water is prevented from becoming an inadvertent discharge via the cooling tower. The refractory package provides adequate containment if there is a temporary loss of cooling. Penetrations in the melter system are sealed using appropriate gaskets and flanges. This system is designed for plenum temperatures of up to 1,100°C. The LAW melter lid is composed of steel and refractory material layers.

Each LAW Melter (LMP-MLTR-00001/2) uses two independent discharge chambers. An air lift pumps molten glass from the bottom of the melter pool, through a riser, into a discharge chamber, and pours it into an ILAW container. The ILAW is then allowed to cool, forming a highly durable borosilicate glass waste form within the container.

Spent LAW Melters are initially be managed within the LAW melter gallery containment building unit. Spent LAW Melters are removed from the melter gallery and transported using a transport and rail system. If necessary, the melter exterior surfaces will be decontaminated prior to transfer to a Hanford Site TSD unit.

High Level Waste Melter Units

Figure 4A-27 in Chapter 4A provides a sketch of an HLW Melter. In addition, the HLW melter mechanical assembly drawings (24590-HLW-MF-HMP-00001/2/3) are located in Operating Unit Group 10, Appendix 10.6. Each HLW Melter (HMP-MLTR-00001/2) is a rectangular shell, lined with refractory material. They have four compartments: a glass tank, two discharge chambers, and a plenum just above the glass tank. The tanks are lined with refractory material designed to withstand corrosion by molten glass.

The HLW Melter systems consist of two melters. Each HLW Melter (HMP-MLTR-00001/2) is designed for glass production rates up to 3 metric tons per day (MTG/d). The normal operating temperature of the melter is between 950°C and 1250°C. The HLW Melters have a molten glass surface area of approximately 40 ft^2. The HLW Melters have external dimensions of approximately 11 ft high × 14 ft deep × 14 ft wide. The glass contained in a full HLW Melter has a volume of approximately 145 ft^3 and weighs approximately 9.1 metric tons. An entire melter, including the supporting structure and transport mechanism, weighs approximately 90 metric tons empty and approximately 99 metric tons full.

The HLW Melters (HMP-MLTR-00001/2) are designed to be remotely operated and maintained. Remote maintenance is performed by a power manipulator, overhead crane, and auxiliary hoist, or by through-wall master-slave manipulators. The melter is positioned within the HLW Vitrification Facility for ease of access and viewing of both discharge chambers during operations, and for viewing access to the melter lid to facilitate removal and replacement of subcomponents, if needed. A rail and bogie transport system facilitates remote removal and replacement of the entire melter structure.

The HLW Melters (HMP-MLTR-00001/2) uses a refractory package similar to the LAW melter to contain the molten glass. The refractory package is designed to serve as a mechanical, thermal, and electrical barrier between the molten glass inside the melter and the melter shell.

The HLW Melters also use an outer shell, which, with the refractory package, contains the molten glass and melter offgas. Active cooling on the exterior of the melter is provided by a water jacket, which is in a two-loop system that transfers heat from the HLW Melter through heat exchangers to cooling towers. The loop containing the water jacket is a closed system that isolates the water circulating through the water jacket from the water in the cooling water loop circulating to the cooling tower. Mixed waste material leaking into the intermediate loop cooling water is prevented from becoming an inadvertent discharge through the cooling tower. The refractory package provides adequate containment should there be a loss of cooling. The HLW Melter lid is constructed of a steel outer shell and insulated from the melter plenum by refractory material.

The HLW Melter uses two independent discharge chambers. Discharge is achieved by transferring the molten glass from the bottom of the melter pool, through a riser, and then poured into a stainless steel IHLW canister. Glass waste transfer is accomplished through air lifting. The IHLW is then be allowed to cool, forming a highly durable borosilicate glass waste form.

Spent HLW Melters are removed from the melter cave and placed in an overpack. The spent melter is treated as newly generated waste, and is initially managed within the HLW melter containment buildings. If necessary, the overpack will be decontaminated using a dry process. Failed HLW Melters are stored in the failed melter storage building.

4.3.3 Automatic Waste Feed Cut-Off System

The LAW and HLW Melters are equipped with the ability to cut off waste feed. Automatic waste feed cut-off systems terminate feed to the melter if a specified operating condition is exceeded. This design approach is consistent with the WAC 173-303-680 regulatory requirements.

The LAW (LMP-MLTR-00001/2) and HLW (HMP-MLTR-00001/2) Melters are fed via air displacement slurry pumps that utilize pressurized air as the motive force. These pumps supply feed to the melters in slugs that act to keep lines from plugging. The feed is injected into the melters through the feed nozzles on top of the melter creating a "cold cap", where waste feed undergoes several physical and chemical changes. The glass product in the melter is then "air lifted" through the discharge chamber and into the glass container. Melter offgas is generated from the vitrification of LAW and HLW of which the rate of generation is dynamic and not steady state. The offgas is then carried away and treated via a dedicated offgas system.

The melter systems are designed to minimize the need for automatic waste feed cut-off functions. Control of melter level and plenum pressure, process alarming, and optimized operating procedures are in place to reduce the occurrences of interlocking. Given the processing speeds and the relatively slow rates of change in the operating states of the melter, operators should have adequate time to react to upset conditions. An example of the slow rate of change can be seen in the volume of feed per air displacement slurry pump feed cycle when increasing melter level. Each pump cycle adds approximately one gallon of slurry into the melter. At one gallon of volume, the liquid level rises no greater than 0.01 inch inside the melter. This provides ample time for operator response.

Previous operating experience with similar melter systems has shown the following operating conditions warrant automatic waste feed cut off:

- Maximum melter chamber pressure.
- Minimum off-gas temperature at the thermo catalytic oxidizer bed inlet.
- Maximum carbon bed adsorber bed temperature.
- Maximum stack gas flow rate.
- Maximum stack gas carbon monoxide.

These interlocks have been sufficient to allow continued melter operations without inadvertent feed cut off signals, yet provide a sufficient safety margin.

4.3.4 Offgas Treatment System

The offgas treatment system treats or removes steam, aerosols, entrained particulates, decomposition products, and volatile contaminants that are generated from the vitrification processes and the vessel ventilation systems. The typical constituents contained in the melter offgas stream are as follows:

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

A detailed description of the current offgas treatment trains for the LAW (LMP-MLTR-00001/2) and HLW (HMP-MLTR-00001/2) Melters is provided in Chapter 4E and Chapter 4F, respectively.

4.3.5 Miscellaneous Unit Emissions Performance

The WTP melter systems are thermal treatment units classified as miscellaneous units in Washington Administrative Code (WAC 173-303-680). The dangerous waste regulations require that permits for miscellaneous units include such terms, conditions, and provisions that are necessary to protect human health and the environment and are appropriate for the miscellaneous unit being permitted. Ecology has determined that regulations that are most appropriate to apply to the melters and offgas systems (melter systems) are found in the tank requirements (WAC 173-303-640) and applicable sections of the incinerator requirements (WAC 173-303-670) and 40 CFR Section 63.1203. As applied to the melter systems, the tank regulations primarily provide requirements for structural integrity, material compatibility, secondary containments, etc.

The incinerator regulations primarily provide operational requirements for parameters such as temperature, pressure, feed rate, demonstration testing, and performance standards, etc. Ecology determined and incorporated into the final WTP Dangerous Waste Permit issued in September 2002 the standards specified in 40 CFR Section 63.1203 in the following table apply to the WTP melter system miscellaneous units.

Miscellaneous Unit Emissions Performance Standards	
Pollutant	**Ecology-Directed Requirement**
PODC	99.99% DRE
Dioxins and Furans	0.20 ng TEQ/dscm
Mercury	45 μg/dscm
Lead and Cadmium	120 μg/dscm, combined emissions
Arsenic, Beryllium, Chromium	97 μg/dscm, combined emissions
Carbon Monoxide and Hydrocarbons	Carbon monoxide not in excess of 100 ppmv over an hourly rolling average, dry basis, and hydrocarbons not in excess of 10 ppmv over an hourly rolling average, dry basis, and reported as propane, at any time during the DRE test runs or their equivalent, or hydrocarbons not in excess of 10 ppmv, over an hourly rolling average, dry basis, and reported as propane
Hydrochloric Acid and Chlorine Gas	21 ppmv, combined emissions, expressed as hydrochloric acid equivalents, dry basis
Particulate Matter	34 mg/dscm

PODC is Principle Organic Dangerous Constituent

TEQ is dioxin/furan toxicity equivalence defined in 40 CFR 63.1201(a)

dscm is dry standard cubic meter

ppmv is parts per million by volume

Rolling average is the average of all 1- minute averages over the averaging period [40 CFR 63.1201(a)]

DOE intends that the melter systems be designed and constructed so that they operate in compliance with the appropriate and applicable standards. Environmental performance demonstrations during cold commissioning of the HLW and LAW Vitrification facilities are used to verify compliance with the Destruction and Removal Efficiency (DRE) and other applicable air emission standards. The final WTP Dangerous Waste Permit issued in September 2002 also requires periodic demonstration testing be performed after the WTP has begun processing radioactive wastes (Ecology, 2001).

4.3.6 Physical and Chemical Characteristics of Waste [WAC 173-303-680(2)(a)(i)]

A description of the waste characteristics of the LAW and HLW feeds is presented in DWP Operating Unit Group 10, Chapter 3.0 (see Appendix 3A). The immobilized waste generated by the vitrification processes is in the form of glass that maintains its chemical and physical integrity during long-term storage. The Waste Analysis Plan (Appendix 3A) describes the types and frequency of analysis that will be performed on the glass waste.

4.3.7 Environmental Performance Standards for Melter Systems [WAC 173-303-680(2)]

An environmental performance demonstration will be conducted to demonstrate the efficiency of the LAW and HLW Melter systems and their respective air pollution control systems. Emissions from the LAW and HLW systems will be sampled and analyzed during an environmental demonstration performed during cold commissioning. The data developed during the environmental performance demonstration supports the screening-level risk assessment, which supports the development of environmental performance standards for the LAW and HLW Melter systems.

The operational activities of the WTP include methods intended to ensure proper performance of equipment and processes. These methods include sampling of materials, use of direct process controls, development of equipment life specifications and ongoing maintenance.

4.3.7.1 Protection of Groundwater, Subsurface Environment, Surface Water, Wetlands and Soil Surface [WAC 173-303-680(2)(a) and (b)]

The LAW Melters are located in the LAW Melter Gallery (L-0112) within the LAW Vitrification Facility. The HLW Melters are located in the HLW Melter Caves (H-0117, H-0106) within the HLW Vitrification Facility. Both plants are designed to comply with standards that ensure protection of the surface and subsurface environments. The vitrification plants are completely enclosed and are designed to have sufficient structural strength and corrosion protection to prevent collapse or other structural failure. In addition, the melter systems, melter feed systems, and related piping are provided with secondary containment, to minimize the potential for release. The LAW melter gallery (L-0112) and the HLW melter caves (H-0117, H-0106) will be permitted as containment buildings and are described in Chapter 4E and Chapter 4F, respectively.

Floors within the vitrification plants are protected in a manner consistent with the intended usage of the space. The floor and portions of the walls of HLW Melter cave are partially lined with stainless steel. Nonradioactive materials usage areas requiring heavy equipment have concrete floors with hardener and sealer finishes.

The *Hanford Facility Dangerous Waste Permit Application General Information Portion*, Section 5.4 (DOE-RL 1998), provides climatological data, topography, hydrogeological and geological characteristics, groundwater flow quantity and direction, groundwater quality data, and surface water quantity and quality data for the area around the WTP.

4.3.7.2 Protection of the Atmosphere [WAC 173-303-680(2)(c)]

A risk assessment is performed to evaluate the impacts of the WTP emissions on human and ecological receptors. Actual offgas emissions is measured during an environmental performance demonstration that is performed as part of the WTP commissioning activities. The data is used during a screening-level risk assessment that is performed to determine ecological and human health risk. The emissions data and the results of the screening level risk assessment are used to establish operating conditions for the melters that do not endanger human health and the environment.

4.3.8 Treatment Effectiveness Report [WAC 173-303-806(4)(i)(iv)]

A treatment effectiveness report evaluating the performance of the miscellaneous treatment sub-systems, and their effectiveness in treating the LAW and HLW, will be located in DWP Operating Unit Group 10, Appendix 9 for LAW and Appendix 10 for HLW. The report uses the results of the environmental performance demonstration and the risk assessment activities to document treatment effectiveness of miscellaneous treatment sub-systems.

4.3.9 Approach to Risk Assessment [WAC 173-303-680(2)(c)(i) through (vii)]

A screening level risk assessment is being conducted to evaluate any possible human health and ecological risk posed by the thermal treatment of mixed wastes. The risk assessment provides information about the potential terrestrial, aquatic, and food pathways for exposure of human and ecological receptors to dangerous waste constituents. This risk assessment presents the quantitative methods, detailed assumptions, and numerical parameters that are used to estimate the nature, extent, and magnitude of potential risks from operation of the WTP. The primary regulatory guidance followed for this risk assessment is found in the *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities* (EPA 1998a) and the *Screening-Level Ecological Risk Assessment Protocol for Hazardous Waste Combustion Facilities* (EPA 1999a)

Treated air emissions through the stack are the only planned direct releases into the environment from the WTP. Other waste streams are transferred to a permitted facility and are not released directly into the environment. Thus, the overall risk assessment process focuses primarily on air emissions.

Major components of the human health and ecological risk assessment process for evaluating airborne emissions are as follows:

- Risk assessment work plan.
- Pre-demonstration test risk assessment.
- Final risk assessment.

The overall approach for the risk assessment is to identify potential risks associated with various receptors, their locations, exposure pathways, and activity patterns in two broad exposure scenarios, as follows:

- Plausible exposure scenario.
- Worst-case exposure scenario.

The plausible exposure scenarios are based on where potential receptors currently exist or may reasonably be expected to exist within the foreseeable future. The worst-case assumptions are based on locations of maximum concentration even though it is not expected that such receptors will ever actually exist at these locations. Both scenarios will reflect current uses of the surrounding land and habitat and reasonable assumptions about future uses of the land and habitat.

During the environmental performance demonstration, emission samples are collected and analyzed, and the data used to evaluate risk to the human population and ecological (such as wildlife) receptors. Operating conditions are established for the WTP, which limit risks to human health and the environment to acceptable levels.

4.4 Other Waste Management Units

Sections 4.4.1 through 4.4.5 discuss the applicability of the requirements for waste management units that have not been discussed up to this point in the permit. Sections 4.4.6 through 4.4.9 describe the applicability of air emission controls, waste minimization, groundwater monitoring, and functional design requirements to the WTP. References to other sections of the permit are provided as appropriate.

4.4.1 Waste Piles

The operation of the WTP does not involve the placement of dangerous waste in waste piles. Therefore, the requirements of WAC 173-303-660, “Waste Piles”, do not apply to the WTP.

4.4.2 Surface Impoundments

The operation of the WTP does not involve the placement of dangerous waste in surface impoundments. Therefore, the requirements of WAC 173-303-650, “Surface Impoundments”, do not apply to the WTP.

4.4.3 Incinerators

The WTP does not include a dangerous waste incinerator. However, applicable sections of the incinerator requirements in WAC 173-303-670, and 40 CFR Section 63.1203 apply to the WTP.

4.4.4 Landfills

The operation of the WTP does not involve the placement of dangerous waste in landfills. Therefore, the requirements of WAC 173-303-665, “Landfills”, do not apply to the WTP.

4.4.5 Land Treatment

The operation of the WTP does not involve the land treatment of dangerous waste. Therefore, the requirements of WAC 173-303-655, “Land Treatment”, do not apply to the WTP.

4.4.6 Air Emissions Control

Information regarding air emissions control is provided in the following sections:

- PTF Vessel Vent Process and Exhaust System (PVP/PVV) - Chapter 4D, Section 4D.4.2.
- LAW Vitrification Facility offgas treatment system description - Chapter 4E, Section 4E.4.2.
- HLW Vitrification Facility offgas treatment system description - Chapter 4F, Section 4.2.
- DFLAW EMF Vessel Vent Process System (DVP) - Chapter 4G, Section 5.1.
- Process vents (40 CFR 264 Subpart AA) - Section 4.2.10.2.
- Equipment leaks (40 CFR 264 Subpart BB) - Section 4.2.10.3.
- Tanks and containers (40 CFR 264 Subpart CC) - Section 4.2.10.4.

4.4.7 Waste Minimization

Waste minimization information is presented in Operating Unit Group 10 of the permit.

4.4.8 Groundwater Monitoring for Land-Based Units

The groundwater monitoring requirements found in WAC 173-303-645, "Releases from regulated units", do not apply to the WTP, since it is not operated as a regulated dangerous waste surface impoundment, landfill, land treatment area or waste pile, as defined in WAC 173-303-040. Therefore, groundwater monitoring is not required.

4.4.9 Functional Design Requirements

The WTP will be designed to comply with applicable design codes and specifications. The documents referenced in this chapter appendices and contained in DWP Operating Unit Group 10 identify the codes and standards to which the WTP system, structures, and components are being constructed.

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WASTE TREATMENT AND IMMOBILIZATION PLANT
CHAPTER 4I
BALANCE OF FACILITIES

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
07/01/2019	8C.2019.2F
09/05/2017	8C.2017.6F
12/15/2016	8C.2016.Q3

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CHAPTER 4I
BALANCE OF FACILITIES

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CHAPTER 4I
BALANCE OF FACILITIES

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4I Balance of Facilities (BOF)

The Balance of Facilities (BOF) provides support systems and utilities required for the waste treatment processes within the Pretreatment Facility, Low-Activity Waste (LAW) vitrification facility, High-Level Waste (HLW) vitrification facility, Analytical Laboratory (Lab), and the Effluent Management Facility (EMF). These will include, but not limited to, heating and cooling, process steam, process ventilation, chilled water, primary and secondary power supplies, and compressed air. The primary BOF process support systems are:

- Plant service air (PSA).
- Plant cooling water (PCW).
- Low-pressure steam (LPS).
- High-pressure steam (HPS).
- Demineralized water (DIW).
- Process service water (PSW).
- Chilled water (CHW).
- Glass former reagent (GFR).
- Cathodic protection (CPE).

The BOF systems are described in Sections 4I.1 through 4I.10. The BOF support and utility systems described in sections 4I.2 through 4I.9 will not manage dangerous waste, and are described below for informational purposes only. Section 4I.1 addresses BOF dangerous waste container management areas, and Section 4I.10 addresses the BOF CPE system. The majority of the of underground piping systems within the CPE system are not dangerous/mixed waste lines, however, a segment of dangerous/mixed waste underground transfer lines between the Pretreatment Facility, and the HLW Vitrification Facility, the LAW Vitrification Facility, and the Lab are cathodically protected. Underground waste transfer lines to support the Direct Feed Low Activity Waste (DFLAW) configuration are isolated from the soil environment with insulation and a high density polyethylene (HDPE) jacket, and are not part of the CPE system.

4I.1 Containers

This section identifies the containers and container management practices that will be followed at the BOF. The term “container” is used as defined in Washington Administrative Code (WAC) 173-303-040. Note that in this chapter and throughout the permit, terms other than containers may be used, such as canisters, boxes, bins, flasks, casks, and overpacks.

The container storage areas located within the BOF include:

- Waste Treatment Plant (WTP) Waste Storage Area.
- HLW Failed Melter Storage Facility.
- Transportation Staging Area.

Container storage area dimensions at the BOF are summarized in Table 4I-1.

The following sections address waste management containers:

- Description of Containers - Section 4I.1.1.
- Container Management Practices - Section 4I.1.2.
- Container Labeling - Section 4I.1.3.
- Containment Requirements for Storing Waste - Section 4I.1.4.
- Prevention of Ignitable, Reactive, and Incompatible Wastes in Containers - Section 4I.1.5.

4I.1.1 Description of Containers

The types of waste managed in containers include:

- Miscellaneous mixed waste (secondary waste).
- Miscellaneous nonradioactive dangerous waste (secondary waste).
- ILAW Containers (Transportation Staging Area).

The waste form dictates the type of containers used for waste management. The following paragraphs describe these types of containerized waste that are managed at the BOF.

Miscellaneous Mixed Waste

Generally, miscellaneous mixed wastes are secondary wastes that may include, but are not limited to, the following items:

- Spent or failed equipment.
- Offgas High Efficiency Particulate Air (HEPA) filters.
- Melter consumables.
- Spent melters.

Spent equipment and offgas filters will typically be managed in commercially-available containers such as steel drums or steel boxes, of varying size. The containers for miscellaneous mixed waste will comply with transportation requirements, with receiving Treatment, Storage, and Disposal (TSD) facility waste acceptance criteria, and will be compatible with the miscellaneous mixed waste. These containers may or may not include a liner. Final container selection, container and waste compatibility, and the need for liners, will be based on the physical, chemical, and radiological properties of the waste being managed.

Melter consumables are routinely generated wastes and include spent feed tubes, pressure transducers, bubblers, thermocouples, and discharge risers. LAW melter consumables will be placed into approved disposal containers of varying size.

HLW melter consumables will be remotely size reduced, if necessary, and placed into steel baskets with lids. The baskets will be placed into drums and the drums placed into shielded casks for export from the facility.

The LAW Locally Shielded Melter (LSM) will be classified as hazardous debris for land disposal restrictions purposes. After a spent HLW Melter is deemed to meet criteria and regulations for onsite disposal, it will be placed in a welded carbon steel container (overpack) or other acceptable packaging in accordance with waste acceptance criteria for the receiving TSD facility. The design of the Failed Melter Storage Facility is addressed in interim compliance schedule, Dangerous Waste Permit (DWP) Operating Unit Group 10, Appendix 1.0.

Each miscellaneous mixed waste container will have associated documentation that describes the contents, such as waste type, physical and chemical characterization, and radiological characterization. This information will be retained within the plant information network.

Most miscellaneous secondary mixed wastes will be spent equipment and consumables such as pumps, air lances, HEPA filters, etc., and are not expected to contain liquids. If wastes are generated that contain liquids, absorbents may be added in order to comply with the receiving TSD Facility waste acceptance criteria.

Miscellaneous Nonradioactive Dangerous Waste

Each nonradioactive dangerous waste container will have associated documentation that describes the contents, such as waste type and physical and chemical characterization. Commercially available containers will be used. The types of containers used for packaging nonradioactive dangerous waste will comply with the receiving TSD facility waste acceptance criteria and transportation requirements. However, final container selection, container and waste compatibility, and the need for liners will be based on the physical and chemical properties of the waste being managed.

4I.1.2 Container Management Practices

The following paragraphs describe how containers are managed in the BOF container management areas.

4I.1.2.1 Miscellaneous Mixed Waste and Miscellaneous Nonradioactive Dangerous Waste Containers

WTP Waste Storage Area

The WTP Waste Storage Area will consist of a sloped concrete pad approximately 100 feet (ft.) by 145 ft. Containers on the pad will be kept closed unless waste is being added, removed, or sampled. They will routinely be moved by a forklift, crane, or drum cart, and will be managed in a manner that prevents ruptures and leaks. The storage capacity for the WTP Waste Storage Area is listed in Table 4I-1. The containers stored in the waste storage area may be stacked two high and aisle spacing will be at least 30 inches (in.) between rows of containers. Containers stored in this area will be placed on pallets, or otherwise elevated using skids or runners to prevent contact with liquid, if present. An example of container configuration in the waste storage area is provided in Figure 4I-1. The WTP Waste Storage Area will be designed with positive drainage control and sloped to drain or remove liquid, as necessary. Containers managed in these areas containing liquid will be placed in portable secondary containment systems meeting requirements of WAC 173-303-630(7). Portable secondary containment system materials will be compatible with all waste stored. The waste storage area is not designed nor intended to provide secondary containment; therefore, no structural integrity assessment is required.

Miscellaneous mixed waste (secondary waste) will be managed in the WTP Waste Storage Area. Containers will be kept closed unless waste is being added, removed, or sampled while in the container storage area. Containers stored in this area will be placed on pallets, or otherwise elevated to prevent contact with liquid, if present. Table 4I-1 summarizes the dimensions and maximum capacity of the container storage area. Containers will be managed in the container storage area, and then transferred to a suitable TSD facility.

The HLW Failed Melter Storage Facility will be a stand-alone building available during the baseline configuration as described in Chapter 4.0, Section 4.1. It will be used primarily to manage HLW melters that have completed their useful service life. The HLW Failed Melter Storage Facility may also receive containerized miscellaneous mixed waste, if needed.

Miscellaneous dangerous waste containers will typically be managed in the WTP Waste Storage Area, or in non-permitted waste management units (satellite accumulation areas and less-than-90-day storage areas) located throughout the BOF. Containers will be kept closed unless waste is being added, removed, or sampled. They will routinely be moved by forklift or drum cart, and will be managed in a manner that prevents ruptures and leaks. The storage capacity is listed in Table 4I-1. The containers in that area may be stacked two high and aisle spacing will be at least 30 inches (in.) between rows of containers. Containers stored in this area will be placed on pallets, or otherwise elevated to prevent contact with liquid, if present.

Transportation Staging Area

The Transportation Staging Area is permitted for the staging (storage) of ILAW transporters with full ILAW containers ready to ship to the Integrated Disposal Facility (IDF) for disposal. This staging area supports the uninterrupted operations of the LAW facility. The staging area is sized to hold three ILAW transporters, and will be comprised of a gravel area, which is surrounded by a perimeter fence with appropriate signage to delineate it as a permitted storage area. During a WTP outage, it may be necessary to stage large pieces of failed equipment loaded on transporters while awaiting approval for shipment to a TSD facility. When transporters enter or leave the staging area, shipping documentation will be required such as a staging area log and/or a checklist to ensure compliance with storage requirements. This information will be available in the transport vehicles and a shift manager will have access to this documentation. Waste in this area will be on a transport vehicle, tied down, and in closed containers at all times. All transports will be Department of Transportation (DOT) compliant or equivalent. The storage capacity for the Transportation Staging Area is listed in Table 4I-1. An example of container configuration for the transporter system is provided in Figure 4I-3.

4I.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 support the following systems (all systems used at the plants/facilities and BOF 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.

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 (LIMS)*.

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.

4I.1.3 Container Labeling

Miscellaneous Mixed Waste Containers

The miscellaneous mixed waste containers will be labeled with the accumulation or generation start date, as appropriate, the major risk(s) associated with the waste and the words "hazardous waste" or "dangerous waste." A waste tracking and inventory system will be implemented. Labels and markings will be positioned so that required information is visible. The label will meet the WAC 173-303-630(3) requirements, and the dangerous waste number will be clearly identified.

Miscellaneous Dangerous Waste Containers

The miscellaneous dangerous waste drums will be labeled with the accumulation or generation start date, as appropriate, the major risk(s) associated with the waste and the words "hazardous waste" or "dangerous waste". A waste tracking and inventory system will be implemented. Labels and markings will be positioned so that required information is visible. The label will meet the WAC 173-303-630(3) requirements, and the dangerous waste number will be clearly identified.

4I.1.4 Containment Requirements for Storing Waste

Secondary containment requirements for the waste are discussed below.

4I.1.4.1 Secondary Containment System Design

Secondary containment is required for areas in which containers hold free liquids. It is also required for areas managing wastes exhibiting the characteristics of ignitability or reactivity as defined in WAC 173-303-090(5) and (7). Container Storage Areas managing secondary waste and/or miscellaneous mixed wastes, such as the WTP Waste Storage Area, are inspected at least weekly. Inspections of container storage areas include verifying major risk labels are present and legible, that all containers are closed, and area aisle space is free of liquid and debris. Additional inspection criteria are included in the container storage inspection tables found in Chapter 6A.

Miscellaneous Mixed Waste

Miscellaneous mixed waste storage areas may contain waste requiring secondary containment. If wastes containing liquids or wastes exhibiting the characteristics of ignitability or reactivity are generated, portable secondary containment that meets the requirements of WAC 173-303-630(7) will be provided. The portable secondary containment provided will be capable of collecting and holding spills and leaks. It will have the capacity to contain ten percent of the volume of all containers or the entire volume of the largest container, whichever is greater.

Miscellaneous Dangerous Waste

The WTP Waste Storage Area may contain waste requiring secondary containment. If wastes containing liquids or wastes exhibiting the characteristics of ignitability or reactivity are generated, portable secondary containment that meets the requirements of WAC 173-303-630(7) will be provided. The portable secondary containment provided will be capable of collecting and holding spills and leaks. It will have the capacity to contain ten percent of the volume of all containers or the entire volume of the largest container, whichever is greater.

4I.1.4.2 System Design

There will be two miscellaneous mixed and/or dangerous waste (secondary waste) container storage areas at the BOF, as follows:

- WTP Waste Storage Area
- HLW Failed Melter Storage Facility

The HLW Failed Melter Storage Facility will be used primarily to manage HLW Melters that have completed their useful service life. These units will be received in carbon steel overpack containers allowing limited hands-on contact. These overpacks will not be opened while the waste melters are located in this storage facility. The facility is capable of storing up to three waste melters at any given time. The spent HLW Melters will not be stacked.

The HLW Failed Melter Storage Facility may also receive containerized miscellaneous mixed waste, if needed. These waste containers will be sealed prior to transport to the HLW Failed Melter Storage Facility. The containers will not be opened while at this storage facility. The waste containers will not be stacked more than two containers high. The HLW Failed Melter Storage Facility will be a stand-alone building located in the southern portion of the WTP.

Waste containing liquid may be present in the WTP Waste Storage Area. Containers with liquids will be provided with portable secondary containment meeting the requirements of WAC 173-303-630(7).

4I.1.4.3 Structural Integrity of the Base

The storage areas will be constructed to support storage and transportation of containers within the container storage areas and will be designed with the following:

- Containment system capable of collecting and holding spills and leaks.
- Base will be free of cracks and gaps and sufficiently impervious to contain leaks.
- Positive drainage control.
- Sufficient containment volume.
- Sloped to drain or remove liquid, as necessary.

4I.1.4.4 Containment System Capacity

Miscellaneous Mixed Waste

Each container holding liquid dangerous waste will be placed into portable secondary containment that meets the requirements of WAC 173-303-630(7). The waste container will function as the primary containment while the portable containment device will function as the secondary containment.

Each portable secondary containment will have the capacity to contain 10% of the volume of all containers within the containment area, or the volume of the largest container, whichever is greater.

Miscellaneous Dangerous Waste

Waste containing liquid may be present in the WTP Waste Storage Area. Each container holding liquid nonradioactive dangerous waste will be placed into portable secondary containment. The waste container will function as the primary containment while the portable secondary containment device will function as the secondary containment.

Each portable secondary containment will have the capacity to contain 10% of the volume of all containers within the containment area, or the volume of the largest container, whichever is greater. Typically, the waste containers will be steel drums.

4I.1.4.5 Control of Run-On

The WTP Waste Storage Area will be designed with positive drainage control and sloped to drain or remove liquid, as necessary. Containers managed in these areas containing liquid will be placed in portable secondary containment systems meeting requirements of WAC 173-303-630(7). Portable secondary containment system materials will be compatible with all waste stored. The Waste Storage Area is not designed nor intended to provide secondary containment; therefore, no structural integrity assessment is required.

4I.1.4.6 Removal of Liquids from Containment System

Miscellaneous Mixed Waste

Portable secondary containment devices will be provided for individual containers that contain liquids. Hand pumps or similar devices will be used to remove liquid released to the portable secondary containments.

Miscellaneous Dangerous Waste

Portable secondary containment devices will be provided for individual containers that contain liquids. Hand pumps or similar devices will be used to remove liquid released to the portable secondary containments.

4I.1.4.7 Demonstration that Containment is not Required because Containers do not Contain Free Liquids, Wastes that Exhibit Ignitability or Reactivity, or Wastes Designated F020-023, F026 or F027

Miscellaneous Mixed Waste

Secondary containment will be provided for individual containers that manage liquids. Wastes with the F020-F023, F026, and F027 numbers are not identified for the double shell tank (DST) system. Therefore, these waste numbers will not be present at the BOF.

Miscellaneous Dangerous Waste

The WTP Waste Storage Area may manage liquids and D001 and D003 waste; therefore, secondary containment will be provided. Wastes with the F020-F023, F026, and F027 numbers are not identified for the DST system. Therefore, these waste numbers will not be present at the BOF.

4I.1.5 Prevention of Reaction of Ignitable, Reactive, and Incompatible Wastes in Containers

Potentially incompatible wastes are not expected to be managed in the BOF container storage areas. If such wastes are managed in these areas, the containers of incompatible wastes or chemicals will not be stored in close proximity to each other. Acids and bases will be stored on separate portable secondary containment devices; oxidizers will be stored in areas separate from combustible materials; and corrosive chemicals will be stored on a separate portable secondary containment devices. These separate storage areas within the unit will be clearly marked with signs indicating the appropriate waste to be stored in each area. Potentially incompatible waste will be stored at least one aisle width apart.

4I.2 Plant Service Air (PSA) / Instrument Service Air Systems

The BOF Plant Service Air (PSA) system will provide a continuous supply of clean, dry air for the process systems in the pretreatment facility, Lab, LAW vitrification facility, EMF, and HLW vitrification facility. Each facility will maintain a reservoir of PSA to accommodate load fluctuations and distributes the compressed air to the designated end users. The air distributed from the BOF PSA system to each facility is the source of the PSA and the Instrument Service Air (ISA) within each facility.

The PSA system components will consist of compressors, dryers, air receiver vessels, distribution piping, pressure control stations, air amplifiers, valves, vents, drains, utility racks, filters, and monitoring instruments.

The ISA system is a distribution piping network that will reduce and control downstream air pressure and supplies compressed air to designated equipment, instruments, and other end users located throughout the facility. It will maintain a reservoir of compressed air received from the BOF PSA system, and in doing so, dampen pressure fluctuations caused by variations in the supplied airflow or in end-user demands. In addition, the Pretreatment facility and LAW vitrification facility are designed to use ISA stored air as a short-term supply of backup air in the event that services from the BOF PSA are interrupted.

The air supplied by PSA and ISA systems within each facility supports operation of tanks and miscellaneous unit systems, instruments and ancillary equipment.

4I.3 Plant Cooling Water System (PCW)

The BOF Plant Cooling Water (PCW) system will provide a continuous supply of cooling water to selected plant equipment for heat removal. The BOF PCW will receive potable make-up water from the Domestic Water System (DOW) at the cooling tower. A backup source will be provided from the Raw Water System (RWW). The PCW system will supply cooling water to the chiller /compressor plant, steam plant and process areas. The system will remove heat from active process equipment and cooling coils in process buildings and conducts this heat to the atmosphere or local environment through evaporation at the cooling tower. In the Pretreatment facility, the PCW is used in the waste Feed Evaporation Process (FEP), Treated LAW Evaporation Process (TLP), Cesium Nitric Acid Recovery Process (CNP), and Pretreatment Vessel Vent Process (PVP) systems.

Cooling water for the HLW vitrification facility supports the HLW Melter Feed Process (HFP), HLW Melter Process (HMP), HLW Melter Offgas Treatment system (HOP), and melter power supplies. For the LAW vitrification facility, the major user is the LAW Melter Process system (LMP), pour cave cooling panels, and LAW melter power supplies.

The BOF PCW system will include, but is not limited to, the cooling tower, cooling tower basin, the primary cooling water circulation pumps, filter pumps, chemical injection tanks, and associated piping. The cooling water system is designed with primary and secondary loops to remain uncontaminated by mixed waste constituents. The primary loop circulates cooling waste through heat exchangers within the HLW vitrification facility, LAW vitrification facility, and Pretreatment facility and through equipment in the BOF chiller compressor plant. The system also provides cooling water to quench the steam plant blow down. The HLW vitrification facility, LAW vitrification facility, and Pretreatment facility will also have closed secondary loops that distribute cooling water to process equipment. Cooling water will be chemically treated to promote system operability and service life of 40 years.

4I.4 Low-Pressure Steam System (LPS)

The Low-Pressure Steam system (LPS) will provide a continuous supply of low-pressure steam for various users in the pretreatment facility, Lab, LAW vitrification facility, EMF, and HLW vitrification facility. The process facilities main use of steam will be for tank heating for the evaporation process, and for HVAC heating coils.

The LPS will be supplied from the high-pressure steam system through pressure-reducing stations. The low pressure applications will consist of air handling units, humidifiers, and booster heaters. The steam condensate and feed system will collect condensate from the low-pressure steam users, monitor for mixed waste contamination, and return it to the steam plant for re-use.

4I.5 High-Pressure Steam System (HPS)

The High-Pressure Steam system (HPS) will provide a continuous supply of high-pressure steam to the Pretreatment facility, Lab, LAW vitrification facility, EMF, and HLW vitrification facility. The high pressure saturated steam is generated in the BOF steam plant facility, which consists of six fire tube boiler packages (five continuously operating at peak conditions, and one in standby), and associated supporting equipment. The HPS distributes steam through above ground piping to process equipment, ejectors for transfer of fluids, and hot water heaters in the Pretreatment Facility, Lab, LAW Vitrification Facility, EMF, and HLW Vitrification Facility.

4I.6 Demineralized Water System (DIW)

The Demineralized Water system (DIW) will treat process service water, and produce, store, and distribute the treated water through an underground piping distribution system to users in BOF, Pretreatment facility, Lab, LAW vitrification facility, EMF, and HLW vitrification facility. Demineralized water will be produced in the BOF water treatment building by pumping process service water through a series of cartridge filters and reverse osmosis units. The treated water will be stored in the BOF demineralized storage tank. Demineralized water will be pumped from the storage tank through an ultraviolet sterilization system to decontaminate biological organisms then sent through a final cartridge filter before it is fed into the distribution system.

Demineralized water will primarily be used for boiler makeup, chemical reagent makeup, equipment decontamination, process pipeline flushes, sampling pipeline flushes, vessel and bulge rinses, pump priming, Wet Electrostatic Precipitator misting, and instrumentation rinses.

4I.7 Process Service Water System (PSW)

The Process Service Water system (PSW) will provide filtered water for operations and maintenance purposes. The water will be stored and distributed to the Pretreatment facility, LAW vitrification facility, EMF, HLW vitrification facility, and Lab. The system will consist of two storage tanks, filters, pumps, and distribution piping and supply filtered water to end users for various systems, such as offgas treatment, plant wash, and make-up to chilled water. The PSW will receive water directly from the Hanford site potable DOW. Equipment for the PSW is located in the water treatment building, except for the tanks, which are located outside.

4I.8 Chilled Water (CHW) System

The Chilled Water (CHW) system will supply chilled water to selected equipment in the HLW vitrification facility, EMF, Lab, LAW vitrification facility, and Pretreatment facility. The CHW system will consist of chillers, fixed-speed distribution pumps, adjustable-speed drive booster pumps, an expansion vessel, a chemical feed vessel, an air separator, piping, valves, in-line components, instruments, and controls.

Each of these facilities will be equipped with a secondary CHW loop that draws from the primary distribution. The HLW vitrification facility, Lab, EMF, and LAW vitrification facility secondary loops will supply water to air handling units, fan coil units, in-bleed cooling coils, and breathing service air system compressors. Both the LAW vitrification facility and Pretreatment facility secondary loops will supply water to heat exchangers used by the process cooling loops.

The chilled water system is designed to remain uncontaminated by mixed waste constituents. The process cooling loops are closed loops systems and do not share circulating water with the secondary or primary loops. The process cooling loops in the LAW vitrification facility and Pretreatment facility are used for cooling both process vessel cooling coils and process vessel cooling jackets. Secondary chilled water returns from the HLW vitrification facility, Lab, LAW vitrification facility, EMF, and Pretreatment facility and cascades through the PSA dryer coolers before it is cooled and once again returns to the end users.

The CHW system primary and secondary loops, as well as the LAW and PTF CHW process cooling loops, will receive corrosion inhibitors and pH adjustment chemicals, as needed, to limit deterioration of the materials that are in contact with the cooling medium and the fouling of heat transfer surfaces.

4I.9 Glass Former Reagent (GFR) System

The Glass Former Reagent system (GFR) will provide glass former reagents and sucrose to the LAW Vitrification Facility and HLW Vitrification Facility. The system will also provide silica to the LAW Container Finishing Handling system (LFH) for inert void fill for Immobilized LAW containers. Sucrose may also be mixed with the glass formers and added to the radioactive waste to enhance melter performance. The GFR system is comprised of the equipment needed to receive, store, blend, and transport glass formers to the LAW Vitrification Facility and HLW Vitrification Facility. The GFR system includes the glass former handling equipment in BOF, the glass former mixers located in HLW vitrification facility and LAW vitrification facility and the inert fill hoppers in the LAW facility vitrification facility. The LAW vitrification facility and HLW vitrification facility portions of the GFR system are described in WTP DWP Permit Sections 4E.2.1 and 4F.2.1, respectively.

4I.10 Cathodic Protection System

An impressed current cathodic protection system will be used for eliminating or mitigating corrosion on interplant underground piping as well as the interior surfaces and bottoms of most field erected tanks. The cathodic protection system will maintain a negative polarized potential between the protected pipe or tank and a saturated copper/copper sulfide reference electrode. The impressed current cathodic protection system will use direct current provided by a rectifier that is powered from the plant's normal 480 volts alternating current power system. The direct current from the rectifier will be connected across the buried anode wire and the protected pipe or tank bottom. The current flows from the anode wire, which is positive, through the electrolyte, to the protected surface, which is negative, and back to the rectifier completing the electrical circuit.

BOF non-dangerous/mixed waste containing pipelines and equipment that will be cathodically protected include:

- Plant service air main headers.
- Diesel fuel oil pipelines (between the diesel fuel oil tank and the steam plant facility).
- Anhydrous ammonia reagent pipeline.
- PSA-integral transportation system compressed air pipeline.
- Metallic piping and fittings that are within the zone of influence of the cathodic protection system.

BOF non-dangerous/mixed waste field erected tanks that are cathodically protected include:

- Fuel oil tank.
- Domestic water tank.
- Demineralized water tank.
- Process service water feed tank.
- Process service water supply tank.
- Non-rad effluent tank.
- Fire water tanks.

Additionally, various underground waste transfer pipelines that manage mixed waste are cathodically protected. Underground mixed waste transfer pipelines within WTP that will be cathodically protected include:

- Transfer lines between the Pretreatment Facility and the HLW Vitrification Facility.
- Transfer lines between the Pretreatment Facility and the LAW Vitrification Facility.
- Transfer lines between the Analytical Laboratory and the Pretreatment Facility.

The underground waste transfer lines installed to support the DFLAW configuration are coaxial lines that are constructed of stainless steel primary pipe, with a carbon steel encasement pipe that is coated with Fusion Bonded Epoxy (FBE). The coating system and water barrier consist of the FBE, polyurethane insulation, and a jacket or thermoplastic outer water barrier made of HDPE. Cathodic protection is not needed for the underground waste transfer lines installed to support the DFLAW configuration as the pipe system is made of corrosion resistant materials, providing water resistant construction. Additional information on the cathodic protection system for the underground waste transfer lines that manage mixed waste for all facilities can be found in Chapter 4, Process Information.

Table 4I-1 BOF Container Storage Areas

Container Storage Area	Maximum Waste Volume (US Gallons) [1]	Approximate Dimensions (L × W × H, in feet) [2]
1. WTP Waste Storage Area (located on the Part A Figures)	253,440[3]	145’ × 100’ × 10’
2. HLW Failed Melter Storage Facility (located on the Part A Figures)	403,947	75’ × 45’ × 16’
3. Transportation Staging Area	18,095	136’ x 60’

[1] The conversion factor used to convert from cubic feet to gallons is 7.4805 gal/ft^3.

[2] 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).

[3.] Based on 4608 drum equivalents spaced two wide and stacked 2 high and including 30 inch aisle space, 33,880 ft^3

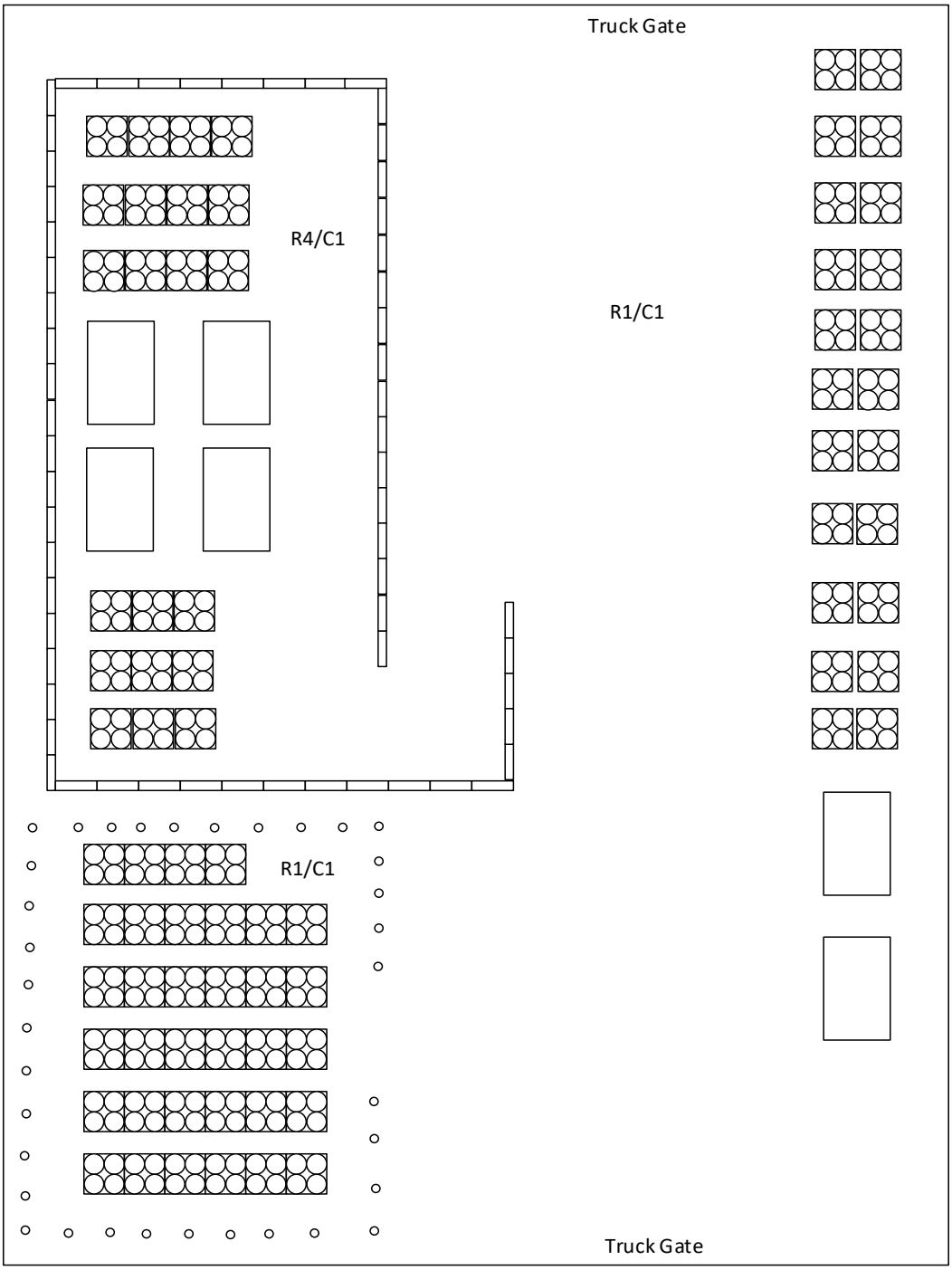

Figure 4I-1 Example of Container Configuration in Waste Management Area

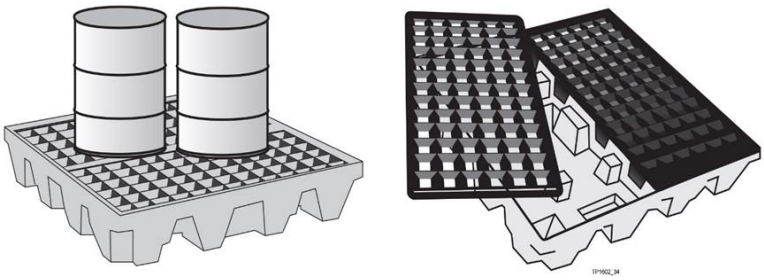

Figure 4I-2 Example of Typical Secondary Containment Pallets

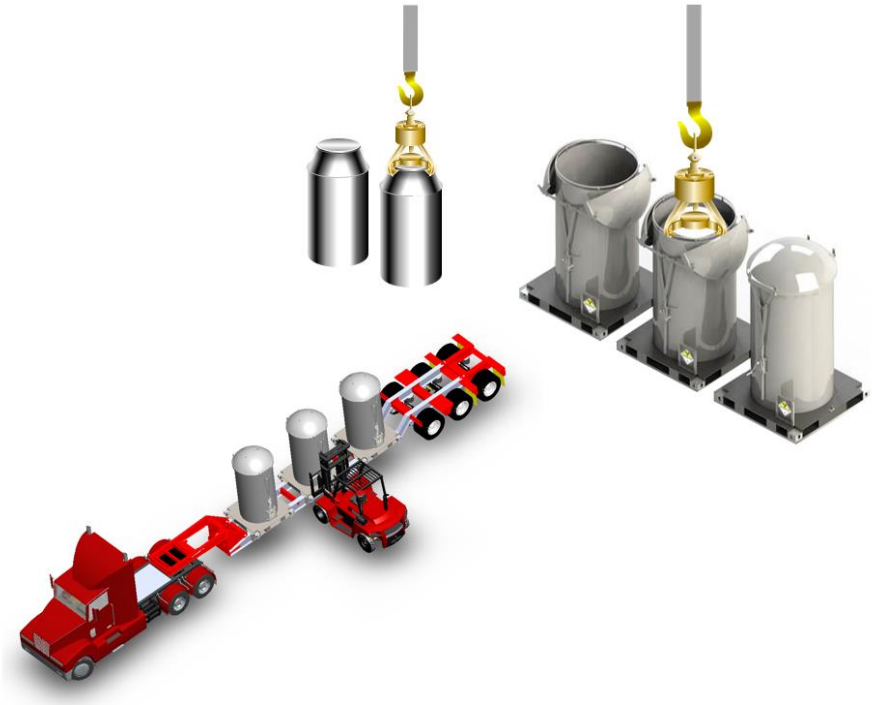

Figure 4I-3 Example of a Transporter Container Configuration

WASTE TREATMENT AND IMMOBILIZATION PLANT
APPENDIX 7.0

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

Appendices	Modification Date	Modification Number
Appendix 7.0	07/01/2019	8C.2019.2F
Appendix 7.1		
Appendix 7.2	07/06/2017	8C.2017.2F
Appendix 7.5	09/05/2017	8C.2017.6F
Appendix 7.7	07/01/2019	8C.2019.2F
Appendix 7.9	09/05/2017	8C.2017.6F
Appendix 7.11		
Appendix 7.12	07/06/2017	8C.2017.2F
Appendix 7.13		
Appendix 7.15	10/01/2018	24590-WTP-PCN-ENV-18-003 (8C.2018.Q4)

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OPERATING UNIT GROUP 10
APPENDIX 7.0

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OPERATING UNIT GROUP 10
APPENDIX 7.0

Where information regarding treatment, management, and disposal of the radioactive source, byproduct material, and/or special nuclear components of mixed waste (as defined by the Atomic Energy Act of 1954, as amended) 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 (RCW). 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.

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DRAWINGS AND DOCUMENTS
OPERATING UNIT GROUP 10 – APPENDIX 7.7
WTP DOCUMENTS APPLICABLE TO ALL AREAS
SPECIFICATIONS

The documents listed in the following table are incorporated by reference into this permit and are subject to the requirements set forth in Part I Standard Conditions, Part II General Facility Conditions, and Part III Operating Unit Group 10 Conditions. Upon request, copies of the documents can be viewed at the Nuclear Waste Program Resource Center located at 3100 Port of Benton Blvd., Richland, WA. Appointments for viewing can be scheduled by calling (509) 372-7950.

Drawing/Document Number	Description
24590-WTP-3PN-MVB2-00010, Rev 0	Specification Change Notice for Stiffening and Stabilizing the openings of Access Opening Repair Vessels
24590-WTP-3PN-MVB2-00011, Rev 0	Specification Change Notice for the Cutting Method for Access Opening
24590-WTP-3PS-AFPS-T0006, Rev 3	Engineering Specification for Field Applied Special Protective Coatings for Secondary Containment Areas
24590-WTP-3PS-DB01-T0001, Rev. 8	Engineering Specification for Furnishing and Delivering Ready-Mix Concrete
24590-WTP-3PS-G000-T0002, Rev 8	Engineering Specification for Positive Material Identification (PMI) for Shop Fabrication
24590-WTP-3PS-HD00-T0001, Rev 4	Engineering Specification for Maintenance Decontamination Equipment
24590-WTP-3PS-M000-TP001, Rev 0	Engineering Specification for Air Displacement Slurry Pumps
24590-WTP-3PS-MACS-T0004, Rev 6	Engineering Specification for Single Stage High Pressure Integrity Centrifugal Fans and Blowers (AG-1)
24590-WTP-3PS-MACS-T0005, Rev 0	Engineering Specification for High Integrity Centrifugal Blowers – Multi-Stage
24590-WTP-3PS-MCE0-TP002, Rev 2	Engineering Specification for Process Ejector /Eductor
24590-WTP-3PS-MEP0-T0001, Rev 0	Engineering Specification for Plate and Frame Heat Exchangers
24590-WTP-3PN-M000-00037	Specification Change Notice – Add Note, Contents of this Document are Dangerous Waste Permit Affecting
24590-WTP-3PN-MEP0-00001, Rev 0	Specification Change Notice – Engineering Specification for Plate and Frame Heat Exchangers
24590-WTP-SDDR-MS-10-00144	Supplier Deviation Disposition Request - Plate Thickness for HOP-HX-00002/4

24590-WTP-SDDR-MS-11-00308	Supplier Deviation Disposition Request - Lifting Lug Deviation for HOP-HX-00002 & HOP-HX-00004
24590-WTP-3PS-MES0-TP001, Rev 1	Engineering Specification for Shell and Tube Heat Exchanger
24590-WTP-3PS-MKE0-T0001, Rev 5	Engineering Specification for Wet Electrostatic Precipitators
24590-WTP-3PS-MKH0-T0002, Rev 4	Engineering Specification for Nuclear Grade High Efficiency Particulate Air (HEPA) Filters
24590-WTP-3PS-MPC0-T0002, Rev 3	Engineering Specification for General Centrifugal Pumps to Meet Requirements of ASME B73.1M-2001 and ASME B73.2M-2003 for Commercial (CM) Components
24590-WTP-3PS-MPC0-T0003, Rev 2	Engineering Specification for Sealless Centrifugal Pumps to Meet Requirements of API Standard 685,1st Ed, Quality Level Q
24590-WTP-3PS-MPC0-T0009, Rev 2	Engineering Specification for Vessel-Mounted Vertical Transfer Pumps – WTP HLW Facility
24590-WTP-3PS-MPPD-T0001, Rev 3	Engineering Specification for Air-Operated Diaphragm Pumps
24590-WTP-3PS-MPVS-TP001, Rev 1	Engineering Specification for Submersible Centrifugal Sump Pumps
24590-WTP-3PS-MTF5-T0001, Rev 0	Engineering Specification for Field-Erected Tanks Design and Fabrication
24590-WTP-3PS-MV00-T0001, Rev 4	Engineering Specification for Pressure Vessel Design and Fabrication
24590-WTP-3PS-MV00-T0002, Rev 3	Engineering Specification for Seismic Qualification Criteria for Pressure Vessels
24590-WTP-3PS-MV00-T0003, Rev 3	Engineering Specification for Pressure Vessel Fatigue Analysis
24590-WTP-3PS-MVB2-T0002, Rev. 1	Engineering Specification for Alteration and Repair of On Site Stamped ASME Code Vessels and Boilers for Subcontract
24590-WTP-3PS-MWK0-T0001, Rev 5	Engineering Specification for Activated Carbon Bed Adsorbers
24590-WTP-SDDR-MS-11-00169 (CCN 233566)	Flatness and Distortion Tolerances, LAW CBA Housings
24590-WTP-SDDR-MS-11-00173 (CCN 233566)	Use of Coated Crane Rail in Place of Hot Dipped Galvanized
24590-QL-MRA-MWK0-00001-T0009 (CCN 233572)	Carbon Bed Adsorber Engineering Specification Sample Port Clarification
24590-WTP-SDDR-MS-11-00187 (CCN 233573)	ASME Section VIII Reinforcing PAD Tell-Tale Holes
24590-WTP-SDDR-MS-11-00199 (CCN 233571)	LAW Carbon Bed Adsorber Process Piping Deviation; Welded Pipe

24590-WTP-SDDR-MS-11-00230 (CCN 233571)	LAW Carbon Bed Adsorber Use of Later Edition of ASTM Standards Referenced by ASME B31.3-1996
24590-WTP-SDDR-MS-11-00245 (CCN 233572)	LAW Carbon Bed Adsorber Standards Latest Issue at Time of Award Deviation
24590-WTP-3PS-MX00-T0001, Rev 6	Engineering Specification for Process Bulge Design and Fabrication
24590-WTP-3PS-PS02-T0001, Rev 10	Engineering Specification for Shop Fabrication of Piping
24590-WTP-3PS-PS02-T0003, Rev 9	Engineering Specification for Field Fabrication and Installation of Piping
24590-WTP-3PS-PX04-TP001, Rev 1	Engineering Specification for Shop Applied Fusion Bonded Epoxy Coating for Underground Carbon Steel Pipe
24590-WTP-3PN-PX04-00016	Specification Change Notice – Addition of UV Resistant Cover Requirements for UV Protection of FBE Coated Carbon Steel Piping for Storage
RESERVED	RESERVED

Source documents (which do not include a "P" in the last set of numbers, e.g. "-P0001," or "-TP001") should be used in conjunction with any document change notices issued against them.

We are currently transitioning from permit documents (which include a "P" in the last set of numbers) to source documents. At the end of the transition period, permit submittals will contain source documents and will be incorporated into the permit as described in Ecology Publication #07-05-006.

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R10767011

ISSUED BY
RPP-WTP PDC

RIVER PROTECTION PROJECT – WASTE TREATMENT PLANT

ENGINEERING SPECIFICATION

FOR

Furnishing and Delivering Ready-Mix Concrete

Content applicable to ALARA? ☐ Yes ☒ No

ADR No. **Rev**

Quality Level
Q
DOE Contract No. DE-AC27-01RV14136

REV	DATE	BY	CHECK	REVIEW	E&NS	QA	DPEM
8	3-26-07	A. T. Mai ATM	R. Giller RGL	A. Palmquist	D. J. Lord DJLord	for M. Enlinger	M. Braccia
7	10/12/04	A. V. Dausman	N. L. Kyle	L. Benson	N/A	D. MacPherson for G. Warner	M. Braccia
6	06/04/03	N. L. Kyle	Nathaniel Jackson	Pete LaBarta	N/A	Gary Nickolaus for G. Warner	B. Bitner for DTS
5	02/10/03	G. Kasel	R. Abbasi	N/A	N/A	G. Warner	D. Scribner
4	09/04/02	G. Kasel	M. Braccia	N/A	N/A	G. Warner	S. Foelber
3	07/31/02	G. Kasel	M. Braccia	N/A	N/A	G. Warner	S. Foelber
2	07/09/02	G. Kasel	M. Braccia	N/A	N/A	G. Warner	D. Scribner for S. Foelber
1	12/04/01	S. Horn	M. Axup	N/A	N/A	G. Warner	D. Scribner for S. Foelber
0	9/12/01	S. Horn	M. Axup	N/A	N/A	N/A	N/A

SPECIFICATION No. 24590-WTP-3PS-DB01-T0001 **Rev** 8

Revision History

Revision	Reason for Revision
0	Issued for Construction
1	Issued for Construction
2	Revisions as noted. Incorp. 24590-WTP-FCR-C-01-015, 24590-WTP-FCR-C-02-019, -044, -058, -060, and -070. Delete Appendix A.
3	Revising Section 3.1.9
4	Revising to reflect FCR 24590-WTP-FCR-C-02-043, -052, and -056, which were incorporated in Revision 2, but not identified.
5	Revised sections as noted by revisions bars. Inncorp. 24590-WTP-FCR-C-02-076, 24590-WTP-FCR-C-02-150, and 24590-WTP-FCN-C-02-001.
6	Revised Appendix B and other sections as noted by revision bars. Added Section 1.6 to incorporate Design Changes by Reference. 24590-WTP-FCR-C-01-0125 listed in Rev 2 had a typo which has been corrected to show 24590-WTP-FCR-C-01-015. 24590-WTP-FCR-C-02-069 was incorporated in Rev 2 but not identified until now. 24590-WTP-FCR-C-02-076 was incorporated in Rev 2 but not identified until Rev 5.
7	Incorporated 24590-WTP-3PN-DB01-00001, 24590-WTP-FCR-C-03-264, 24590-WTP-FCR-C-03-265, 24590-WTP-FCR-C-03-381, 24590-WTP-FCR-C-04-0333, 24590-WTP-FCR-C-04-0437, and 24590-WTP-FCR-C-04-0524. Incorporated by reference 24590-WTP-NCR-CON-03-042, 24590-WTP-NCR-CON-03-152, and 24590-WTP-CDR-CON-04-0085. 24590-WTP-FCR-C-03-153 was incorporated in Rev 5 but not identified until now. Editorial correction in Section 3.1.4.
8	Incorporated 24590-WTP-3PN-DB01-00002, 24590-WTP-3PN-DB01-00003, 24590-WTP-3PN-DB01-00004, 24590-WTP-3PN-DB01-00005, and 24590-WTP-FCR-C-05-0061. Incorporated by reference 24590-WTP-CDR-CON-04-0102, 24590-WTP-CDR-CON-05-0123, 24590-WTP-CDR-CON-06-0033, 24590-WTP-CDR-CON-06-0216, 24590-WTP-NCR-CON-04-0129, 24590-WTP-NCR-CON-04-0306, 24590-WTP-NCR-CON-04-0332, 24590-WTP-NCR-CON-05-0278, 24590-WTP-NCR-CON-05-0288, 24590-WTP-NCR-CON-05-0336, and 24590-WTP-NCR-CON-06-0043. Editorial changes as noted by revision bars.

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Appendices

Appendix A Applicable Quality Program Requirements – Deleted A-1
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1 General

1.1 Scope

This Specification delineates the technical requirements for furnishing and delivering Portland cement concrete and flowable fill, including Portland cement, supplementary cementitious materials, water, admixtures, aggregates, mixture designs, batching and mixing facilities, and transport units. The requirements of this Specification meet the Q requirements for the Waste Treatment and Immobilization Plant (WTP).

Where no quality level is identified in the design document, Commercial Material (CM) designation requirements shall be applied. The following modifications shall be made to this Specification when used for CM concrete:

- Section 1.3.2 – ACI 349 shall be replaced with ACI 318.
- Section 1.5, Quality Requirements – Not applicable.
- Paragraph 2.1.2 – Certified Material Test Reports are not required. A Certificate of Conformance shall be provided for cement.
- Paragraph 2.2.3 – Certified Material Test Reports are not required. A Certificate of Conformance shall be provided for fly ash and aggregates.
- Paragraph 3.1.1 – In lieu of this method, historical data on existing mix designs from the batch plant may be used to demonstrate compliance with the strength requirements of this Specification. Mix must be submitted for engineering approval.
- Paragraph 3.1.2 – Develop the proposed mixture designs to produce cohesive, workable concrete from suitable experience record, in accordance with ACI 318.
- CM materials, if used, shall be segregated from quality level (Q) materials.

1.2 Related Work Specified Elsewhere

1.2.1 In-process sampling and testing of concrete ingredients, concrete, and grout-Specification 24590-BOF-3PS-C000-T0001, Material Testing Services.

1.2.2 Specification 24590-WTP-3PS-DG00-T0001, Furnishing of Reinforcing Steel

1.2.3 Control density fill for use as general and structural fill – Specification 24590-BOF-3PS-CE01-T0001, Excavation and Backfill.

1.2.4 Specification 24590-WTP-3PS-D000-T0001, Concrete Work

1.3 Referenced Codes and Standards

1.3.1 For the codes and standards listed below and identified with an asterisk, the specific revision or effective date identified, as well as the specific revision or effective date of codes and standards that they incorporate by reference (daughter codes and standards) shall be followed. For standards with multiple dates, any of the listed dates are acceptable.

1.3.2 American Concrete Institute (ACI)

117-90 *Standard Specifications for Tolerances of Concrete Construction and Materials.*

304R-00 *Guide for Measuring, Mixing, Transporting, and Placing Concrete (2000)*

305R-99 *Hot Weather Concreting*

306R-88 *Cold Weather Concreting*

*318-99 *Building Code Requirements for Reinforced Concrete*

*349-01 Code Requirements for Nuclear Safety Related Concrete Structures

1.3.3 American Society for Testing and Materials (ASTM)

*C 31-00 *Standard Practice for Making and Curing Concrete Test in the Field*

*C 33-01 *Standard Specification for Concrete Aggregates*

*C 39-01 *Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens*

*C 94-00 *Standard Specification for Ready-Mixed Concrete*

*C 109-99 *Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens)*

C 136-96a *Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates*

C 138-01 *Standard Test Method for Unit Weight, Yield, and Content (Gravimetric) of Concrete AASHTO No.: T121R*

C 143-00 *Standard Test Method for Slump of Hydraulic Cement Concrete*

*C 150-99, -04a$^{\epsilon 1}$ *Standard Specification for Portland Cement*

*C 172-99 *Standard Practice for Sampling Freshly Mixed Concrete*

*C 260-00 *Standard Specification for Air-Entraining Admixtures for Concrete*

C 295-98 *Standard Guide for Petrographic Examination of Aggregates for Concrete*

*C 494-99a *Standard Specification for Chemical Admixtures for Concrete*

*C 618-00 *Standard Specification for Fly Ash and Raw or Calcinated Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete*

C 666-97 *Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing*

*C 1017-98 *Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete*

C 1064-01 Standard Test Method for Temperature of Freshly Mixed Portland Cement Concrete

*C 1218-99 *Standard Test Method for Water-Soluble Chloride in Mortar and Concrete*

D 75-97 *Standard Practice for Sampling Aggregates*

D 4832-02 *Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders*

D 5971-01 *Standard Practice for Sampling Freshly Mixed Controlled Low Strength Material*

D 4791-99 *Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate*

1.3.4 National Ready-Mixed Concrete Association (NRMCA)

Checklist for Ready-Mixed Concrete Production Facilities — **7th Revision, April 1999; 8th Revision, October 2002; 9th Revision, January 2006**

1.3.5 U. S. Army Corps of Engineers (CRD)

C-61-89, -89A *Test Method for Determining Resistance of Freshly Mixed Concrete to Washing Out in Water*

1.3.6 American National Standards Institute (ANSI)

N45.2.5-78 *Supplemental Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete, Structural Steel, Soils, and Foundations During the Construction Phase of Nuclear Power Plants.*

1.4 Submittals

Conform to the submittal requirements delineated in this Specification.

1.5 Quality Standards

A Quality Assurance (QA) program that meets the applicable requirements identified in the Supplier QA Data Sheets as specified in the Material Requisition. The QA program shall be submitted to the Contractor for review and approval prior to commencement of any work.

1.6 Design Change Incorporated by Reference

The following table is a listing of Change Documents that were incorporated by reference and do not require modification of the Specification.

Change Document Incorporated by Reference	Description
24590-WTP-FCR-C-02-050	Applicability of ACI 207 to site concrete.
24590-WTP-NCR-CON-02-004	Batch plant testing and temperature tests not performed per procedure.
24590-WTP-NCR-CON-02-064	Concrete slump. BOF thrust block concrete batched and placed with low slump.
24590-WTP-NCR-CON-02-071	10cy of concrete exceeded cement content batching tolerance.
24590-WTP-NCR-CON-02-091	Concrete compressive strength sample for thrust blocks.
24590-WTP-NCR-CON-02-092	Mat foundation concrete pour number LAW-0001.
24590-WTP-NCR-CON-02-114	Concrete slump. LAW-0002A concrete batched and placed with low slump.
24590-WTP-NCR-CON-02-116	Concrete sample taken at the wrong location for air entrained concrete.
24590-WTP-NCR-CON-02-140	BOF Duct Bank concrete batched and placed with high slump.
24590-WTP-NCR-CON-02-229	Concrete slump. HLW-005B concrete batched and placed with high slump.
24590-WTP-NCR-CON-02-249	Concrete batched and placed with sand out of tolerance.
24590-WTP-NCR-CON-03-008	Concrete batched and placed with 3/4 inch aggregate out of tolerance.
24590-WTP-NCR-CON-03-011	Concrete batched and placed with cement out of tolerance.
24590-WTP-NCR-CON-03-012	Concrete batched and placed with aggregate out of tolerance.
24590-WTP-NCR-CON-03-042	11 cy of concrete improperly batched for PT Mudmat
24590-WTP-NCR-CON-03-152	Concrete batched and placed with course and fine aggregate out of tolerance - HLW Building.
24590-WTP-CDR-CON-04-0085	9 cy CDF batched and placed with fly ash out of tolerance.
24590-WTP-CDR-CON-04-0102	3/4" aggregate failed to meet ASTM C 33 gradation
24590-WTP-CDR-CON-05-0123	No aggregate correction factor applied
24590-WTP-CDR-CON-06-0033	CDF failed to meet required compression strength
24590-WTP-CDR-CON-06-0216	Low 5000 psi concrete break for duct bank at LAW
24590-WTP-NCR-CON-04-0129	3/4" aggregate failed to meet ASTM C 33 gradation
24590-WTP-NCR-CON-04-0306	3/4" and 3/8" aggregate failed to meet ASTM C 33 gradation
24590-WTP-NCR-CON-04-0332	3/4" aggregate failed to meet ASTM C 33 gradation
24590-WTP-NCR-CON-05-0278	CDF failed to meet required compression strength @ 28-days

Change Document Incorporated by Reference (Cont.)	Description (Cont.)
24590-WTP-NCR-CON-05-0288	CDF failed to meet required compression strength @ 28-days
24590-WTP-NCR-CON-05-0336	1 1/2" and 3/8" aggregate weight failed to meet ASTM C 94 gradation
24590-WTP-NCR-CON-06-0043	CDF failed to meet required compression strength @ 28-days

2 Materials

2.1 Portland Cement

2.1.1 Conform to ASTM C 150, Type II.

2.1.2 Submit for Contractor review, a certified mill test report on chemical and physical properties for each shipment of cement used confirming compliance with this Specification monthly or as requested. These test reports shall be reviewed for compliance and signed by the Subcontractor prior to submitting to the Contractor.

2.2 Fly Ash

2.2.1 Conform to ASTM C 618, Class F, except that the loss on ignition may not exceed 5%.

2.2.2 Do not use fly ash when the loss on ignition for the lot to be used is greater than ± 2% of the value that was used when the mix was qualified.

2.2.3 Submit for Contractor review, a certified mill test report for each shipment of fly ash on chemical and physical properties confirming compliance with this Specification monthly or as requested. These test reports shall be reviewed for compliance and signed by the Subcontractor prior to submitting to the Contractor.

2.3 Aggregates

2.3.1 Conform to the chemical and physical requirements of ASTM C 33 for fine and coarse aggregates, and as specified herein.

2.3.2 Evaluate coarse and fine aggregate for potential reactivity as described in ASTM C 33. Obtain a petrographic examination of coarse aggregate in accordance with ASTM C 295. Specifically include an assessment by the petrographer of the proposed aggregates for use in Portland cement concrete. Perform all tests recommended by the petrographer required for confirming suitability of the proposed aggregate. Submit the petrographic examination report and associated test reports for Contractor approval prior to production.

2.3.3 Prior to production, submit test reports prepared by an independent laboratory that demonstrate full compliance with the chemical and physical properties specified in ASTM C33—for coarse aggregate use the acceptance criteria for severe weathering regions, Class 4S. Additionally, test coarse aggregate in accordance with ASTM D 4791 and demonstrate that the total quantity of flat and elongated pieces, at a 3:1 ratio, does not exceed 15 percent by weight. ASTM C 666 test results are required for Class O concrete mixes only, as directed in accordance with ASTM C 33. Class O mixes will only be used at the direction of the Contractor.

2.3.4 Deleted

2.4 Water

Use water and ice conforming to ASTM C 94.

2.5 Admixtures

2.5.1 For air entraining admixtures, conform to ASTM C 260.

2.5.2 For water reducing admixtures, conform to ASTM C 494, Type A, or D.

2.5.3 For high range water reducing (HRWA) admixtures, conform to ASTM C 494, Type F or G or ASTM C 1017, Type I or II.

2.5.4 For set-retarding admixtures, conform to ASTM C 494, Type B.

2.5.5 Submit manufacturer's certification for each admixture that assures conformance to the specified standard and that the admixture does not contain chlorides except those that may be contained in the water used during manufacture.

2.5.6 Supply with initial lot shipment and prior to use in construction, manufacturer's certification that the admixture supplied is essentially identical in concentration, composition, and performance to the admixtures tested in accordance with specified standards. Documentation shall include test results confirming physical and performance properties of the lot. Furnish an infrared spectrum trace of the conformance test sample with the initial shipment in compliance with ANSI N45.2.5.

2.5.7 Viscosity Modifying Admixture (VMA) shall be Masterbuilders Product Rheomac VMA 358 by Degussa Construction Chemicals or Engineer approved equal.

3 Execution

3.1.1 Submit the proposed mixture designs for Contractor approval. Determine the mixture proportions to meet the strength requirements in Table 1 and the slump requirements in Table 2 of this Specification. Identify the sources of cementitious materials and aggregates and the types and brands of admixtures.

3.1.2 Develop the proposed mixture designs to produce cohesive, workable concrete in accordance with ACI 349 requirements by the trial batch data method. Qualification by the historical data method is acceptable provided that the data base is obtained from mixtures used on the project and there has been no change to the source of cementitious materials and aggregates.

3.1.3 Air-entrain mixtures when noted in Table 1 of this Specification, use an air-entraining admixture that meets ASTM C 260 requirements. Meet the total air requirements in ASTM C 94 for severe exposure based on the nominal maximum aggregate size used in the mixture.

3.1.4 Mixtures identified in Table 1 as requiring fly ash, proportion the mixture such that 20 to 25 percent of the total cementitious material (by weight) is fly ash. For low-heat concrete mixtures, proportion the mixture such that 25 to 35 percent of the total cementitious material (by weight) is fly ash.

3.1.5 Include, as part of the proposed mixture design, the dry weights of cementitious materials, saturated surface dry weights of fine and coarse aggregates, and quantity of admixtures and water per cubic yard of concrete for each class of concrete specified herein.

3.1.6 Include, as part of each proposed mixture design, a copy of the material test report for the cementitious materials and aggregates, and certificates of compliance for the admixtures.

3.1.7 Use a water reducing or high-range water reducing admixture, as appropriate, in accordance with the admixture manufacturer's recommendations to attain the slumps delineated in Table 2.

3.1.8 Strength is the required 28-day compressive strength determined in accordance with ASTM C 39 or ASTM C 109, as appropriate. Samples of concrete for concrete testing shall be obtained at the point of discharge from the transport vehicle.

3.1.9 Provide concrete with a maximum temperature of 70 degrees F or less for sections over 3 feet in the least dimensions and 90 degrees F or less for sections 3 feet or less, when measured at the discharge point of the conveying vehicle in accordance with ASTM C 1064. No concrete shall be delivered or placed with a temperature in excess of 90 degrees F at the point of discharge. This Section applies to slabs, mats and walls of permanent structures.

3.1.9.1 If it is determined by Construction that concrete can not be placed below the maximum limit of 70 degrees F at the point of discharge, provisions stated in Section 3.13.7 of Specification 24590-WTP-3PS-D000-T0001, Concrete Work apply.

3.1.9.2 When columns, beams, or pilasters are encountered integral within a particular section, the larger element(s) (by volume) shall determine the maximum temperature permitted in accordance with Section 3.1.9.

3.1.10 All mixtures delineated in Table 1 may be proportioned to retard as desired. Separate strength qualification data for the set retarded mix is not required provided the set retarding admixture is from the same manufacturer as the admixtures used for strength qualification and the admixture supplier certifies that the product will not adversely affect the strength of the mix at 28 days. Submit the data for set retarding admixture to the Contractor.

3.1.11 The Sub-contractor may propose aggregate sizes different than those shown in Table 1 that better utilize local production or facilitate concrete placement. Contractor approval is required prior to use.

3.1.12 After obtaining Contractor approval of the proposed mixture design and all ingredients of Q concrete, demonstrate that the proposed mixtures developed by the trial batch method will possess suitable cohesion and workability and meet the air content and slump requirements of this Specification by performing verification testing of the mixture using the actual production facilities approved for the work and the same ingredients used for the trial batches. This demonstration may be conducted concurrent with CM construction activities. At this time, minor adjustments to the ingredient quantities used for the trial batches may be made to produce cohesive, workable concrete that meets the performance requirements of this Specification, provided that the water/cementitious material determined by the trial batch testing ratio is not increased. Submit the results of the verification testing to the Contractor. Include ambient and mixture temperature, slump, air content if applicable, and the actual ingredient quantities.

3.1.13 Obtain Contractor approval of the verified mixture designs and all ingredients prior to use. Once approved, do not change the source of any ingredient without prior Contractor approval. If a change in the ingredient sources is subsequently proposed, requalification of the mixture design will be required unless otherwise approved by the Contractor.

3.1.14 Routine adjustments in ingredient quantities necessitated by variation in aggregate gradation and particle shape are acceptable without prior Contractor approval if required to maintain cohesive, workable mixtures provided that:

a) the Contractor is advised in writing of the situation (either in advance based on production experience or as soon as possible after such variations are identified);
b) a description of the variations and the adjustments is provided to the Contractor;
c) the variation in fineness modulus meets ASTM C 33 requirements;
d) the coarse aggregate gradation is maintained within ASTM C 33 requirements for the particular size;
e) the water / cementitious materials ratio defined in the Contractor approved mixture designs is not increased.

3.1.15 Develop and submit mix designs for controlled density fill (CDF) for general trench backfill and structural fill. The use of CDFs are summarized in Table 1, 24590-BOF-3PS-CE01-T0001, Excavation and Backfill. The use of fly ash as a major constituent is acceptable. The maximum allowable aggregate size shall be 1/2 inch. Mixtures using non-standard materials such as crushed or recycled concrete and poorly graded fine aggregate are acceptable. Proportion the mixture such that it will easily flow without segregation and with minimal consolidation and/or bleeding. Use of admixtures for limiting strength gain is acceptable.

3.1.15.1 CDF shall be proportioned to meet the design requirements identified in Table 3. Initial Contractor approval shall be based on the 28 day strength while final approval shall be based on both the 28 day and 90 day strength requirements. Initial approval is required prior to material use. However, verification of the long-term strength may be concluded after initial placement(s); final mix design shall be modified for future placements as

required after the 90 day strength results are determined. CDF sampling and compressive strength testing shall be in accordance with ASTM D 5971 and ASTM D 4832 respectively.

3.1.15.2 After obtaining Contractor approval of the initial CDF mix designs, demonstrate that the proposed mixtures developed by the trial batch method will possess suitable flow consistency without segregation and flow with minimal consolidation and/or bleeding. Submit the results of the verification testing to the Contractor for approval; include flow consistency results, ambient and mixture temperature, and actual ingredient quantities.

3.1.16 Refer to Appendix B for mix design and test requirements for high-workability (HW) concrete mixtures. HW class concrete mixtures will be used only at the direction of Contractor.

3.1.17 Demonstrate that the total water-soluble chloride content of the concrete mixtures listed in Table 1 (except Classes "L" and "G") is no more than 0.15 % by weight of the portland cement in the mixture. If insufficient data is available for the chloride content of the individual ingredients, or if this data indicates that the chloride content criteria is exceeded, test specimens of hardened concrete at ages of 28 to 42 days in accordance with ASTM C 1218. Results shall be submitted to the contractor prior to use.

Table 1 - Concrete Classification

Mix Class	Min. Compressive Strength (psi @ 28 days)	Fly Ash	Entrained Air, plus or minus 1.5%	Maximum Water/Cementitious Material Ratio by Weight	Minimum Cementitious Material Content	Maximum Nominal Aggregate Size	Slump Class (Table 2)
"Lean" Mixes — Non-Structural: Intended for miscellaneous applications such as mud mats							
L-1	2000	Yes	No	—	—	3/4"	1
General Purpose Mixtures - Structural: Pumpable Mixtures; Routine Ambient Placement Conditions; No Freeze/Thaw Concerns.							
F-3 (S-2)	4000	Yes	No	0.45	—	3/8"	2, 3
F-4 (S-4)	4000	Yes	No	0. 45	—	1-1/2"	2, 3
F-5 (S-5)	4000	Yes	No	0.45	—	3/4"	2, 3
F-6 (S-6)	5000	Yes	No	0.45	—	3/8"	2, 3
F-7 (S-7)	5000	Yes	No	0.45	—	3/4"	2, 3, 7
F-8 (S-8)	5000	Yes	No	0.45	—	1-1/2"	2, 3
F-9	6000	Yes	No	0.38	600 lbs/yd	3/8"	7
F-10	6000	Yes	No	0.38	600 lbs/yd	3/4"	7
Note: ( ) Identifies previous "S" mix classes reclassifed into their respective "F" mixture class							
Low-Heat Mixture – Structural: Intended for Mass Placements; Pumpable Mixture; No Freeze/Thaw Concerns.							
LH-1	4000	Yes	No	0.45	---	1-1/2"	2, 3
General Purpose Mixtures — Structural: Pumpable Mixtures; Routine Ambient Placement Conditions; Freeze/Thaw Concerns							
O-2	4000	Yes	Yes, 7.5%	0.45	—	3/8"	2, 3
O-5	4000	Yes	Yes, 6.0%	0.45	—	3/4"	2, 3
High-Workability Mixtures — Structural: Pumpable Mixture; Flowing Concrete for Highly Congested Areas; No Freeze/Thaw Concerns – See Appendix B							
HW-1	5000	Yes	No	0.40	600 lbs/yd	3/4"	5, 6
HW-2	5000	Yes	No	0.40	600 lbs/yd	3/8"	5, 6
Grout for General Use							
G-1	4000	No	No	—	—	Sand	4

Table 2 - Slump Class

Slump Class	Required Slump	Comments
1	2 in. minimum, 6 in. maximum	Lean Mix
2	4 in. (+/- 1 in. See ACI 117, Section 2.5.1)	Conventional Concrete Mix (no HRWA)
3	8 in. maximum with HRWA (+0 in./-2.5 in. See ACI 117 Section 2.5.1)	After Charging with HRWA
4	No Requirement	—
5	—	See Appendix B, U-Box Rank 1
6	—	See Appendix B, U-Box Rank 2
7	8" minimum - 11 inch maximum, with HRWA and VMA	This slump class may only be used with prior approval from the Engineer. VMA must be minimum 1 ounce per 100 weight of cementitious material; maximum not to exceed manufacturer's recommendation. Slump must be measurable in accordance with ASTM C143. The average outside diameter, of two perpendicular measurements, of the slump sample shall not exceed 26 inches.

Table 3 – Controlled Density Fill Classification

CDF Mix Class	Description Of Use	Compressive Strength (psi @ 28 days)	Max. Compressive Strength (psi @ 90 days)	Flow Consistency ASTM D 6103 (in.)	Unit Weight ASTM D 6023 (pcf)
CDF-B	General Backfill	50 – 200	300	6 – 10	115 - 145

3.2 Manufacture

3.2.1 Obtain Contractor approval of the batching facilities and mixing and transportation units prior to production.

3.2.2 Submit uniformity test results on the stationary mixer in accordance with ASTM C 94 prior to production. Establish the minimum mixing duration necessary for producing uniform concrete. Assure that this minimum duration is met for all concrete subsequently produced. Maintain the mixer such that the results of the uniformity test and the minimum mixing duration established remain valid.

3.2.3 Conform to ASTM C 94 for the batching plant, mixers, and agitators. Meet NRMCA check list certification requirements for batching, mixing, and transporting facilities and equipment. Submit a copy of current batch plant and mixer(s) NRMCA Check List Certification.

3.2.4 Assure that all scales and meters have been calibrated within 6 months prior to production. Calibrate within NRMCA Certification. Submit calibration records to the Contractor.

3.2.5 Equip the batching facility with a device that automatically records the date, mixture designation, aggregate moistures, time of batching, and actual quantity and identity of all ingredients as weighed or measured that comprise the batch. The "batch recorder" should be an integral part of the batching facility and should not rely on manual entries. Provide a copy of this record with each delivery along with the batch ticket as described in ASTM C 94 to the Contractor. Batch ticket shall indicate the maximum amount of water that may be added at the point of placement without exceeding the water / cement ratio.

3.2.6 Monitor and record the moisture content of fine and coarse aggregates. Adjust the quantity of mix water and aggregate based on the aggregate moistures so that the total quantity of water in the batch does not exceed the quantity specified in the approved mixture design.

3.2.7 Measure and mix materials in accordance with ASTM C 94.

3.2.7.1 For CDF mixtures, the quantity of cement shall be not less than the required amount nor more than 4% in excess. Where the quantity of fly ash exceeds 30% of the full capacity of the scale, the cumulative quantity of cement plus fly ash shall be within ±1.0% of the required mass. For smaller batches, the cumulative quantity of cement plus fly ash shall be not less than the required amount nor more than 4% in excess. The sequence of measuring cementitious materials shall be that best suited to the specific batch plant.

3.2.8 Comply with ACI 305R during hot weather. If ice is employed for cooling, adjust the quantity of mix water so that the quantity of free water in the batch does not exceed the quantity specified in the approved mixture design.

3.2.9 Comply with ACI 306R and this Specification for all cold weather concreting operations.

3.2.10 Suitably equip the batching/mixing facility such that concrete may be produced at the specified rates and temperatures in accordance with this Specification when the air temperature is as low as minus (-) 10 °F.

3.2.11 Assure that a consistent, regulated supply of heated mix water is available. Mixing water should be available at a consistent, regulated temperature, and in sufficient quantity to avoid appreciable fluctuations in temperature of the concrete from batch to batch. Water with a temperature greater than 140 °F will be permitted provided that the charging sequence is such that flash set and lumping of cement is precluded.

3.2.12 Do not exceed the minimum "as-placed" temperature by more than 20 °F when cold weather conditions exist. Meet the concrete temperature requirements listed in Table 4.

Table 4 - Required Concrete Temperature During Cold Weather

Section Size, Minimum Dimension, In.	≤12	12 – 36	36 – 72	>72
Air Temperature	Minimum Concrete Temperature "As-Mixed" For Indicated Air Temperature			
Above 30 °F	60 °F	55 °F	50 °F	45 °F
0 to 30 °F	65 °F	60 °F	55 °F	50 °F
Below 0 °F	70 °F	65 °F	60 °F	55 °F
Minimum Concrete Temperature "As-Placed"				
—	55 °F	50 °F	45 °F	40 °F

3.2.13 If necessary, increase the "as-mixed" temperature of the fresh concrete during production such that the minimum "as-placed" temperature requirement is maintained for up to one hour after batching is complete.

3.2.14 Provide a system to pre-heat aggregates such that the aggregates are free of frozen lumps and are sufficiently warm to assure conformance with Table 4 requirements. Do not allow spot temperatures in heated aggregate storage to exceed 212 °F and assure the average aggregate temperature is not greater than 150 °F when the aggregates are added to the batch. Construct and operate the system such that over-saturated and over-dried aggregates are avoided.

3.2.15 Admixtures shall be stored such that they are not subject to freezing.

3.2.16 Prior to production of concrete in cold weather, submit for Contractor approval a complete description of the proposed cold weather facilities and comprehensive set of procedures that will be followed when cold weather conditions (as defined in ACI 306R) prevail. This description shall be submitted to the Contractor for review in a timely manner to ensure approval prior to placement of concrete in cold weather.

3.3 Inspection and Testing

3.3.1 Measure and record aggregate moistures at least once per shift during production. Increase the frequency of this measurement whenever conditions change that may affect the aggregate moisture. Submit copies of these records to the Contractor monthly or as requested.

3.3.2 Unless otherwise approved, check aggregate gradation in accordance with ASTM C 136 each shift during production. Obtain samples in accordance with ASTM D 75. Verify that the fineness modulus of the fine aggregate meets ASTM C 33 requirements based on the original mixture design requirements. Record all aggregate gradation tests results and submit them to the Contractor monthly or as requested.

3.3.3 All ingredients will be subject to inspection by the Contractor. Cooperate with the Contractor or his representative by providing or assuring reasonable access for making necessary checks of production facilities and for obtaining samples from batch plant, batch plant storage or at the Subcontractor's source of supply.

3.3.4 Strength will be evaluated in accordance with ASTM C 94 and submitted to the Contractor.

3.3.5 Concrete will be tested (by Contractor's independent testing agency) for verification of ambient air temperature, mix temperature, slump, air, unit weight and strength cylinders from mix samples taken at point of discharge in accordance with this Specification.

3.3.6 Tests of the concrete shall be performed at the point of truck discharge unless air entrained concrete is used. If air entrained concrete is used, the test must be taken at the point of placement. If correlation tests between samples taken at the point of truck discharge and point of placement have been performed, and the test correlation provides conclusive results as determined by Engineering, the samples for air entrained pumped concrete may be taken at the truck discharge.

3.4 Delivery

3.4.1 Transport and deliver concrete in accordance with ASTM C 94 and ACI 304R.

3.4.2 Obtain Contractor approval for on-site discharge of concrete and wash water at predetermined locations.

Appendix A
Applicable Quality Program Requirements – Deleted

Appendix B
Requirements of High-Workability concrete Mixtures

1 Scope

This Appendix describes the technical requirements for proportioning, verifying, and testing "high-workability" concrete that are not addressed in the main body of the Specification. High-workability concrete mixtures have the following characteristics:

1. Relatively high cementitious materials content with a relatively low water-cementitious ratio;
2. Has a flowing consistency such that conventional field testing by a slump cone is not possible;
3. Relies on superplasticizing and anti-washout admixtures;
4. Resists segregation when highly fluid;
5. Spreads readily and requires minimal vibration and consolidation when placed.

2 Ingredient Requirements

2.1 Technical requirements for cementitious materials (portland cement and fly ash), aggregates (coarse and fine), and water are as described in the Specification.

2.2 Admixtures used to obtain high-workability concrete must meet the following requirements:

1. Superplasticizing admixtures per ASTM C 1017 or ASTM C 494, Type F.
2. Anti-washout admixture (also termed a "viscosity enhancer") such that

- there is at least a 50 percent reduction in the cumulative mass loss after three cycles of test in accordance with CRD C-61, and
- the set-time is not increased more than 90 minutes
- when compared to test results performed on same mixture that does not contain the admixture.

3 Methods of Test

3.1 Slump Flow — this test is a measure of the plastic consistency of high-workability concrete.

3.1.1 Perform the slump flow test in the following manner:

1. Sample the concrete mixture in accordance with ASTM C 172.
2. Use a slump cone that meets ASTM C 143 requirements.
3. Dampen the cone and place it on a flat, moist, non-absorbent surface that has a minimum radius of 20 inches.

4. Position the mold in the center of the surface. Hold it firmly in-place by standing on the two foot pieces.
5. Immediately fill the mold in one lift. Do not rod.
6. Heap the concrete above the mold and strike off using the rod in a screeding/rolling motion.
7. Immediately after screeding, carefully raise the mold in a single, vertical action in 5 ± 2 seconds. Do not apply any lateral or torsional motion when raising the mold.
8. Complete the entire test—from start of filling to removal of the mold—without interruption in 2-½ minutes or less.
9. Wait for the flow to stop and measure the largest diameter of the resulting "patty" of concrete. Re-measure the diameter of the patty at a right angle to the first measured diameter.
10. Record the "slump flow" as the average of the two measure diameters to the nearest ¼ inch.
11. Visually inspect the concrete mixture after flow for the distribution of coarse aggregate, particularly along the patty's perimeter.
12. Record the stability of the concrete mixture using the static stability visual rating chart given in Table B-1.

3.1.2 Meet the following acceptance criteria:

1. Measured Slump Flow — 26 to 32 inches (average of the two perpendicular measurements).
2. Visual Inspection — conform to a visual inspection stability rating of 0 or 1 as identified in Table B-1.

Table B-1 Visual Rating of Static Stability

Rating	Criteria
0	No evidence of segregation in slump flow spread or in mixer drum or wheelbarrow.
1	No mortar halo or aggregate pile in the slump flow spread but some slight bleed or air popping on the surface of the concrete in the mixer drum or wheelbarrow.
2	A light mortar halo (<3/8") and/or aggregate pile in the slump flow spread and highly noticeable bleeding in the mixer drum and wheelbarrow.
3	Clearly segregating by evidence of a large mortar halo (>3/8") and/or a large aggregate pile in the center of the concrete spread and a thick layer of paste on the surface of the resting concrete in the mixer drum or wheelbarrow.

3.2 STABILITY TEST – this test is a measure of the mixture's resistance to segregation.

3.2.1 Perform the Stability Test in the following manner:

1. Sample the concrete mixture in accordance with ASTM C 172.
2. Fill a 1-cubic foot measure that meets ASTM C 138 requirements in one lift (do not rod). Strike-off the top of the measure as described in ASTM C 138.
3. On a solid flooring, lift the filled 1-cubic foot measure vertically 2 inches and allow to free fall to the floor. Repeat the dropping procedure for a total of 5 drops.

4. Fill a ¼-cubic foot measure with concrete carefully taken from the top of the 1-cubic foot measure after the drops. Screed the ¼-cubic foot measure as described in ASTM C 138. Determine the "coarse aggregate content" (percent) in this sample in accordance with ASTM C 94, Annex A-1 (Concrete Uniformity Requirements).
5. Remove and discard the next ¼-cubic foot of concrete from the 1-cubic foot measure.
6. Repeat the process for the next ¼-cubic foot of concrete as previously described to determine the coarse aggregate content.

3.2.2 The difference in the coarse aggregate content between the two samples must not vary by more than 6 percent.

3.3 COMPACTIBILITY TEST – this test is a measure of the mixture's ability to self-consolidate.

3.3.1 Perform the Compactibility Test in the following manner:
1. Sample the concrete in accordance with ASTM C 172.
2. Determine unit weight in accordance with ASTM C 138. This result is termed the "control".
3. From the same sample, again determine the unit weight in accordance with ASTM C 138 except that this time fill the measure in one lift (do not rod).
4. Calculate compactibility as:

$$\% \text{ Compactibility} = \frac{\text{Unit Weight of Compaction Sample}}{\text{Unit Weight of Control Sample}} \times 100$$

3.3.2 Compactibility is considered acceptable if it is 95% (minimum).

3.4 "U" BOX TEST – this test is a measure of the mixture's ability to flow around embedded items.

3.4.1 Perform the "U" Box Test in the following manner:

1. Sample the concrete in accordance with ASTM C 172.
2. Insert the appropriate barrier (R1, R2) and position the shutter gate to prevent concrete flowing from one compartment to the other.
   - R1 – Rank 1 Five No. 3 reinforcement bars.
   - R2 – Rank 2 Three No. 4 reinforcement bars.
3. The testing apparatus shall be firmly placed on a level and non-vibrating surface.
4. Wipe the inside of the apparatus, shutter gate and barrier with a damp cloth.
5. Fill compartment "A" with concrete in one continuous lift. Remove excess concrete and strike-off the surface by means of screeding with a straight edge.
6. Let concrete stand for one minute.
7. Open the shutter gate in a single movement.
8. Measure the distance from the top of the apparatus (compartment "B") to the top of the concrete on three sides of the apparatus. Measure to the nearest 1/4".
9. The filling height shall be the height of the apparatus less the average of the three distance measurements taken above in step 8.

3.4.2 The mixture's ability to flow is considered satisfactory if the filling height is at least 11" for the respective ranking class.

3.5 Compressive Strength Test

All aspects of compressive strength testing of high-workability mixtures (sampling, testing, acceptance criteria, frequency) is the same as for conventional concrete except that when the cylindrical strength specimens are made in accordance with ASTM C 31, the mixture should be placed in the cylinder mold in one lift and not rodded.

3.6 Frequency of Testing

1. Slump Flow – when the mix is qualified and then at same frequency as slump test for conventional concrete during production.
2. Stability – when the mix is qualified.
3. Compactibility – when the mix is qualified and then at the same frequency as slump test for conventional concrete during production.
4. "U" Box Test – when the mix is qualified.
5. Compressive Strength Test – when the mix is qualified and then at same frequency as slump test for conventional concrete during production.